Course Change Request

New Course Proposal

Date Submitted: 09/05/17 2:33 pm

Viewing: BMEN 642 : Mass and Energy Transfer in Biosystems

Last edit: 10/08/17 2:53 pm
Changes proposed by: mlyons

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maria Lyons</td>
<td><a href="mailto:mlyons@tamu.edu">mlyons@tamu.edu</a></td>
<td>9798452312</td>
</tr>
</tbody>
</table>

Course prefix  BMEN  Course number  642
Department  Biomedical Engineering
College/School  College of Engineering
Academic Level  Graduate
Academic Level (alternate)  Undergraduate
Effective term  2018-2019
Complete Course Title  Mass and Energy Transfer in Biosystems
Abbreviated Course Title  MASS ENERGY TRANSFER BIOS
Catalog course description
Understanding the transport phenomena associated with physiological systems and their interaction with medical devices; exchange processes in artificial life support systems and diagnostic equipment.

Prerequisites and Restrictions
Graduate classification or approval of instructor.

Concurrent Enrollment  No
Should catalog prerequisites / concurrent enrollment be enforced?
No

Crosslistings  No  Crosslisted With

Stacked  Yes  Stacked with
BMEN 452 - Mass and Energy Transfer in Biosystems

Semester  Credit Hour(s)  Contact Hour(s) (per week):  Lecture: Total 3  Lab: 0  Other: 0
Repeatable for credit?  No
Three-peat?  No
CIP/Fund Code  1405010006
Default Grade Mode  Letter Grade(G)

In Workflow
1. BMEN Department Head
2. Curricular Services Review
3. EN Committee Preparer GR
4. EN Committee Chair GR
5. EN College Dean GR
6. GC Preparer
7. GC Chair
8. Faculty Senate Preparer
9. Provost II
10. President
11. Curricular Services
12. Banner

Approval Path
1. 10/06/17 4:48 pm
   Michael McShane (mcsbrane): Approved for BMEN Department Head
2. 10/08/17 2:55 pm
   Sandra Williams (sandra-williams): Approved for Curricular Services Review
3. 10/24/17 4:35 pm
   Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR
4. 11/08/17 9:37 am
   Prasad Enjeti (enjeti): Approved for EN Committee Chair GR
5. 11/13/17 1:11 pm
   Prasad Enjeti (enjeti): Approved for EN College Dean GR
6. 11/22/17 8:48 am
   LaRhesa Johnson (lrjohnson): Approved for GC Preparer
7. 12/11/17 1:41 pm
   LaRhesa Johnson (lrjohnson): Approved for GC Chair
Alternate Grade Modes
Satisfactory/Unsatisfactory

Method of instruction
Lecture

Will sections of this course be taught as non-traditional? [i.e., parts of term, distance education]

Will this course be taught as a distance education course?
No

Is 100% of this course going to be taught in Texas?
Yes

Will classroom space be needed for this course?
Yes

This will be a required course or an elective course for the following programs:

Required (select program)

Elective (select program)

<table>
<thead>
<tr>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(MEN-BMEN) Master of Engineering in Biomedical Engineering</td>
</tr>
<tr>
<td>(MS-BMEN) Master of Science in Biomedical Engineering</td>
</tr>
<tr>
<td>(PHD-BMEN) Doctor of Philosophy in Biomedical Engineering</td>
</tr>
</tbody>
</table>

Course Syllabus

Syllabus:
Upload syllabus

Upload syllabus
201831_BMEN 642 Syllabus.doc

Letters of support or other documentation
No

Additional information

Reviewer Comments
Sandra Williams (sandra-williams) (07/14/17 7:40 am): Rollback: Under Grading Policies, "689" is listed instead of the proposed new course. Also, prerequisites for graduate course should be listed to reflect what is listed on form.
Sandra Williams (sandra-williams) (07/25/17 10:33 am): Rollback: Please include attendance/late-work policy and link to student rule 7. My apologies for not catching that earlier.
Sandra Williams (sandra-williams) (10/08/17 2:55 pm): Update received.

Reported to state?
Add
Course title and number: BMEN 452/642 Mass and Energy Transport in Biosystems
Term: Fall 2018
Meeting times and location: TR 12:45-2:00 in ETB 1034

Instructor Information

Name: Dr. Corey Bishop
Telephone number: 979.458.3126
Email address: cbishop@tamu.edu
Office hours: Mondays 9-10 am or by appointment only (if this time does not work for you, please e-mail me and we can schedule a time that will work for both of us)
Office location: ETB 5016

Course Description and Prerequisites

This course is designed to deeply understand transport phenomena within a quantitative and biological context. Quantitative analyses will be performed on single and multi-dimensional steady state and transient problems involving momentum, energy, and mass.

BMEN 452 Prerequisites: BMEN 341, MATH 308
BMEN 642 Prerequisites: Graduate classification or approval of instructor

Learning Outcomes or Course Objectives

Upon successful completion of this course, you the student will:
1. Demonstrate knowledge through phenomenological descriptions of the basic principles of transport.
2. Demonstrate knowledge through the effective use of fundamental equations that describe the basic principles of transport.
3. Apply knowledge of transport phenomena to engineering problems in the biological and chemical industries.
4. Relate knowledge of transport phenomena to (e.g. transport through the vasculature).

ABET Learning Outcomes Addressed: a, e, g, i, j, k

Textbook and/or Resource Material


Grading Policies

Grading Scale
The final grade for the course will be determined as follows:

<table>
<thead>
<tr>
<th>EVALUATIONS</th>
<th>Course 452</th>
<th>Course 452 (Honors)</th>
<th>Course 642</th>
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<tbody>
<tr>
<td>Homework (due on quiz days)</td>
<td>11.111%</td>
<td>10.000%</td>
<td>10.000%</td>
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<tr>
<td>7 Quizzes</td>
<td>44.444%</td>
<td>40.000%</td>
<td>40.000%</td>
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<tr>
<td>3 Exams (Final is cumulative)</td>
<td>44.444%</td>
<td>40.000%</td>
<td>40.000%</td>
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<tr>
<td>Paper (30 hours)</td>
<td>0.000%</td>
<td>10.000%</td>
<td>10.000%</td>
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<tr>
<td>Class Evaluation</td>
<td>0.500% Extra Credit</td>
<td>0.500% Extra Credit</td>
<td>0.500% Extra Credit</td>
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<tr>
<td>TOTAL</td>
<td>100.000%</td>
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Standard Letter Grading Scale*:
A = 90-100%
B = 80-89%
C = 70-79%
D = 60-69%
P = <60%
*The grading will be curved.

Attendance Policy
The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line at [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07). Late work submitted without meeting the requirements of Student Rule 7 will not be accepted.

Course Topics, Calendar of Activities, Major Assignment Dates
1) Introduction to transport processes within biological systems (chapter 1)
2) Mass transport in biological systems (chapter 6)
3) Diffusion with convection or electric potentials (chapter 7)
4) Transport in porous media (chapter 8)
5) Transvascular transport (chapter 9)
6) Mass transport and biochemical interactions (chapter 10)
7) Drug transport in solid tumors (chapter 15)

Schedule – Subject to Change
Week 1:
Aug. 29 – Chapter 1 (HW: all problems at the back of the chapter except for problem 1.6); Chapter 1 Keywords: Cell limits, Fick’s, Flux, Analogous forms of flux and a differential, Stokes-Einstein, Diffusivity of matter, Nanoparticle tracking analysis, Dynamic light scattering, Peclet, Reynolds’, Biot #, RMS, geometric mean, kinematic viscosity, Hill, MMK.

Aug. 31 – Chapter 1 and begin Chapter 6; HW: Replicate diffusion problem as discussed in class (similar to lecture slide); Problems at the back of the chapter: 6.1, 6.2, 6.3, 6.4, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12. Chapter 6 keywords: types of flux, justification for dilute solutions, different interface concentrations/flux/boundary conditions, Henry’s law, partition coefficient, total flux, different Ds at different Ts, kronecker, Fick’s 2nd law, PDE solving process,
double integrals, easy method to solve many differential equations (based on in-class problem), drag force, friction coefficient, erf, Wilkie-Chang

Week 2:
Sept. 5 – Chapter 1 problems

Sept. 7 – 50 min. quiz on Chapter 1; Integration factor

Week 3:
Sept. 12 – Chapter 6
Sept. 14 – Chapter 7; HW: Problems 7.16, 7.17, 7.18; keywords: Fick’s 2nd + convection + electropotential diffusion, derivative of density with respect to time, rectangular equations for conservation of mass, Peclet #, solving for Ci for Fick’s 2nd with convection, Laplace equation, and purpose of Laplace Transformation, current density and a differential of electropotential with respect to space, membrane voltage and thickness, Debye length, ZP, Stern, Sherwood #, mass transfer coefficient, polarization ratio.

Week 4:
Sept. 19 – Chapter 7
Sept. 21 – Chapter 6 problems

Week 5:
Sept. 26 – 50 min. quiz on Chapter 6; continue Chapter 7
Sept. 28 – Chapter 7 problems

Week 6:
Oct. 3 – 50 min. quiz on Chapter 7; highlights of what was missed on quizzes (including Chapter 7 based on previous year).

Oct. 5 – Exam 1: covering Chapters 1, 6, 7

Week 7:
Oct. 10 – Chapter 8; HW: show steps for obtaining equation 8.3.37 from 8.3.36; example 8.7; keywords: porosity, partition coefficient; Deff in porous media, Deff in hydrogels, flux equation in liquid-filled pores, lambda, Darcy’s law, representative elementary volume

Oct. 12 – Devoted for study time (no class)

Week 8:
Oct. 17 – Chapter 9; HW: Problems 9.2, 9.4; Keywords: Starling’s law, modified Starling’s law, KK equation, Patlak’s equation, apparent permeability coefficient equation, charge and permeability, diffusion through phospholipid bilayer membrane, vesicle transport across endothelium
Oct. 19 – Finish Chapter 9; Chapters 8&9 problems

Week 9:
Oct. 24 – 25 min. quiz on Chapter 8. Begin Chapter 10; HW Problems: 10.5, 10.7, 10.8, 10.16; Keywords: Reaction stoichiometry, rates of reactions, degradation half-life, overfitting, Laplace transformation, eigenvalues, eigenvectors, matrix diagonalization, MatLab examples according to slides, PCA, pharmacokinetics, pharmacodynamics.

Oct. 26 – 25 min. quiz on Chapter 9. Continue Chapter 10

Week 10:
Oct. 31 – Chapter 10

Nov. 2 – Chapter 10 and Pharmacokinetics

Week 11:
Nov. 7 – PCA

Nov. 9 – Chapter 10 problems

Week 12:
Nov. 14 – Quiz covering content since previous quiz (whole class period).

Nov. 16 – Exam 2 covering Chapters 10, PK, PCA (whole class period; Chapter 15 stems from Chapters 8 and 9 and thus will be incorporated into Chapter 15)

Week 13:
Nov. 21 – Chapter 15; HW Problems: 15.1, 15.2, 15.3, 15.7a, 15.8, 15.9, 15.10; Keywords: EPR effect, NIR, Avastin vs Lucentis, cancer immunotherapies and anti-vascular therapeutics, Δφ, k (permeability), K (hydraulic conductivity), K=f([GAG]), φB=∇eVf and Darcy’s Law and Fick’s 2nd law Lp and K, glomerular filtration, first pass effect, DNA half-life, pro-drug and metabolite in regards to hepatic clearance, stress/strain tensors and Lame constants, volume dilatation, variable substitution and homogeneous/particular solutions for a PDE, a², normalized velocity/dimensionless pressure vs normalized radius, KK and Patlak equations, Peclet=f(φB)

Nov. 23 – Thanksgiving Holiday

Week 14:
Nov. 28 – Chapter 15
Nov. 30 – Chapter 15

Week 15:
Dec. 5 – Chapter 15 problems
Dec. 7 – Reading Day (no class)

Week 16:
December 13: Exam 3 covering Chapter 15 (and cumulative) (8 am-10 am; Rm: TBD)

Other Pertinent Course Information

Reading Assignments – All pertinent chapters are required reading.

Class Notes – The students are responsible for all material discussed in class.

Lectures – Each lecture will emphasize key concepts from the pertinent chapters.

ICPS – In class problem solving: In class, we will deeply discuss and solve problems in the back of each pertinent chapter.

Posted Lecture Slides – All slides posted (even if not covered in class) are potential quiz or exam material.

Homework – Homework problems will be collected on the day of the respective quizzes and graded. All work must be shown; numerical answers must have appropriate units). Students will be held responsible for all problems covered in class or at the end of all pertinent chapters within the required Truskey textbook (unless otherwise indicated in class).

Quizzes - Quizzes will cover the previous chapters and are designed differently than exams by the length of time per problem. For example, the quizzes will be conceptually-based (most of the time) and generally not require much time per problem if the concepts are well understood.

Exams – Exams will cover all information up to that particular exam. Anything I cover in lecture is potentially testable.

Final Exam – Cumulative.

Research Paper: Each honors and graduate student will prepare and submit a research paper. The research paper is to be based upon a personally conducted literature review and on a mathematical model or simulation conducted in MatLab, COMSOL Multiphysics (or Excel), or some combination of the foregoing. All topics must be pre-approved by Dr. Bishop. The research paper must emphasize a critical review of a biotransport engineering topic. The emphasis of the critical review must be on a critical assessment of the approaches and findings of the contributions of the reviewed topic. It is not enough to outline the author’s or your approach or to summarize the author’s or your findings. Rather, your research paper must display critical insight into the approaches used, opportunities missed and findings gleaned from the reviewed work. These critical reviews may be guided by questions such as:

- How would you have approached this body of work?
- What are the limitations of theory that may be applied to the work?
- What did you learn with the new suggested modifications?

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional
information, visit http://disability.tamu.edu.

Academic Integrity

For additional information please visit: http://aggiehonor.tamu.edu

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
Course Change Request

New Course Proposal

Date Submitted: 11/17/17 7:48 am

Viewing: **CSCE 702 : Law and Policy in Cybersecurity**
Also Known As: CYBR 602

Last edit: 11/17/17 9:18 am
Changes proposed by: smilingsheila

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheila Dotson</td>
<td><a href="mailto:dotson@tamu.edu">dotson@tamu.edu</a></td>
<td>979-845-6176</td>
</tr>
<tr>
<td>Daniel Ragsdale</td>
<td><a href="mailto:rags@tamu.edu">rags@tamu.edu</a></td>
<td>979-845-7398</td>
</tr>
</tbody>
</table>

Course prefix: CSCE  
Course number: 702

Department: Computer Science & Engineering
College/School: College of Engineering
Academic Level: Graduate

Effective term: 2018-2019

Complete Course Title: Law and Policy in Cybersecurity
Abbreviated Course Title: LAW & POLICY IN CYBERSECURITY

Catalog course description:
Law and policy issues related to cybersecurity including procurement, operations, maintenance, governance, oversight, protection, defense; analyze law, policies, and regulations domestically and globally.

Prerequisites and Restrictions:
Graduate classification.

Concurrent Enrollment: No

Should catalog prerequisites / concurrent enrollment be enforced?
No

Crosslistings:
CYBR 602
Yes
Crosslisted With

Stacked: Yes
Stacked with

Semester: 3  
Credit Hour(s): 3 (per week): 3
Contact Hour(s): Total 3
Lecture: 3
Lab: 0
Other: 0

Repeatable for credit?: No
Three-peat?: No
CIP/Fund Code: 1110030006

In Workflow
1. CSCE Department Head
2. CLEN Department Head
3. Curricular Services Review
4. EN Committee Preparer GR
5. EN Committee Chair GR
6. EN College Dean GR
7. GC Preparer
8. GC Chair
9. Faculty Senate Preparer
10. Faculty Senate
11. Provost II
12. President
13. Curricular Services
14. Banner

Approval Path
1. 11/17/17 8:06 am Scott Schaefer (schaefer): Approved for CSCE Department Head
2. 11/17/17 8:28 am Tim Jacobs (tjacobs): Approved for CLEN Department Head
3. 11/17/17 9:20 am Sandra Williams (sandra-williams): Approved for Curricular Services Review
4. 11/17/17 5:10 pm Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR
5. 11/22/17 8:23 am Prasad Enjeti (enjeti): Approved for EN Committee Chair GR
6. 11/22/17 8:26 am Prasad Enjeti (enjeti): Approved for EN College Dean GR
7. 11/22/17 8:49 am LaRhesa Johnson (ljohnson): Approved for GC Preparer
8. 12/14/17 10:55 am LaRhesa Johnson (ljohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve/
Default Grade Mode Letter Grade (G)
Alternate Grade Modes Satisfactory/Unsatisfactory
Method of instruction Lecture
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) No
Will this course be taught as a distance education course? No
Is 100% of this course going to be taught in Texas? Yes
Will classroom space be needed for this course? Yes

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Required (select program)</th>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(MEN-ENGR) Master of Engineering in Engineering</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Elective (select program)</th>
<th>Program(s)</th>
</tr>
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<tbody>
<tr>
<td>(MS-CPSC) Master of Science in Computer Science</td>
<td></td>
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<tr>
<td>(CERT-CYBE) Certificate in Cybersecurity Engineering</td>
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<tr>
<td>(CERT-CYBP) Certificate in Cybersecurity Policy</td>
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</tbody>
</table>

**Course Syllabus**

Syllabus: Upload syllabus
Upload syllabus [csce702-rags.doc](csce702-rags.doc)

Letters of support or other documentation: No
Additional information: Sandra Williams [sandra-williams] [11/17/17 7:46 am]: Rollback: As requested.
Sandra Williams [sandra-williams] [11/17/17 9:20 am]: Syllabus has wrong aggie honor code website link; there is reference to stacking but not on form - is it stacked? Moving forward, however, updates may be required before reaching GC.

Reported to state: Add
Course title and number  CSCE 702/CYBR 602: Law and Policy in Cybersecurity
Term  Spring 2018
Meeting times and location  TBD

Course Description and Prerequisites

Law and Policy in Cybersecurity.  Credits 3.  (3-0).  Law and policy issues related to cybersecurity including procurement, operations, maintenance, governance, oversight, protection, defense; analyze law, policies, and regulations domestically and globally. Prerequisites: Graduate classification or approval of instructor.  Cross-listed with CYBR 602/CSCE 702

Learning Outcomes or Course Objectives

At the end of this course, the student should be able to:
  • Acquire the common body of knowledge for law and policy in cybersecurity to include terminology, concepts, and specific legal terminology related to domestic and international laws codifying cybersecurity concepts.
  • Apply legal concepts in issues related to cybersecurity including cases and controversies unique to cybersecurity. Synthesize an action plan through analyzing cybersecurity legal and policy knowledge issues.

Instructor Information

Name  Paula S. deWitte
Telephone number  979.845.7398
Email address  Paula.dewitte@tamu.edu
Office hours  TBD
Office location  TBD

Textbook and/or Resource Material

Required Textbook
Course materials will be provided to the class.

Grading Policies

The student’s semester grade will be based on lab assignments, exams, and class attendance.  Class attendance is essential for student success; therefore, students are required to promptly and regularly attend all their classes.  A record of attendance will be maintained from the first day of classes and/or the first day the student’s name appears on the roster through final examinations and will constitute the participation grade for the course. Absences may only be excused as defined by the Texas A&M University Student Rules available at http://student-rules.tamu.edu/rule07.
### Course Topics, Calendar of Activities, Major Assignment Dates

(subject to change as necessary)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Assignment Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1 – 1</td>
<td>Introduction to Course &amp; Expectations; Discussion of Semester Paper; Fundamentals and Basics of Law: Differences between engineering/legal mindset; “It depends;” Jurisdiction, Standing; Venue; Case/Controversy</td>
<td>Write a one-to-two page paper on a fundamental legal issue as being confusing/critical to cybersecurity; Due class session 2-2. 5% of course grade.</td>
</tr>
<tr>
<td>Week 1 - 2</td>
<td>Fundamentals and Basics of Law: Statute of Limitations; Evidence Standards (Civil vs Criminal); Remedies/Damages; “Reasonableness standards,” Civil contract vs Civil tort; Conflict of laws;</td>
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<tr>
<td>Week 2 – 1</td>
<td>2002 Homeland Security Act (FISMA)/NIST Standards:</td>
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<tr>
<td>Week 2- 2</td>
<td>Applying NIST Standards in a Legal Sense: Documentation and how applying good practices may cause legal risk</td>
<td>Write a one-to-two page paper on a specific NIST family of controls (pick out one or two controls) and think through any legal issues that should be considered. Due class session 3-2. 5% of course grade.</td>
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</tbody>
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### Grading Scale – CSCE 476

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Assignments (short weekly or bi-weekly papers)</td>
<td>300</td>
</tr>
<tr>
<td>Papers (semester on approved topics)</td>
<td>200</td>
</tr>
<tr>
<td>Midterm</td>
<td>200</td>
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<tr>
<td>Final Exam</td>
<td>200</td>
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<tr>
<td>Class Participation</td>
<td>100</td>
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</tbody>
</table>

### Grading Scale – CSCE 702

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
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<tbody>
<tr>
<td>Assignments (short weekly or bi-weekly papers)</td>
<td>300</td>
</tr>
<tr>
<td>Papers (semester on approved topics)</td>
<td>300</td>
</tr>
<tr>
<td>Current Events Case Study</td>
<td>200</td>
</tr>
<tr>
<td>Midterm</td>
<td>100</td>
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<tr>
<td>Final Exam</td>
<td>100</td>
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**Points Grading Scale:**

Out of 1000 assignable points

- A = 900-1000 points
- B = 800-899 points
- C = 700-799 points
- D = 600-699 points
- F = <600 points
| Week 3 – 1 | Presidential Directives related to Cybersecurity and how enforced | 702 current events case study assigned for topic formulation |
| Week 3 – 2 | Presidential Directives related to Securing Critical Infrastructure and Patriot Act | Research a legal issue related to protecting critical infrastructure from one of the SSAs and write a one-to-two page paper on summarizing that legal issue (after class discussion). Due in class session 4-2. 5% of course grade. |
| Week 4 – 1 | Regulatory Agencies (FTC, FCC, SEC, CFPB, DHS, Dept of Education and their authorities; other financial/banking regulations | 702 current events case study topics approved. |
| Week 4 - 2 | Scope and effect of Federal regulations and how enforced; the Yates Memo | Select a federal agency and spend time researching that agency’s current cybersecurity regulations (eliminating those discussed in class). Are there regulations that could be interpreted to include cybersecurity? Write a one to page paper summarizing your findings. Due class session 5-2. 5% of course grade. Semester Papers assigned. |
| Week 6 – 1 | State Laws & Data Breaches | |
| Week 6 – 2: | Special Legal Issues: “Privilege” and protected communication in the Internet age | |
| Week 7 – 1: | Review | |
| Week 7 – 2 | Mid-term Exam – 20% of course grade for 476, 10% for 702. | |
| Week 8 – 1 | Review mid-term exam | |
| Week 8 – 2 | Overview of International Law Related to Law Fundamentals and Basics (notably, jurisdiction, but also differences in law structure and appellate review) | |
| Week 9 – 1 | Basic Differences of prevailing major International Law related to cybersecurity and hacking (China, Russia, EU) with the US | |
| Week 9 -2 | Privacy – US litigation system vs EU statutory system | Research the issue of privacy related to cybersecurity such as mobile privacy and write a one to two page paper discussing the issue. Due class session 10-2. 5% of course grade. |
| Week 10 – 2 | GDPR; comparisons with how GDPR is enacted and presented to public vs US Privacy Act; GDPR | Research GDPR and write a 1 – 2 page paper on some aspect that causes controversy or conflict with US law. Due |
| Week 11 – 1 | Analyzing attacks; Who is the hacker? How can a cyber worker respond? |
| Week 11 – 2 | Case Studies of Attacks and Responses |
| Week 12 – 1 | Legal Issues related to the Cloud & Other Legal Topics that May have Come Up During Semester |
| Week 12 – 2 | FEDRAMP |
| Week 13 – 1 | Semester in-class Case Study |
| Week 13 – 2 | Semester in-class Case Study |
| Week 14 – 1 | Review of Course |
| Week 14 – 2 | Course Evaluations; Wrap-Up |

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<tr>
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<td>5% of course grade.</td>
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Final Exam during week 15.- 20% of course grade for 476, 10% for 702.

**Americans with Disabilities Act (ADA)**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit [http://disability.tamu.edu](http://disability.tamu.edu).

**Academic Integrity**

For additional information please visit: [www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/)

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
Course Change Request

New Course Proposal

Date Submitted: 11/17/17 7:51 am

Viewing: CSCE 703 : Cybersecurity Risk
Also Known As: CYBR 603
Last edit: 11/17/17 9:21 am
Changes proposed by: smileingsheila

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheila Dotson</td>
<td><a href="mailto:dotson@tamu.edu">dotson@tamu.edu</a></td>
<td>979-845-6176</td>
</tr>
<tr>
<td>Daniel Ragsdale</td>
<td><a href="mailto:rags@tamu.edu">rags@tamu.edu</a></td>
<td>9798457398</td>
</tr>
</tbody>
</table>

Course prefix  CSCE  Course number  703

Department  Computer Science & Engineering
College/School  College of Engineering
Academic Level  Graduate
Academic Level (alternate)  Undergraduate
Effective term  2018-2019
Complete Course Title  Cybersecurity Risk
Abbreviated Course Title  CYBERSECURITY RISK

Catalog course description
Risks in cybersecurity; avoidance, acceptance, mitigation or transference strategies; developing reliable cybersecurity risk assessments to include analysis, categorization and evaluation; cybersecurity risk audit frameworks.

Prerequisites and Restrictions

Concurrent Enrollment  No
Should catalog prerequisites / concurrent enrollment be enforced?  No

Crosslistings  CYBR 603
Crosslisted With

Stacked  No  Stacked with

Semester  3  Contact Hour(s)  3  Lecture:  3  Lab:  0  Other:  0
Credit Hour(s)  (per week):  
Repeatable for credit?  No
Three-peat?  No
CIP/Fund Code  1110030006

In Workflow
1. CSCE Department Head
2. CLEN Department Head
3. Curricular Services Review
4. EN Committee Preparer GR
5. EN Committee Chair GR
6. EN College Dean GR
7. GC Preparer
8. GC Chair
9. Faculty Senate Preparer
10. Faculty Senate
11. Provost II
12. President
13. Curricular Services
14. Banner

Approval Path
1. 11/17/17 8:06 am Scott Schaefer (schaefer): Approved for CSCE Department Head
2. 11/17/17 8:28 am Tim Jacobs (tjacobs): Approved for CLEN Department Head
3. 11/17/17 9:23 am Sandra Williams (sandra-williams): Approved for Curricular Services Review
4. 11/17/17 5:10 pm Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR
5. 11/22/17 8:23 am Prasad Enjeti (enjeti): Approved for EN Committee Chair GR
6. 11/22/17 8:26 am Prasad Enjeti (enjeti): Approved for EN College Dean GR
7. 11/22/17 8:49 am LaRhesa Johnson (lrjohnson): Approved for GC Preparer
8. 12/14/17 10:55 am LaRhesa Johnson (lrjohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve#
Default Grade Mode: Letter Grade (G)  
Alternate Grade Modes: Satisfactory/Unsatisfactory  
Method of instruction: Lecture  
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) 
No  
Will this course be taught as a distance education course? 
No  
Is 100% of this course going to be taught in Texas? 
Yes  
Will classroom space be needed for this course? 
Yes  

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Required (select program)</th>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(MEN-ENGR) Master of Engineering in Engineering</td>
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</table>

<table>
<thead>
<tr>
<th>Elective (select program)</th>
<th>Program(s)</th>
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<tbody>
<tr>
<td>(MS-CPSC) Master of Science in Computer Science</td>
<td></td>
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<tr>
<td>(CERT-CYBE) Certificate in Cybersecurity Engineering</td>
<td></td>
</tr>
<tr>
<td>(CERT-CYBP) Certificate in Cybersecurity Policy</td>
<td></td>
</tr>
</tbody>
</table>

---

**Course Syllabus**

Syllabus: Upload syllabus  
Upload syllabus: csce703-rags.doc  
Letters of support or other documentation: No  
Additional information: 

**Reviewer Comments**  
Sandra Williams [sandra-williams] [11/17/17 7:46 am]: Rollback: As requested.  
Sandra Williams [sandra-williams] [11/17/17 9:22 am]: Syllabus has wrong aggie honor code website link; there is reference to stacking but not on form - is it stacked? Moving forward, however, updates may be required before reaching GC.  

Reported to state? 
Add
Course title and number  
CSCE 703/CYBR 603: Cybersecurity Risk

Term  
Spring 2018

Meeting times and location  
TBD

Course Description and Prerequisites

Cybersecurity Risk. Credit 3. (3-0). Risks in cybersecurity; avoidance, acceptance, mitigation, or transference strategies; developing reliable cybersecurity risk assessments to include analysis, categorization, and evaluation; cybersecurity risk audit frameworks. Prerequisites: CSCE 601. Cross-listed with CYBR 603/CSCE 703

Learning Outcomes or Course Objectives

At the end of this course, the student should be able to:

- Demonstrate the common body of knowledge for risk assessment in cybersecurity of information systems.
- Develop an understanding of the basic tools and techniques used in risk assessment in cybersecurity of information systems.
- Synthesize content into completing a complete risk assessment on a sample case study.

Instructor Information

Name  
Paula S. deWitte

Telephone number  
979.845.7398

Email address  
Paula.dewitte@tamu.edu

Office hours  
TBD

Office location  
TBD

Textbook and/or Resource Material

Required Textbook  
TBD

Grading Policies

The student’s semester grade will be based on lab assignments, exams, and class attendance. Class attendance is essential for student success; therefore, students are required to promptly and regularly attend all their classes. A record of attendance will be maintained from the first day of classes and/or the first day the student’s name appears on
the roster through final examinations and will constitute the participation grade for the course. Absences may only be excused as defined by the Texas A&M University Student Rules available at http://student-rules.tamu.edu/rule07.

### Grading Scale – CSCE 477

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
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<tbody>
<tr>
<td>Assignments (short weekly or bi-weekly papers)</td>
<td>300</td>
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<tr>
<td>Papers (semester on approved topics)</td>
<td>200</td>
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<tr>
<td>Midterm</td>
<td>200</td>
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<tr>
<td>Final Exam</td>
<td>200</td>
</tr>
<tr>
<td>Class Participation</td>
<td>100</td>
</tr>
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</table>

### Grading Scale – CSCE 703

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Assignments (short weekly or bi-weekly papers)</td>
<td>300</td>
</tr>
<tr>
<td>Papers (semester on approved topics)</td>
<td>300</td>
</tr>
<tr>
<td>Midterm</td>
<td>100</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100</td>
</tr>
<tr>
<td>Case Study Development</td>
<td>100</td>
</tr>
<tr>
<td>Class Participation</td>
<td>100</td>
</tr>
</tbody>
</table>

**Points Grading Scale:**

Out of 1000 assignable points
A = 900-1000 points
B = 800-899 points
C = 700-799 points
D = 600-699 points
F = <600 points

**Course Topics, Calendar of Activities, Major Assignment Dates**

*(subject to change as necessary)*

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Assignment Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1 – 1</td>
<td>Introduction to Course &amp; Expectations; Introduction to Semester In-Class Case Study for Discussion; What is risk &amp; Introduction to Risk Management</td>
<td></td>
</tr>
<tr>
<td>Week 1 - 2</td>
<td>Continue Introduction to Risk Management; An Overview of Major Cyber Incidents that did</td>
<td>Research a risk in a domain or industry other than</td>
</tr>
<tr>
<td>Week 2 – 1</td>
<td><strong>Risk Assessment; Risk Assessment Science; Mathematical Approaches to Risk Management (e.g., Gordon &amp; Loeb Model) &amp; Their Shortcomings when tied to Business Case Analysis</strong></td>
<td>Cybersecurity and summarize in a one-to-two page paper on that risk. Due week 2-2-5% of course grade</td>
</tr>
<tr>
<td>Week 2-2</td>
<td><strong>Information System Life-Cycle and Risk Management; Walk-thru NIST SP 800-53, R5; NIST SP 800-30, 37, and 39 (all available online)</strong></td>
<td>Write a one-to-two page paper on a specific NIST family of controls (pick out one or two controls) and think through any risk issues that should be considered. Due in week 3-2-5% of course grade</td>
</tr>
<tr>
<td>Week 3 – 1</td>
<td><strong>US Cybersecurity Laws Related to Risk</strong></td>
<td>Prepare for class discussion a set of interview questions for conducting a risk assessment</td>
</tr>
<tr>
<td>Week 3 – 2</td>
<td><strong>Critical Infrastructure Risk: Presidential Directives, Executive Orders, Regulations – and how they add to the Risk Profile</strong></td>
<td>Research an issue related to protecting critical infrastructure from one of the SSAs and write a one-to-two page paper on summarizing that issue (after class discussion). Due week 4-2-5% of course grade</td>
</tr>
<tr>
<td>Week 4 – 1</td>
<td><strong>The NSA IAM Approach to Risk Assessment Pt. 1</strong></td>
<td></td>
</tr>
<tr>
<td>Week 4 - 2</td>
<td><strong>The NSA IAM Approach to Risk Assessment Pt. 2</strong></td>
<td>Select a federal agency and spend time researching that agency’s current cybersecurity regulations (eliminating those agencies discussed in class). Are there regulations that could be interpreted to include cybersecurity? Write a one to page paper summarizing your findings due week 5-2-5% of course grade.</td>
</tr>
<tr>
<td>Week 5 – 1</td>
<td><strong>The NSA IEM Approach to Risk Assessment Pt. 1</strong></td>
<td></td>
</tr>
<tr>
<td>Week 5 – 2</td>
<td><strong>The NSA IEM Approach to Risk Assessment Pt. 2</strong></td>
<td></td>
</tr>
<tr>
<td>Week 6 – 1</td>
<td>Certification &amp; Accreditation to manage risk</td>
<td></td>
</tr>
<tr>
<td>Week 6 – 2:</td>
<td>FISMA – NIST 800 Series</td>
<td></td>
</tr>
<tr>
<td>Week 7 – 1:</td>
<td>Review for Mid-term</td>
<td></td>
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<tr>
<td>Week 7 – 2</td>
<td>Mid-term</td>
<td>20% of course grade 477, 10% 703</td>
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<tr>
<td>Week 8 – 1</td>
<td>Continuous Monitoring</td>
<td>Assigned Semester in-class Case Study discussed at end of Semester, 703- develop case study activity assignment, due week 13-2 - 10% of course grade</td>
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<tr>
<td>Week 8 – 2</td>
<td>SANS Top 20 Controls</td>
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<tr>
<td>Week 9 – 1</td>
<td>Other Risk Frameworks/Requirements: CoBit, ITIL, ISO 27000, SOX, GLB, PCI DSS, HIPAA...</td>
<td>Frameworks comparison/contrast paper Due week 10-2 - 5% of course grade</td>
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<tr>
<td>Week 9 – 2</td>
<td>Cyber Laws—Int’l</td>
<td></td>
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<tr>
<td>Week 10 – 1</td>
<td>Cyber Laws— focused on EU, China, Russia</td>
<td></td>
</tr>
<tr>
<td>Week 10 – 2</td>
<td>Cyber Insurance related to Risk</td>
<td></td>
</tr>
<tr>
<td>Week 11 – 1</td>
<td>Cyber Ethics &amp; Privacy related to Risk Pt 1</td>
<td>Cyber Ethics Paper, Due week 12-1- 5% of course grade</td>
</tr>
<tr>
<td>Week 11 – 2</td>
<td>Cyber Ethics &amp; Privacy related to Risk Pt 2</td>
<td></td>
</tr>
<tr>
<td>Week 12 – 1</td>
<td>Semester in-class Case Study Discussion &amp; Presentations (Different than Case Study used in Class Discussions)</td>
<td></td>
</tr>
<tr>
<td>Week 12 – 2</td>
<td>Semester in-class Case Study Discussion &amp; Presentations</td>
<td></td>
</tr>
<tr>
<td>Week 13 – 1</td>
<td>Putting risk in perspective as outlined in first class meeting</td>
<td></td>
</tr>
<tr>
<td>Week 13 – 2</td>
<td>Emerging risk topics</td>
<td></td>
</tr>
<tr>
<td>Week 14 – 1</td>
<td>Review of Course</td>
<td></td>
</tr>
<tr>
<td>Week 14 – 2</td>
<td>Course Evaluations; Wrap-Up</td>
<td>Semester papers due- 20% of course grade 477, 30% of course grade 703</td>
</tr>
</tbody>
</table>

Final Exam during week 15- 20% of course grade 477, 10% of course grade 703

**Americans with Disabilities Act (ADA)**

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the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

**Academic Integrity**
*For additional information please visit: [www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/)*

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
Course Change Request

New Course Proposal

Date Submitted: 10/10/17 3:12 pm

Viewing: CYBR 684 : Professional Internship

Last edit: 10/30/17 10:29 am

Changes proposed by: rags

Programs referencing this course
- MEN-CYBR: Master of Engineering in Cybersecurity Engineering
- CERT-CYBE: Certificate in Cybersecurity Engineering

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniel Ragsdale</td>
<td><a href="mailto:rags@tamu.edu">rags@tamu.edu</a></td>
<td>979-845-7398</td>
</tr>
</tbody>
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Course prefix  CYBR  
Department  College of Engineering  
College/School  College of Engineering  
Academic Level  Graduate  
Academic Level (alternate)  Undergraduate  
Effective term  2018-2019  
Complete Course Title  Professional Internship  
Abbreviated Course Title  PROFESSIONAL INTERNSHIP  

Catalog course description

Directed internship in an organization to provide students with a learning experience supervised by professionals in organizational settings appropriate to the student's professional objectives.

Prerequisites and Restrictions

Concurrent Enrollment  No  
Should catalog prerequisites / concurrent enrollment be enforced?  No  
Crosslistings  No  Crosslisted With  
Stacked  No  Stacked with  

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<th>Semester</th>
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<th>Lecture</th>
<th>Lab</th>
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<td>(per week):</td>
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Approval Path

1. 10/11/17 3:47 pm  
   Tim Jacobs (tijacobs): Approved for CLEN Department Head

2. 10/30/17 10:32 am  
   Sandra Williams (sandra-williams): Approved for Curricular Services Review

3. 11/13/17 3:43 pm  
   Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR

4. 11/20/17 1:41 pm  
   Prasad Enjeti (enjeti): Approved for EN Committee Chair GR

5. 11/20/17 1:44 pm  
   Prasad Enjeti (enjeti): Approved for EN College Dean GR

6. 11/22/17 8:49 am  
   LaRhesa Johnson (lrjohnson): Approved for GC Preparer

7. 12/14/17 10:55 am  
   LaRhesa Johnson (lrjohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve/
Hour(s)
Repeateable for credit? No
Three-peat? No
CIP/Fund Code 1110030006
Default Grade Mode Satisfactory/Unsatisfactory(S)
Alternate Grade Modes
Method of instruction Practicum
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) Yes

Learning Outcomes
Meets traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met.
Professional internship off site.

Hours
Meets traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met.
Professional internship off site.

Will this course be taught as a distance education course? Yes

I verify that I have reviewed the FAQ for Export Control Basics for Distance Education. Yes

Is 100% of this course going to be taught in Texas? Yes

Will classroom space be needed for this course? No

This will be a required course or an elective course for the following programs:

Required (select program)
Elective (select program)

---

**Course Syllabus**

Syllabus: Upload syllabus
Upload syllabus [CYBR684.docx](https://nextcatalog.tamu.edu/courseleaf/approve/#)

Letters of support or other documentation No

Additional information

https://nextcatalog.tamu.edu/courseleaf/approve/#
Reviewer Comments

Sandra Williams (sandra-williams) (10/30/17 10:32 am): Moving forward, however, there is no indication on the form if this is a required or elective course and for what program.

Reported to state?

Add
Course title and number  CYBR 684: Professional Internship
Term  TBD
Meeting times and location  Online at https://ecampus.tamu.edu

Course Description and Prerequisites

CYBR 684: Professional Internship. Credit 0 to 6. Directed internship in an organization to provide students with a learning experience supervised by professionals in organizational settings appropriate to the student’s professional objectives.

Learning Outcomes or Course Objectives

By the end of the course, students should be able to:
- Synthesize learning content from University coursework toward practical application in a real world environment.
- Apply corporate or agency procedures, practices, and culture to successfully complete an internship in a professional setting.
- Demonstrate effective oral and written communication skills with colleagues on the job.

Instructor Information

Name
Office Phone
Email
Office Hours
Office Location
Text/Voice

Textbook and/or Resource Material

No textbook is required for the class. The course meets on https://ecampus.tamu.edu

Grading Policies

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
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<tbody>
<tr>
<td>Learning Agreement Completed</td>
<td>333</td>
</tr>
<tr>
<td>Mid-Term Evaluation completed and submitted in ecampus</td>
<td>333</td>
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<tr>
<td>Reflection AND final evaluation submitted in ecampus</td>
<td>334</td>
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</table>
Please note that total points establish the grade you will receive in this course. This courses is graded on a satisfactory/unsatisfactory basis.

700 – 1000 points: Satisfactory
< 700 points: Unsatisfactory

This is a major core course and a grade of a minimum of a “Satisfactory” (700 points) must be achieved in order to count toward degree requirements. Failure to meet that standard will result in the need to repeat the course.

Attendance

The attendance requirements for this course are that you attend your internship assignment in order to complete the required professional engagement.

Absences for the purpose of assignments in the course may only be excused as defined by the Texas A&M University Student Rules available at http://student-rules.tamu.edu/rule07.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Academic Integrity

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
For additional information please visit: http://aggiehonor.tamu.edu

Calendar of Activities, Assignment Milestones
(subject to change as necessary)

| M 8/31 | First day of classes |
| F 9/4 | 12:00 (noon) Learning agreement due; students without a completed learning agreement will be dropped from the course |
| F 10/16 | 17:00 Mid-Term evaluation due in ecampus |
| T 12/15 | 17:00 Reflection due in ecampus |
| W 12/16 | 17:00 Final evaluation due in ecampus |
Course Change Request

New Course Proposal

Date Submitted: 11/03/17 10:35 am

Viewing: ECEN 748: Data Stream Algorithms and Applications

Last edit: 11/15/17 8:42 pm

Changes proposed by: katieann06

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
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</thead>
<tbody>
<tr>
<td>Katie Bryan</td>
<td><a href="mailto:k.bryan@tamu.edu">k.bryan@tamu.edu</a></td>
<td>9798457467</td>
</tr>
</tbody>
</table>

Course prefix: ECEN
Course number: 748

Department: Electrical & Computer Eng
College/School: College of Engineering
Academic Level: Graduate
Effective term: 2018-2019

Complete Course Title:
Data Stream Algorithms and Applications

Abbreviated Course Title:
DATA STREAM ALGORITHMS & APPLS

Catalog course description:
Study of algorithms to sample, sketch and summarize high rate data streams, including applications to measuring internet traffic and services and transactional graph streaming data; quantify the trade-offs between computational and storage resources and accuracy that are inherent in these methods.

Prerequisites and Restrictions:
Graduate classification; ECEN 303 or previous undergraduate or graduate course in probability or statistics; or approval of instructor

Concurrent Enrollment: No
Should catalog prerequisites/concurrent enrollment be enforced?: No

Crosslistings: No

Stacked: No

Semester: 3
Credit Hour(s): (per week): Contact Hour(s): 3
Lecture: Total: 3
Lab: 0
Other: 0

Repeatable for credit?: No
Three-peat?: No

CIP/Fund Code: 4140010006

In Workflow:
1. ECEN Department Head
2. Curricular Services Review
3. EN Committee Preparer GR
4. EN Committee Chair GR
5. EN College Dean GR
6. GC Preparer
7. GC Chair
8. Faculty Senate Preparer
9. Faculty Senate
10. Provost II
11. President
12. Curricular Services
13. Banner

Approval Path:
1. 11/09/17 11:30 am
   Miroslav Begovic (begovic): Approved for ECEN Department Head
2. 11/15/17 8:44 pm
   Sandra Williams (sandra-williams): Approved for Curricular Services Review
3. 11/17/17 5:10 pm
   Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR
4. 11/22/17 8:24 am
   Prasad Enjeti (enjeti): Approved for EN Committee Chair GR
5. 11/22/17 8:26 am
   Prasad Enjeti (enjeti): Approved for EN College Dean GR
6. 11/22/17 8:49 am
   LaRhesa Johnson (ljohnson): Approved for GC Preparer
7. 12/14/17 10:55 am
   LaRhesa Johnson (ljohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve#
This will be a required course or an elective course for the following programs:

<table>
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<tr>
<th>Program(s)</th>
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<tbody>
<tr>
<td>(PHD-ELEN) Doctor of Philosophy in Electrical Engineering</td>
</tr>
<tr>
<td>(PHD-CEEN) Doctor of Philosophy in Computer Engineering</td>
</tr>
<tr>
<td>(MS-ELEN) Master of Science in Electrical Engineering</td>
</tr>
<tr>
<td>(MS-CEEN) Master of Science in Computer Engineering</td>
</tr>
<tr>
<td>(MEN-CEEN) Master of Engineering in Computer Engineering</td>
</tr>
<tr>
<td>(MEN-ELEN) Master of Engineering in Electrical Engineering</td>
</tr>
</tbody>
</table>

Course Syllabus

Syllabus: Upload syllabus

Upload syllabus: [ECEN_748_DSAA_duffield_syllabus.docx](ECEN_748_DSAA_duffield_syllabus.docx)

Letters of support or other documentation: No

Additional information: Course has already been shown to STAT and CSCE and neither department objects.

Reviewer Comments: Sandra Williams (sandra-williams) (11/15/17 8:44 pm): May require letters of support to be attached.

Reported to state: Add
Course title and number | ECEN 748 Data Stream Algorithms and Applications
---|---
Term | Spring 2019
Meeting times and location | MWF

**Instructor Information**

<table>
<thead>
<tr>
<th>Name</th>
<th>Dr. Nicholas Duffield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>845-7328</td>
</tr>
<tr>
<td>Email address</td>
<td><a href="mailto:duffieldng@tamu.edu">duffieldng@tamu.edu</a></td>
</tr>
<tr>
<td>Office hours</td>
<td>M 11:00am-12:00pm; T 1:00pm-2:00pm</td>
</tr>
<tr>
<td>Office location</td>
<td>WEB 332D</td>
</tr>
</tbody>
</table>

**Course Description and Prerequisites**

Study of algorithms to sample, sketch and summarize high rate data streams, including applications to measuring internet traffic and services, and transactional graph streaming data; quantify the trade-offs between computational and storage resources, and accuracy that are inherent in these methods.

Prerequisite: graduate classification, ECEN 303 or previous undergraduate or graduate course in probability or statistics, or approval of instructor

**Learning Outcomes**

Acquiring knowledge of statistical and algorithmic methods in data streaming and their application in network measurement and analysis. Understanding the design issues and trade-offs between statistical, computation and implementation goals. The course will prepare students to conduct their own research in streaming algorithms, or their use in other research areas.

**Grading Policies**

Homework: 50%  
Data Project: 15%  
Student Presentation: 15%  
Final Exam: 20%  

Grading Scale: 90-100 A, 80-89 B, 70-79 C, 60-69 D, below 60 F.

Discussion of homework assignments is encouraged, but homework must be executed independently and copying is not allowed. Assignments must be typeset and handed in on time to receive full credit. No late homework and project proposals will be accepted unless an official document (e.g., doctor’s note) justifies the absence.

**Textbook and/or Resource Material**
The materials for this course will comprise research literature and review articles that together cover the material. These will be communicated during the course. Additional background material is as follows:

**Stream Sampling and Summarization**
- Cormode & Duffield: Sampling for Big Data
- Duffield: Sampling for Passive Internet Measurement: A Review
  [http://projecteuclid.org/euclid.ss/1110999311](http://projecteuclid.org/euclid.ss/1110999311)

**Probability and Statistics**

**Computer Networking**
- Peterson & Davie: Computer Networks (5th Edition)

**Analysis of Networks**
- Kolaczyk: Statistical Analysis of Network Data: Methods and Models

### Course Topics

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Data stream models, examples &amp; applications. Resource limitations &amp; analysis goals</td>
</tr>
<tr>
<td>2</td>
<td>Probabilistic analysis: estimation and bounds: Markov, Chernoff, Hoeffding</td>
</tr>
<tr>
<td>3</td>
<td>Approximate data structures for keys; Bloom Filters, Cuckoo Hashing &amp; Filtering</td>
</tr>
<tr>
<td>4</td>
<td>Approximate and distinct counting algorithms; Morris, majority, hyperloglog; Flajolet</td>
</tr>
<tr>
<td>5</td>
<td>Frequency moments, heavy hitters &amp; range queries: Misra-Gries algorithm, count &amp; count-min sketches</td>
</tr>
<tr>
<td>6</td>
<td>Inverse probability estimation; uniform, weighted, reservoir &amp; priority sampling.</td>
</tr>
<tr>
<td>7</td>
<td>IPPS sampling and optimality; stream aggregation: sample and hold, rate adaptation</td>
</tr>
<tr>
<td>8</td>
<td>Sampling vs. sketching vs. aggregation. applications in Internet measurement</td>
</tr>
<tr>
<td>9</td>
<td>Hashing &amp; coordination: consistent sampling; min-hash, k-mins, l_0 and l_p sampling</td>
</tr>
<tr>
<td>10</td>
<td>Sketching, random projection, sparse recovery. Similarity. Locality sensitive hashing</td>
</tr>
<tr>
<td>11</td>
<td>Sketching graph properties: connectivity, sparsification, spanners, matching</td>
</tr>
<tr>
<td>12</td>
<td>Graph stream sampling; subgraphs counts, queries and other features</td>
</tr>
<tr>
<td>13 &amp; 14</td>
<td>Student presentations</td>
</tr>
</tbody>
</table>

### Attendance and Make-up Policies

Attendance and make-up policies will follow the general student rule of the university:
[http://studentrules.tamu.edu/rule07](http://studentrules.tamu.edu/rule07).

### Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an
accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

**Academic Integrity**

For additional information please visit: http://aggiehonor.tamu.edu

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
Course Change Request

New Course Proposal

Date Submitted: 09/27/17 1:41 pm

Viewing: ECEN 758 : Data Mining and Analysis

Also Known As: CSCE 676, STAT 639

Last edit: 10/09/17 5:06 pm

Changes proposed by: msheldon

Programs referencing this course:
- MEN-CYBR: Master of Engineering in Cybersecurity Engineering
- CERT-CYBE: Certificate in Cybersecurity Engineering

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katie Bryan</td>
<td><a href="mailto:k.bryan@tamu.edu">k.bryan@tamu.edu</a></td>
<td>9798457467</td>
</tr>
</tbody>
</table>

Course prefix: ECEN
Course number: 758

Department: Electrical & Computer Eng
College/School: College of Engineering
Academic Level: Graduate
Academic Level: Undergraduate
Effective term: 2018-2019

Complete Course Title: Data Mining and Analysis
Abbreviated Course Title: DATA MINING & ANALYSIS

Catalog course description:
Broad overview of data mining, integrating related concepts from machine learning and statistics; exploratory data analysis, pattern mining, clustering and classification; applications to scientific and online data.

Prerequisites and Restrictions

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced? No

Crosslistings
- CSCE 676
- STAT 639

Stacked: No
Stacked with:

In Workflow
1. ECEN Department Head
2. CSCE Department Head
3. STAT Department Head
4. Curricular Services Review
5. EN Committee Preparer GR
6. EN Committee Chair GR
7. EN College Dean GR
8. GC Preparer
9. GC Chair
10. Faculty Senate Preparer
11. Faculty Senate
12. Provost II
13. President
14. Curricular Services
15. Banner

Approval Path
1. 09/27/17 2:34 pm
   Miroslav Begovic (begovic): Approved for ECEN Department Head
2. 10/09/17 4:36 pm
   Scott Schaefer (schaefer): Approved for CSCE Department Head
3. 10/09/17 4:42 pm
   Valen Johnson (vejohnson): Approved for STAT Department Head
4. 10/09/17 5:06 pm
   Sandra Williams (sandra-williams): Approved for Curricular Services Review
5. 10/24/17 4:35 pm
   Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR
6. 11/08/17 9:41 am
   Prasad Enjeti (enjeti): Approved for EN Committee Chair GR
7. 11/13/17 1:13 pm
   Prasad Enjeti (enjeti): Approved for EN College Dean GR
8. 11/22/17 8:49 am
   LaRhesa Johnson (ljohnson): Approved

https://nextcatalog.tamu.edu/courseleaf/approve/
Semester: 3  
Credit Hour(s): 3  
Contact Hour(s) (per week): 3  
Lecture: 3  
Lab: 0  
Other: 0  
Total: 3  

Repeatable for credit? No  
Three-peat? No  
CIP/Fund Code: 1410010006  
Default Grade Mode: Letter Grade(G)  
Alternate Grade Modes: Satisfactory/Unsatisfactory  
Method of instruction: Lecture  
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)  
Will this course be taught as a distance education course? No  
Is 100% of this course going to be taught in Texas? Yes  
Will classroom space be needed for this course? Yes  

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Required (select program)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(MEN-ELEN) Master of Engineering in Electrical Engineering</td>
</tr>
<tr>
<td>(MEN-CEEN) Master of Engineering in Computer Engineering</td>
</tr>
<tr>
<td>(MS-CEEN) Master of Science in Computer Engineering</td>
</tr>
<tr>
<td>(MS-ELEN) Master of Science in Electrical Engineering</td>
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<tr>
<td>(PHD-CEEN) Doctor of Philosophy in Computer Engineering</td>
</tr>
<tr>
<td>(PHD-ELEN) Doctor of Philosophy in Electrical Engineering</td>
</tr>
</tbody>
</table>

**Course Syllabus**

Syllabus: Upload syllabus

Upload syllabus: [92717 DUFFIELD FALL 2018 ECEN 758, CSCE 676, STAT 639 syllabus.doc](https://nextcatalog.tamu.edu/courseleaf/approve/#)

Letters of support or other documentation: Yes

Upload files: [CourseSupport][1].pdf

Additional information:

Reviewer Comments: Sandra Williams (sandra-williams) [03/23/17 9:36 pm]: Rollback: Made updates to course description to conform to catalog style guide. Prerequisites should list course numbers and can include "or equivalent".
Syllabus: prerequisites must match form; include due dates for tests/project.
Katie Bryan (katieann06) [03/31/17 2:54 pm]: Syllabus updated to reflect new catalog description; due dates for tests/project added to schedule.
Sandra Williams (sandra-williams) [04/05/17 3:34 pm]: Updates made to repeatability section.
Sandra Williams (sandra-williams) [04/05/17 3:34 pm]: Update received.
Jennifer Veracruz (jveracruz) [04/14/17 9:28 am]: Rollback: Email was sent from Sandra: Good morning, I just rolled back CSCE 676 as it had additional information that it needed to be cross-listed with ECEN 758. This course (ECEN 758) is currently in the EN Committee Preparer GR role. You will need to roll it back to the initiator or department so they can add CSCE 676 as the cross-listed course or you can add the cross-listing in your role. I am going to shred CSCE 676. Thank you. Sandra Williams Associate Registrar
Katie Bryan (katieann06) [04/14/17 9:35 am]: I have resubmitted with the cross listing on the syllabus and form. We have a GSC meeting on Thursday, 4/20 for this cross listing to be approved. At that point, I believe Dr. Miller will approve as Dept. Head.
Sandra Williams (sandra-williams) [04/21/17 8:51 am]: Update received.
LaRhesa Johnson (lrjohnson) [06/01/17 10:05 am]: Updated syllabus attached.
Julie Monsees (jmonsees) [08/16/17 4:03 pm]: Rollback: Pulled for further discussion.
Julie Monsees (jmonsees) [09/05/17 5:00 pm]: Rollback: Please provide additional information per Speaker Price.
LaRhesa Johnson (lrjohnson) [09/07/17 1:58 pm]: Rollback: Rollback per additional information request from Faculty Senate
LaRhesa Johnson (lrjohnson) [09/08/17 8:32 am]: Rollback: Rollback per additional information request from Faculty Senate
Katie Bryan (katieann06) [09/27/17 1:44 pm]: Updated syllabus and letter of support attached.

Reported to state?

Add
Course title and number: ECEN 758/CSCE 676/STAT 639 Data Mining and Analysis
Term (e.g., Fall 200X): Fall 2018
Meeting times and location: TBD MW 3:00pm-4:15pm

Course Description

Broad overview of data mining, integrating related concepts from machine learning and statistics; exploratory data analysis, pattern mining, clustering and classification; applications to scientific and online data.

Learning Outcomes or Course Objectives

Students will acquire knowledge of foundations and application of methods in data mining and data analysis. The course will prepare students to use the methods and tools of data science in their own research, whether focused on methods themselves, or on applications.

Students will learn to select and apply appropriate methods for use in problem context. They will learn about the relative strengths and weakness of different approaches through examination of the underlying algorithms, and from outcomes of application to data. Mastery will be assessed through assignments, tests and hands on data analysis, with review and reinforcement through class discussion.

Instructor Information

Name: Dr. Nicholas Duffield
Telephone number: 845-7328
Email address: duffieldng@tamu.edu
Office hours: TBD MW 11:00am-12:00pm
Office location: WEB 332D

Textbook and/or Resource Material


Grading Policies

Assignments: 50%
Tests: 20%
Project: 10%
Final Exam: 20%
Discussion of homework assignments is encouraged, but homework must be executed independently and copying is not allowed. Assignments must be typeset and handed in on time to receive full credit. No late homework and project proposals will be accepted unless an official document (e.g., doctor’s note) justifies the absence.

Attendance and Make-up Policies
Attendance and make-up policies will follow the general student rule of the university: [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07)

Grading Scale

*Standard Letter Grading Scale:*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100</td>
</tr>
<tr>
<td>B</td>
<td>80-89</td>
</tr>
<tr>
<td>C</td>
<td>70-79</td>
</tr>
<tr>
<td>D</td>
<td>60-69</td>
</tr>
<tr>
<td>F</td>
<td>&lt;60</td>
</tr>
</tbody>
</table>

Course Topics, Calendar of Activities, Major Assignment Dates (Subject to change)

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Data and Attributes</td>
<td>ZM Chapters 2, 3</td>
</tr>
<tr>
<td>2</td>
<td>Dimensionality Reduction</td>
<td>ZM Chapter 7</td>
</tr>
<tr>
<td>3</td>
<td>Similarity Measures &amp; Finding Similar Items</td>
<td>MMDS Chapter 3</td>
</tr>
<tr>
<td>4</td>
<td>Frequent Itemset Mining &amp; Association Rules</td>
<td>ZM Chapter 8, MMDS Chap. 6</td>
</tr>
<tr>
<td>5</td>
<td>Representative Clustering</td>
<td>MMDS, Chapter 7</td>
</tr>
<tr>
<td>6</td>
<td>Gaussian Mixture Clustering &amp; EM Method - TEST</td>
<td>ZM Chapter 13</td>
</tr>
<tr>
<td>7</td>
<td>Hierarchical Clustering</td>
<td>ZM Chapter 14</td>
</tr>
<tr>
<td>8</td>
<td>Density Estimation &amp; Density-Based Clustering</td>
<td>ZM Chapter 15</td>
</tr>
<tr>
<td>9</td>
<td>Bayesian &amp; Nearest Neighbor Classification</td>
<td>ZM Chapter 18</td>
</tr>
<tr>
<td>10</td>
<td>Decision Tree Classification</td>
<td>ZM Chapter 19</td>
</tr>
<tr>
<td>11</td>
<td>Pagerank &amp; Recommendation Systems</td>
<td>MMDS Chapters 5 &amp; 9</td>
</tr>
<tr>
<td>12</td>
<td>Community Detection</td>
<td>MMDS Chapter 10</td>
</tr>
<tr>
<td>13</td>
<td>Perceptrons &amp; Boosting</td>
<td>MMDS Chapter 11</td>
</tr>
<tr>
<td>14</td>
<td>Support Vector Machines</td>
<td>MMDS Chapter 11</td>
</tr>
<tr>
<td>15</td>
<td>Review: Final Exam and Project</td>
<td></td>
</tr>
</tbody>
</table>

Americans with Disabilities Act (ADA)
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at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

**Academic Integrity**

*For additional information please visit: [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu)*

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
September 15, 2017

MEMORANDUM

To: Dilma Da Silva  
   Department Head, Computer Science and Engineering

   Miroslav Begovic  
   Department Head, Electrical & Computer Engineering

THROUGH: Meigan Aronson  
         Dean, College of Science

FROM: Valen Johnson  
      Department Head, Statistics Department

SUBJECT: Department of Statistics support of ECEN 758/ CSCE 676/ STAT 639

This memorandum is to confirm the Department of Statistics support of the creation of a course entitled “Data Mining and Analysis,” to be offered as ECEN 758, CSCE 676, or STAT 639. I note that we expect that there will be minor variations in the topics covered in this course according to the background and interests of the instructors involved, and we look forward to collaborating closely with the Departments of Electrical & Computer Engineering and Computer Science & Engineering to deliver a quality course in data mining and analysis that satisfies the increasing demand from TAMU graduate students in this field.
Course Change Request

New Course Proposal

Date Submitted: 11/03/17 9:48 am

Viewing: ECEN 759: Hardware Security
Also Known As: CYBR 630
Last edit: 11/15/17 8:46 pm
Changes proposed by: katieann06

Programs referencing this course:
- MEN-CYBR: Master of Engineering in Cybersecurity Engineering
- CERT-CYBR: Certificate in Cybersecurity Engineering

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katie Bryan</td>
<td><a href="mailto:k.bryan@tamu.edu">k.bryan@tamu.edu</a></td>
<td>9798457467</td>
</tr>
</tbody>
</table>

Course prefix: ECEN  
Course number: 759

Department: Electrical & Computer Engineering
College/School: College of Engineering
Academic Level: Graduate
Academic Level (alternate): Undergraduate
Effective term: 2018-2019

Complete Course Title: Hardware Security
Abbreviated Course Title: HARDWARE SECURITY

Catalog course description:
Cryptography and cryptographic algorithms such as AES, DES and others; techniques to optimize hardware implementation of cryptographic systems; different types of side-channel attacks and countermeasures; supply-chain vulnerabilities including hardware Trojans, counterfeits, IP piracy and reverse engineering; security modules for system-on-chip; physical unclonable functions.

Prerequisites and Restrictions:
ECEN 468, ECEN 474, or approval of instructor

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced? No

Crosslistings:
- Yes

Crosslisted With:
- CYBR 630

In Workflow:
1. ECEN Department Head
2. CLEN Department Head
3. Curricular Services Review
4. EN Committee Preparer GR
5. EN Committee Chair GR
6. EN College Dean GR
7. GC Preparer
8. GC Chair
9. Faculty Senate Preparer
10. Faculty Senate
11. Provost II
12. President
13. Curricular Services
14. Banner

Approval Path:
1. 11/09/17 11:30 am
   Miroslav Begovic (bogovic): Approved for ECEN Department Head
2. 11/13/17 4:01 pm
   Tim Jacobs (tjacobs): Approved for CLEN Department Head
3. 11/15/17 8:47 pm
   Sandra Williams (sandra-williams): Approved for Curricular Services Review
4. 11/17/17 5:11 pm
   Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR
5. 11/22/17 8:24 am
   Prasad Enjeti (enjeti): Approved for EN Committee Chair GR
6. 11/22/17 8:26 am
   Prasad Enjeti (enjeti): Approved for EN College Dean GR
7. 11/22/17 8:49 am
   LaRhena Johnson (lrjohnson): Approved for GC Preparer
8. 12/14/17 10:55 am
   LaRhena Johnson (lrjohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve#
Semester: 3  
Credit Hour(s): 3  
Contact Hour(s):  
(per week):  
Lecture: 3  
Lab: 0  
Other: 0  
Total: 3  

Repeatable for credit? No  
Three-peat? No  
CIP/Fund Code: 1410010006  
Default Grade Mode: Letter Grade(G)  
Alternate Grade Modes: Satisfactory/Unsatisfactory  
Method of instruction: Lecture  
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) No  
Will this course be taught as a distance education course? No  
Is 100% of this course going to be taught in Texas? Yes  
Will classroom space be needed for this course? Yes  
This will be a required course or an elective course for the following programs:  
Required (select program)  
Elective (select program)  

<table>
<thead>
<tr>
<th>Program(s)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(MS-CEEN) Master of Science in Computer Engineering</td>
<td></td>
</tr>
<tr>
<td>(MEN-CEEN) Master of Engineering in Computer Engineering</td>
<td></td>
</tr>
<tr>
<td>(MEN-ELEN) Master of Engineering in Electrical Engineering</td>
<td></td>
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<tr>
<td>(MS-ELEN) Master of Science in Electrical Engineering</td>
<td></td>
</tr>
<tr>
<td>(PHD-CEEN) Doctor of Philosophy in Computer Engineering</td>
<td></td>
</tr>
<tr>
<td>(PHD-ELEN) Doctor of Philosophy in Electrical Engineering</td>
<td></td>
</tr>
</tbody>
</table>

**Course Syllabus**

Syllabus: Upload syllabus  
Upload syllabus:  
ECEN 759, CYBR 630, fall 18, Hardware Security, JV.doc  

Letters of support or other documentation: No  
Additional information:  
Reviewer Comments:  
Hank Walker (d-walker) [11/18/17 4:23 pm]: Prereq of ECEN 474 analog VLSI design probably an error, maybe ECEN 475.
Course title and number     ECEN 759 / CYBR 630: Hardware Security
Term (e.g., Fall 20XX)      Fall 2018
Meeting times and location TBA
Course Credit (lecture/lab) 3 credits (lecture)

Course Description and Prerequisites

(i) Cryptography and cryptographic algorithms such as AES, DES etc; techniques to optimize hardware implementation of cryptographic systems; different types of side-channel attacks and countermeasures; supply-chain vulnerabilities – hardware Trojans, counterfeits, IP piracy, and reverse engineering; security modules for system-on-chip; physical unclonable functions.

(ii) Prerequisites: ECEN 468, 474 or approval of instructor

Learning Outcomes or Course Objectives

- Ability to design, analyze, and simulate cryptographic algorithms.
- Ability to perform side-channel attacks
- Ability to design hardware Trojans
- Ability to design and analyze physical unclonable functions.

Instructor Information

Name     JV Rajendran
Telephone number    979-458-7851
Email address   jv.rajendran@tamu.edu
Office hours    TBD
Office location 333H WEB

Textbook and/or Resource Material


Grading Policies

Final grades in this course will be based on several homework assignments given throughout the semester, labs, class participation, and a final project. All homework assignments and quizzes are to be done individually. Project can be done in a group of no more than 2 students. If the absence is excused, the instructor will provide the student an opportunity to make up any quiz, exam or other work that contributes to the final grade or provide a satisfactory alternative
by a date agreed upon by the student and instructor. If an instructor has a regularly scheduled make up exam, students are expected to attend unless they have a university-approved excuse. The make-up work must be completed within a timeframe not to exceed 30 calendar days from the last day of the initial absence.

The tentative grading policy is:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labs</td>
<td>30%</td>
</tr>
<tr>
<td>Quiz</td>
<td>30%</td>
</tr>
<tr>
<td>Final Project</td>
<td>30%</td>
</tr>
<tr>
<td>Class participation</td>
<td>10%</td>
</tr>
</tbody>
</table>

Grading Scale

A = 90-100  B = 80-89  C = 70-79  D = 60-69  F = <60

Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Motivation</td>
</tr>
<tr>
<td>2</td>
<td>Introduction to cryptography, AES, DES, RSA</td>
</tr>
<tr>
<td>3</td>
<td>Design and optimization of cryptographic units</td>
</tr>
<tr>
<td>4</td>
<td>Techniques for H/W security</td>
</tr>
<tr>
<td>5</td>
<td>Power and timing side-channel attacks and countermeasures</td>
</tr>
<tr>
<td>6</td>
<td>Scan and fault side-channel attacks and countermeasures</td>
</tr>
<tr>
<td>7</td>
<td>Supply-chain security – H/W Trojans, counterfeits,</td>
</tr>
<tr>
<td>8</td>
<td>Supply-chain security – IP protection, reverse engineering</td>
</tr>
<tr>
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<td>11</td>
<td>Computer Security Countermeasures</td>
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<tr>
<td>12</td>
<td>Physical unclonable functions</td>
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<tr>
<td>13</td>
<td>Physical unclonable functions (contd.)</td>
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</table>

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Academic Integrity

For additional information please visit: http://aggiehonor.tamu.edu

“Aggies do not lie, cheat, or steal or tolerate those who do.”
Attendance and Make-up Policies

Attendance and make-up policies will follow the general student rule of the university: http://studentrules.tamu.edu/rule07.
# Course Change Request

## New Course Proposal

**Date Submitted:** 09/13/17 3:07 pm  
**Viewing:** ECEN 769 : Materials Informatics  
**Also Known As:** MSEN 660  
**Last edit:** 10/16/17 9:25 am  
Changes proposed by: katieann06

### Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katie Bryan</td>
<td><a href="mailto:k.bryan@tamu.edu">k.bryan@tamu.edu</a></td>
<td>979-845-7467</td>
</tr>
</tbody>
</table>

**Course prefix** | ECEN  
**Course number** | 769  
**Department** | Electrical & Computer Eng  
**College/School** | College of Engineering  
**Academic Level** | Graduate  
**Academic Level (alternate)** | Undergraduate  
**Effective term** | 2018-2019  
**Complete Course Title** | Materials Informatics  
**Abbreviated Course Title** | MATERIALS INFORMATICS

**Catalog course description**

Use of informatics approaches to establish quantitative structure-property relations (QSPRs) in materials and materials systems; basic concepts of QSPRs and probability, supervised learning, unsupervised learning, optimal prediction and applications in materials discovery.

**Prerequisites and Restrictions**

Approval of instructor.

**Concurrent Enrollment** | No  
**Should catalog prerequisites / concurrent enrollment be enforced?** | No

**Crosslistings**

<table>
<thead>
<tr>
<th>MESEN 660</th>
<th>Yes</th>
<th>Crosslisted With</th>
</tr>
</thead>
</table>

**Stacked** | No | Stacked with |

**Semester** | 3  
**Credit Hour(s)** | (per week):  
**Contact Hour(s)** | Lecture:  
**Total** | 3  
**Lab:** | 0  
**Other:** | 0

**Repeatable for credit?** | No  
**Three-peat?** | No  
**CIP/Fund Code** | 1410010006

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**In Workflow**

1. ECEN Department Head  
2. MSEN Department Head  
3. Curricular Services Review  
4. EN Committee Preparer GR  
5. EN Committee Chair GR  
6. EN College Dean GR  
7. GC Preparer  
8. GC Chair  
9. Faculty Senate Preparer  
10. Faculty Senate  
11. Provost II  
12. President  
13. Curricular Services  
14. Banner

**Approval Path**

1. 09/27/17 2:36 pm  
   Miroslav Begovic (begovic): Approved for ECEN Department Head

2. 10/14/17 10:03 pm  
   Ibrahim Karaman (karaman): Approved for MSEN Department Head

3. 10/16/17 9:29 am  
   Sandra Williams (sandra-williams): Approved for Curricular Services Review

4. 10/24/17 4:35 pm  
   Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR

5. 11/08/17 9:41 am  
   Prasad Enjeti (enjeti): Approved for EN Committee Chair GR

6. 11/13/17 1:13 pm  
   Prasad Enjeti (enjeti): Approved for EN College Dean GR

7. 11/22/17 8:49 am  
   LaRhesa Johnson (jjohnson): Approved for GC Preparer

8. 12/14/17 10:55 am  
   LaRhesa Johnson (jjohnson): Approved for GC Chair
**Default Grade Mode:** Letter Grade (G)  
**Alternate Grade Modes:** Satisfactory/Unsatisfactory  
**Method of instruction:** Lecture  
**Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education):** No  
**Will this course be taught as a distance education course?:** No  
**Is 100% of this course going to be taught in Texas?:** Yes  
**Will classroom space be needed for this course?:** Yes

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Required (select program)</th>
<th>Program(s)</th>
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<tbody>
<tr>
<td>(CERT-CG72) Materials, Informatics and Design - Certificate</td>
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<td>(MS-MSEN) Master of Science in Materials Science and Engineering</td>
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<tr>
<td>(MSEN-MSEN) Master of Engineering in Materials Science and Engineering</td>
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**Course Syllabus**

- **Syllabus:** Upload syllabus  
- **Upload syllabus:** [MSEN 660, ECEN 769 Syllabus, Braga Neto 18C.docx](https://nextcatalog.tamu.edu/courseleaf/approve#)  
- **Letters of support or other documentation:** Yes  
- **Upload files:** [Braga Neto cross listing memo.pdf](https://nextcatalog.tamu.edu/courseleaf/approve#)  
- **Additional information:** Cross-listed with MSEN 660: Materials Informatics.  
- **Reviewer Comments:**  
- **Reported to state?:** Add
<table>
<thead>
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<th>Course Title and Number</th>
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<tr>
<td>Course Name</td>
<td>Materials Informatics</td>
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<td>Fall 2018</td>
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<td>Meeting Times and Location</td>
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<td>Credit Hours:</td>
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**Course Description and Prerequisites**

This course will introduce students to the use of informatics approaches to establish quantitative structure-property relations (QSPRs) in materials and materials systems. Topics include: introduction to QSPRs, basic review of probability, supervised learning, unsupervised learning, optimal prediction, and applications in materials discovery.

**Prerequisites**: approval of instructor

**Goals**: The students will attain good understanding of the different methods available to accelerate the discovery of materials through state-of-the-art statistical computational approaches.

**Learning Outcomes**

At the end of the course students will be able to:
- Understand the materials science forward problem as the establishment quantitative structure-property relations (QSPRs)
- Apply state-of-the-art statistical computational techniques to establish QSPRs using multi-dimensional materials data sets.
- Apply advanced materials informatics approaches to establish connections between structural descriptors and materials indicators in realistic materials discovery problems

**Instructor Information**

<table>
<thead>
<tr>
<th>Name</th>
<th>Ulisses Braga-Neto</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>979-862-6441</td>
</tr>
<tr>
<td>Email address</td>
<td><a href="mailto:ulisses@ece.tamu.edu">ulisses@ece.tamu.edu</a></td>
</tr>
<tr>
<td>Office hours</td>
<td>E-campus or by Appointment</td>
</tr>
<tr>
<td>Office location</td>
<td>WEB 236B</td>
</tr>
</tbody>
</table>

**Suggested Textbooks**

Grading Policies

4 Projects using materials data sets: 40%
5 Quizzes: 25% (previously scheduled, surprise if attendance falters)
1 Final Project using the Citrine python client: 35%

Grade Scale: A ≥ 90; 80 ≤ B < 90; 70 ≤ C < 80; 60 ≤ D < 70; F < 60.

Students will be expected to attend all lectures
Students will be expected to participate during in-class discussions
Students will be expected to complete all projects

Course Topics, Calendar of Activities, Major Assignment Dates

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<tr>
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Attendance

The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07).

Make-up Policy

If an absence is excused, the instructor will either provide the student an opportunity to make up any quiz, exam or other work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. If the instructor has a regularly scheduled make up exam, students are expected to attend unless they have a university approved excuse. The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial
absence. The reasons absences are considered excused by the university are located on-line. See Student Rule 7 for details ([http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07)).

<table>
<thead>
<tr>
<th>Americans with Disabilities Act (ADA)</th>
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<tbody>
<tr>
<td>The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information visit <a href="http://disability.tamu.edu">http://disability.tamu.edu</a>.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Academic Integrity</th>
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</thead>
<tbody>
<tr>
<td><strong>Aggie Honor Code</strong>: “An Aggie does not lie, cheat, or steal, or tolerate those who do.”</td>
</tr>
<tr>
<td>It is the responsibility of students and instructors to help maintain scholastic integrity at the university by refusing to participate in or tolerate scholastic dishonesty. Conduct contradicting to this policy will be punished according to the current rules and regulations. For additional information please visit: <a href="http://aggiehonor.tamu.edu">http://aggiehonor.tamu.edu</a></td>
</tr>
</tbody>
</table>
MEMORANDUM

TO: Office of Curricular Services

THROUGH: Miroslav M. Begovic
          Department Head
          Carolyn S. & Tommie E. Lohman '59 Professor
          Department of Electrical and Computer Engineering

FROM: Ibrahim Karaman
       Head and Chevron Professor I
       Department of Materials Science and Engineering

SUBJECT: Approval of Cross-listed Courses

We confirm approval of the cross-listing of new courses MSEN 660: Materials Informatics and ECEN 769: Materials Informatics. The cross-listed course is required for the interdisciplinary Certificate in Materials, Informatics and Design.

If you have any questions, feel free to contact me at ikaraman@tamu.edu.
Course Change Request

New Course Proposal

Date Submitted: 10/17/17 9:50 am

Viewing: ECON 656: Field Experiments in Economics

Last edit: 10/19/17 2:29 pm

Changes proposed by: kfelpel

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
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<tbody>
<tr>
<td>Kurt Felpel</td>
<td><a href="mailto:kfelpel@tamu.edu">kfelpel@tamu.edu</a></td>
<td>979-845-9953</td>
</tr>
</tbody>
</table>

Course prefix | ECON | Course number | 656
Department | Economics
College/School | Liberal Arts
Academic Level | Graduate
Academic Level (alternate) | Undergraduate
Effective term | 2018-2019

Complete Course Title
Field Experiments in Economics

Abbreviated Course Title
FIELD EXPERIMENTS IN ECON

Catalog course description
Methods underlying the design and implementation of field experiments and randomized controlled trials; includes a survey of some of the empirical literature using these methods.

Prerequisites and Restrictions
ECON 607 and ECMT 677, or equivalent.

Concurrent Enrollment | No
Should catalog prerequisites / concurrent enrollment be enforced? | Yes

In Workflow
1. ECON Reviewer GR
2. ECON Department Head
3. Curricular Services Review
4. LA Committee Preparer GR
5. LA Committee Chair GR
6. LA College Dean GR
7. GC Preparer
8. GC Chair
9. Faculty Senate Preparer
10. Provost II
11. President
12. Curricular Services
13. Banner

Approval Path
1. 10/17/17 10:15 am
   Silvana Krasteva (ssk8): Approved for ECON Reviewer GR
2. 10/18/17 5:35 pm
   Timothy Gronberg (tgronberg): Approved for ECON Department Head
3. 10/19/17 2:29 pm
   Sandra Williams (sandra-williams): Approved for Curricular Services Review
4. 10/19/17 3:13 pm
   Tiffany Green (tgreen): Approved for LA Committee Preparer GR
5. 11/13/17 2:42 pm
   Leroy Dorsey (ldorsey): Approved for LA Committee Chair GR
6. 11/13/17 7:15 pm
   Leroy Dorsey (ldorsey): Approved for LA College Dean GR
7. 11/22/17 8:50 am
   LaRhesa Johnson (lrjohnson): Approved for GC Preparer
8. 12/14/17 10:56 am
   LaRhesa Johnson (lrjohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve/#
Enforced Prerequisites / Concurrent Enrollment

<table>
<thead>
<tr>
<th>And/Or</th>
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<th>Concurrency?</th>
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<td>And</td>
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<td>C</td>
<td>GR</td>
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</table>

Crosslistings: No
Crosslisted With:

Stacked: No
Stacked with:

Semester: 3
Credit Hour(s): Contact Hour(s) per week:
Lecture: 3
Lab: 0
Other: 0
Total: 3

Repeatable for credit? No
Three-peat? No
CIP/Fund Code: 4506010001
Default Grade Mode: Letter Grade (G)
Alternate Grade Modes: Satisfactory/Unsatisfactory
Method of instruction: Lecture
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) No

Will this course be taught as a distance education course? No
Is 100% of this course going to be taught in Texas? Yes
Will classroom space be needed for this course? Yes

This will be a required course or an elective course for the following programs:

**Required (select program)**

<table>
<thead>
<tr>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(PHD-ECON) Doctor of Philosophy in Economics</td>
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</tbody>
</table>

**Elective (select program)**

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**Course Syllabus**

Syllabus: Upload syllabus

Upload syllabus: [ECON 656 Field Experiments 2018 Spring.pdf](https://nextcatalog.tamu.edu/courseleaf/approve/)

Letters of support or other documentation: No

Additional information: I have made requested changes to course syllabus
Reviewer Comments

Sandra Williams (sandra-williams) (10/16/17 4:33 pm): Edits made to catalog course description to conform to style guide.
Sandra Williams (sandra-williams) (10/16/17 4:33 pm): Rollback: Syllabus missing attendance/late-work/make-up work policy and link to student rule 7.
Sandra Williams (sandra-williams) (10/19/17 2:29 pm): Update received.

Reported to state?

Add
Instructor: Dr. Ragan Petrie, 3098 Allen Building, 979-845-4593, email: rpetrie@tamu.edu.

Time and Location: MW 11:30 am - 12:45 pm, 3067 Allen building.

Office Hours: M 4:30 - 5:30 pm or by appt (or Skype).

Course Description: This course covers the methods underlying the design and implementation of field experiments and randomized controlled trials and includes a survey of some of the empirical literature using these methods. The goals of the course are to (1) learn the approach and methods for designing a field experiment, (2) give a flavor of the research using field experiments, (3) critically read and discuss recent papers, (4) have the student come up with and vet new research ideas that would be conducive to using field experiment designs, and (5) design and run a field experiment in a group, analyze the data, write up the results and present the findings. The course will combine lecture, discussion, idea briefs, presentations and design and completion of a field experiment. Participation and critical thinking are key components of the course.

Background for course: graduate-level microeconomic theory and econometrics.

Format: Each class will be a combination of lecture, student presentations and discussion. Students will present research papers and explore recent developments on the main topics of the course. There will be weekly or bi-weekly assignments of either a paper discussion or an idea brief. This format gives students the opportunity to present their own ideas and critically read the papers of other researchers throughout the semester. A final group paper on the field experiment will be due at the end of the semester.

Required Texts: There are no required texts for the class. We will be using research papers and journal articles to complement lectures.

Grading: 40% Field Experiment, 20% Paper Discussions, 30% Idea Briefs, 10% Participation.

Grading Scale: A - 90.0% + ; B - 80-89.9% ; C - 70-79.9% ; D - 60-69.9%; F - below 60% .

Field Experiment: The class will plan and conduct a field experiment as a group. Depending on the class size, there may be more than one group and thus more than one field experiment. The field experiment may replicate and extend an existing field experiment paper by, for example, adding additional treatments or testing the robustness of the initial result. The group may also plan and conduct a completely new field experiment, which can be particularly exciting, but also quite demanding, based on ideas discussed during the second week of class. Thus, the group comes up with an idea for a field experiment, designs the experimental protocol, identifies the target population to study, gets Human Subjects approval, runs the experiment, examines the data statistically and descriptively and writes up a research report. The report will be limited to 5 single-spaced pages. The protocol, design, description of target population and recruitment methods must be included in an Appendix. The class will have an experimental budget to conduct the experiment. The results will be presented during the final two scheduled class meetings, and the final paper is due May 7 by 5pm.

Paper Discussion: Students are expected to lead discussion of a paper on the syllabus two times during the semester. The paper presented by the student will be chosen in consultation with me. A week before the discussion, the student will inform the class which paper was chosen and post the paper on Howdy. The presenter is expected to incorporate his own thoughts and opinions about the
paper in the presentation. Students who are not presenting a paper should have read the paper(s) and come to class prepared with 2-3 questions for each paper to be discussed. Guidelines for paper discussions are posted on Howdy.

Idea Brief: Several times during the semester, students will write a short idea brief (1-2 pages) focusing on a new research idea related to the topics and methods listed on the date the brief is due. The idea briefs should focus on the big picture questions that the research aims to answer, with a focus on the motivation and the experimental design used to explore it. Students will give a short (5-10 minute) presentation of their idea brief to the class on the day that they are due and get immediate feedback.

Participation: Students are expected to play an active role in class discussions and come prepared with questions on the required readings and discussion papers.

eCampus: Class announcements, schedule of readings, and other important information will be posted on eCampus.

Academic Integrity: An Aggie does not lie, cheat, or steal, or tolerate those who do. Violations of the honor code will result in a grade of a 0 on that exam and a referral to the Honor System office. See http://aggiehonor.tamu.edu/ for more information.

Attendance/Make up policy: It is the responsibility of the student, and the student alone, to ensure that they attend class. It is also the responsibility of the student to notify instructors of any absence in a timely manner. Per student rule 07 (http://studentrules.tamu.edu/rule07), some absences may qualify as an excused absence. Instructors may grant an excused absence for reasons beyond those outlined in student rule 07 at his/her discretion. Students who request an excused absence are expected to uphold the Aggie Honor Code and the Student Code of Conduct. Students are responsible for contacting an instructor to discuss a time to meet and go over material that was discussed during the meeting they missed.

Disabilities: The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.
Course Schedule

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<th>Topics/Assignment</th>
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<tr>
<td>2</td>
<td>Jan 23</td>
<td>Methodology</td>
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<td></td>
<td>Jan 25</td>
<td>Group field experiment: brainstorm ideas, protocol and design</td>
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<td>3</td>
<td>Jan 30</td>
<td>Methodology</td>
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<td>17</td>
<td>May 7, 5:00pm</td>
<td>Research paper due</td>
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2. Methodology. Experimental design for field settings, value of baseline information, power calculations, stratification, random assignment to treatment, sample selection and recruitment, incentives to participate, subject knowledge under study, multiple comparisons, creating instruments to identify treatment effects, study registration, pre-analysis plan, research integrity.

AEA website study registration.


3. Methodology. Implementation, compliance, selection, recruiting partners (who is willing to help run a field experiment?), conditions to run a good field experiment (e.g. no information contamination, random assignment of treatments, willingness to implement the experiments blindly, release of data and results for publication, etc.), overestimation of treatment effects, workforce training, delegation and agency problems and measurement.

Methodology. Data issues, missing data, missing outcomes, missing covariates, missing treatments, corrupted data, measurement error, definitions, solutions and challenges (e.g. interval covariates, repeated measures, factor analysis).


4. Charitable Fundraising


5. Discrimination


6. Health


7. Development


Chris Blattman’s blog often cites new RCT’s on development.

8. Voting


9. Kids


Heckman, James, Rodrigo Pinto and Peter Savelyev, “Understanding the Mechanisms through Which an Influential Early Childhood Program Boosted Adult Outcomes,” *American Economic Review*, 2013, 103(6), 2052-86.


10. Crime


Castillo, Marco, Ragan Petrie, Maximo Torero, “Lost in the mail: a field experiment on crime,” *Economic Inquiry*, 2011.

More references will be added.

11. Interpretation and limitations. What can be learned from field experiments and randomized controlled trials, extrapolation and the need for structure, other approaches to address research questions, research integrity, registration of studies, replication.


More references will be added.
12. Interventions: what has been learned


13. Presentations of field experiments
Course Change Request

New Course Proposal

Date Submitted: 10/13/17 10:31 am

Viewing: EDCI 724 : Science and Mathematics in the Teaching of Engineering Content in K-12 Schools

Last edit: 10/13/17 11:47 am
Changes proposed by: ksmith

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerri Smith</td>
<td><a href="mailto:ksmith@tamu.edu">ksmith@tamu.edu</a></td>
<td>979-862-3792</td>
</tr>
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Course prefix: EDCI  
Course number: 724

Department: Teaching, Learning & Culture
College/School: Education & Human Development
Academic Level: Graduate
Academic Level (alternate): Undergraduate
Effective term: 2018-2019

Complete Course Title: Science and Mathematics in the Teaching of Engineering Content in K-12 Schools
Abbreviated Course Title: SCI MATH TEACH ENGR CONT K-12

Catalog course description:
Exploration of the integrated approach for teaching science and mathematics concepts using engineering design principles and technology in K-12 levels; learn to deliver contextualized and integrated STEM instruction that promotes student engagement, motivation and interest.

Prerequisites and Restrictions:
Graduate classification.
Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced?: No
Crosslistings: No  Crosslisted With: No
Stacked: No  Stacked with: No

Semester: 3  
Credit Hour(s): 3  
Contact Hour(s) (per week): 3  
Lecture: 3  
Lab: 0  
Other: 0  
Total: 3

Repeatable for credit?: No
Three-peat?: No

https://nextcatalog.tamu.edu/coursesale/approve/#
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<td>Alternate Grade Modes</td>
<td>Satisfactory/Unsatisfactory</td>
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<td>Method of instruction</td>
<td>Lecture</td>
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<tr>
<td>Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Learning Outcomes**

Meets traditional face-to-face learning outcomes.
Describe how learning outcomes are met or provide justification why they are not met.

1) Identify K-12 mathematics curricula suitable for elementary, middle, and secondary grade bands and discuss how engineering can be integrated.

In week 2, students will be reviewing the standards on STEM education and read the online documents that focus on integrating engineering topics in teaching mathematics. Then students will engage in an online discussion and answer to another’s question about the integrations of engineering (and technology) into teaching of mathematics. Students will also synthesize these standards and write a report of it in the final course project. In addition, in weeks 11 and 12, students will learn about the role of STEM integration on mathematics teaching.

2) Identify K-12 science curricula suitable for elementary, middle, and secondary grade bands and discuss how engineering can be integrated.

In week 2, students will be reviewing the standards on STEM education and read the online documents that focus on integrating engineering topics in teaching science. Then students will engage in an online discussion and answer to another’s question about the integrations of engineering (and technology) into teaching of science. Students will also synthesize these standards and write a report of it in the final course project. In addition, in weeks 11 and 12, students will learn about the role of STEM integration on science teaching.

3) Explore the integration of science, mathematics, and engineering for teaching and learning.

In week 2, students will read about the integration of STEM fields from the standards’ viewpoints. In weeks 11 and 12, students will read about the literature on STEM integration. In all these weeks, students will engage in online discussion. They will also synthesize the literature on the integration of STEM and write a report of it at the end of the semester.

4) Evaluate programs designed for K-12 engineering education and their meaningful inclusion of science and mathematics.

In weeks 3, 4, 5, and 6 students will read the literature on several programs designed for K-12 engineering education and their meaningful inclusion of science and mathematics. In each week, students engage in discussions. They will also synthesize their readings into their final course paper. As an illustrative activity, in weeks 7, 8, 9, and 10, students will complete a bridge building activity and review the steps that include technology, engineering, and learning of basic math and science concepts.

5) Evaluate published research on the consequences for integrating science, mathematics, and engineering for K-12 educational success.

Over the semester, students will be reading about the consequences of integrating science, math, and engineering for K-12 education and they will discuss online their understandings. We will collectively evaluate these consequences and reflect upon them. Students will also write a paper about these impacts. In the last week of the semester, students will learn and discuss about the future directions of these integrative teaching strategy.

6) Work collaboratively to develop common understandings of K-12 TEKS for integrating science, mathematics, and engineering.

Each week, students will discuss the readings together. We will actively pose questions to each other and answer them. The course instructor will overview all discussions and students’ final course grades include their performance in these student-to-student discussions.

7) Design and build a truss bridge as an illustration of the integrated STEM instruction.

In weeks 7, 8, 9, and 10 students build a truss bridge.

8) Develop and present a personal position on the role of contextualized STEM instruction on student learning outcomes.

Students will present their personal position at the end of the semester and write a paper about it. Over the semester they will learn about contextualized STEM instruction and its impact on student learning outcomes.

Hours
Meets traditional face-to-face hours.
Describe how hours are met or provide justification why they are not met.

Students will complete activities each week over the semester. In each week, students will read articles and/or complete engineering activities. These activities are similar to what the assignments will be at a face-to-face course. In addition to these activities, students will engage in online discussions and read and respond to one another. Students will spend 3 hours or more each week for these online discussions. Students will also read or review each other's presentations, movies, and computer aided bridge design reports. These will also take time that could be counted as in class meeting times. The amount of work and time students will spend on in this online course will be equal to or more than the regular face to face course activities.

Will this course be taught as a distance education course? Yes

I verify that I have reviewed the FAQ for Export Control Basics for Distance Education. Yes

Is 100% of this course going to be taught in Texas? Yes

Will classroom space be needed for this course? No

This will be a required course or an elective course for the following programs:

Required (select program)

Elective (select program)

Program(s)
(MED-EDCI) Master of Education in Curriculum and Instruction

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**Course Syllabus**

Syllabus: Upload syllabus

Upload syllabus [EDCI 724, Sci Mat in Eng, Spring, 2018, Yalvac, v. 10, 11, 17.doc]

Letters of support or other documentation No

Additional information

Reviewer Comments Sandra Williams (sandra-williams) (10/09/17 4:12 pm): Rollback: Update required: link to student rule 7 missing from syllabus. Also, will the course only be taught as on-line?
Sandra Williams (sandra-williams) (10/13/17 11:47 am): Update received.

Reported to state? Add
Course title and number: EDCI 724 Science/Mathematics in the Teaching of Engineering Content in K-12 Schools
Term: Spring 2019
Meeting times and location: Online
Department name: Teaching, Learning, and Culture
Course inventory information: EDCI 724 Sci Mat in Eng

Course Description
Explore the integrated approach for teaching science and mathematics concepts using engineering design principles and technology in K-12 levels; learn to deliver contextualized and integrated STEM instruction that promotes student engagement, motivation, and interest.

Prerequisites
Admission to Graduate School. This course is 3 credits, elective, and cannot be repeated.

Learning Outcomes
1) Identify K-12 mathematics curricula suitable for elementary, middle, and secondary grade bands and discuss how engineering can be integrated.
2) Identify K-12 science curricula suitable for elementary, middle, and secondary grade bands and discuss how engineering can be integrated.
3) Explore the integration of science, mathematics, and engineering for teaching and learning.
4) Evaluate programs designed for K-12 engineering education and their meaningful inclusion of science and mathematics.
5) Evaluate published research on the consequences for integrating science, mathematics, and engineering for K-12 educational success.
6) Work collaboratively to develop common understandings of K-12 TEKS for integrating science, mathematics, and engineering.
7) Design and build a truss bridge as an illustration of the integrated STEM instruction.
8) Develop and present a personal position on the role of contextualized STEM instruction on student learning outcomes.

Instructor Information
Name: Bugrahan Yalvac
Telephone number: 814-8838112
Email address: yalvac@tamu.edu
Office hours: Wednesday and Thursday at 1:00-3:00 pm, and available upon request
Office location: Harrington 442, Department of Teaching, Learning, and Culture.

Required Textbooks

Required Software
West Point Bridge Designer (2016), https://bridgecontest.org/resources/download/

Required Readings


Recommended Resources


Course Assignments and Expectations
Online Discussions and Feedback (20%): In the weeks that we read the journal articles, you will engage in discussions with your peers about the content of the articles. For these discussions, you will generate two questions and post them online on the designated links. Your peers will answer to your questions and you will respond back to them as appropriate. Each student should respond to at least two other questions
posted by two other peers. Do not respond to the two questions posted by the same peer. If there are
questions that are not yet answered, try to respond to those questions in particular.

Remembering that the questions you generate will affect the cognition of others in the class, consider
discussion questions that might be customized from the following more generalized ideas:

1. **Compare-Contrast Questions.** Craft a question that specifically relates a passage from the
   readings to something discussed in an earlier meeting.

2. **Opposing View.** Craft a question that asks group members to generate a contrary, devil’s
   advocate viewpoint to a particular statement made by the author in a required reading.

3. **Your Position.** Choose a particularly thought-provoking passage from the author. Ask others to
   state their positions on the topic revealed in the passage.

4. **Research Method.** Choose a particular aspect of the research method described in the article.
   Ask others to consider the problems associated with that research method.

5. **Connections.** Choose a topic from a particular passage in the reading. Ask others to describe
   other information that they individually have read relating to the topic.

**Bridge Design Project (50%):** As an exemplary integrated STEM instruction, you will be completing a
truss bridge design project between the 7th and 11th class meetings. The activities that you will complete
are outlined in details in the weekly readings. Each week, you will read a chapter from the Ressler’s essay
and complete the activities. After you build the actual bridge using the file-folders in week 7, you will record
a brief video that shows your bridge and describes your experiences as you build it. Your face and the file-
folder made bridge should be visible in the video. You will post a copy of this video online for your peers to
view and comment in week 8. Each student is expected to review and comment to at least two other
videos. In week 9, you will review the learning activities in Ressler’s essay and engage in discussions with
peers. In week 10, you will design a bridge on a Computer-Aided Design (CAD) software, called West
Point Bridge Designer. The software is online and free of charge. To download the West Point Bridge
Design software, go to this link: [https://bridgecontest.org/resources/download/](https://bridgecontest.org/resources/download/) and select the correct
operating system for your computer. After you download and install the software on your computer, refer to
the directions included in the learning activity number 4 in Ressler’s essay. After you complete your CAD
model, you will save the file with your name and submit it on the course website for your instructor to
review and grade. Half of your bridge design project grade will come from the file-folder bridge model and
its presentation (25% of the final course grade) and the other half will come from the CAD bridge design
(25% of the final course grade).

**Final Course Paper and Its Presentation (30%):** In this course, you will read and discuss journal articles
published on integrated STEM education in K-16 levels. You will also read about the transfer of knowledge
and the role of contextualized STEM instruction on student motivation and interest in STEM fields. By
the completion of the semester, you are expected to develop a personal position (an argument) about
teaching integrated STEM. In the final course paper, you will describe your personal position on teaching
integrated STEM and provide a convincing argument. In order to provide a convincing argument, you
should cite others’ ideas (in the form of citations) or research findings. You are welcome to cite the journal
papers we read in this course. However you should also search and review other journal papers or
academic resources and include at least three new citations in your final paper. The final paper should be
no more than ten pages long and it should include at least six citations (Three of these citations should be
different from our reading list). An abstract is not required yet recommended. The references cited and the
paper’s organization and text should be in APA style (APA Style guide 6th Edition, 2009 **required**). You will
submit your course paper along with a PP presentation that summarizes your paper. The PP presentation
should not be longer than eight slides. The presentation should clearly communicate your position on
integrated STEM teaching and include couple references from your paper. Each student will review two of
the peers’ PP presentations and provide constructive feedback.

**Grading Scale**

3
Percentages of the course grade are listed next to each requirement. Grades will be assigned as follows:

- 90%-100%  A
- 80%-89%    B
- 70%-79%    C
- 60%-69%    D

Assignments

(1) Bridge Design Project: 50% of the final course grade
   - (25%) Bridge Model and its Presentation
   - (25%) Bridge Design on Computer Aided Design Software
(2) Final Course Paper and its Presentation: 30% of the final course grade
(3) Discussions and Feedback: 20% of the final course grade

Late Assignments

Only assignments submitted complete and on time will be considered for full credit. Any assignments turned in more than a day late will receive zero points unless it is due to a university excused absence. Assignments must be turned in by 11:59 PM of the day it is due. Electronic submission via e-mail is not acceptable. All assignments must be submitted within the learning management system (LMS). http://student-rules.tamu.edu

Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Class introduction and course syllabus Review</td>
<td>Read: The course syllabus. Post your introduction on the course website and read all others’ introductions.</td>
</tr>
<tr>
<td>2</td>
<td>Next Generation Science Standards</td>
<td>Read: NGSS Executive Summary and review the online resources.</td>
</tr>
</tbody>
</table>

Build a Model of a Truss Bridge |

| 8 | Bridge design – Presenting your truss bridge | Record: A movie that shows your Truss Bridge and describes its strength. Include your self-reflections in the movie about your bridge building experience.

Post your movie on the course website. Review and comment to two peers’ movies. |


Engage in discussion with peers. |


Design your Truss Bridge on West Point Bridge Designer

Submit your Truss Bridge file on course management system |


Present your final paper and its presentation online.

Review peers’ presentations and provide feedback.

Diversity Statement for the Department of Teaching, Learning, and Culture

The Department of Teaching, Learning, and Culture (TLAC) does not tolerate discrimination, violence, or vandalism. TLAC is an open and affirming department for all people, including those who are subjected to racial profiling, hate crimes, heterosexism, and violence. We insist that appropriate action be taken against those who perpetrate discrimination, violence, or vandalism. Texas A & M University is an Affirmative Action and Equal Opportunity institution and affirms its dedication to non-discrimination on the basis of race, color, religion, gender, age, sexual orientation, domestic partner status, national origin, or disability in employment, programs, and services. Our commitment to non-discrimination and affirmative action embraces the entire university community including faculty, staff, and students.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Statement of Plagiarism

The handouts used in the course are copyrighted. By “handouts”, I mean all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, professor’s web site, video, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission. As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of that person. Plagiarism is one of the worst academic offences, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated.

If you have any questions regarding plagiarism, please consult the latest issue of the Texas A & M University Student Rules, under this section "Scholastic Dishonesty".

Academic Integrity

For additional information please visit: http://aggiehonor.tamu.edu

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”

Course Evaluations

Each student must complete on-line evaluations of the professor and the class. The link is: https://pica.tamu.edu – complete during the last week of class.

Attendance

Attendance of individuals in the class is required, and university rules regarding absences will be followed. Exchange of ideas is essential for the learning that occurs in this online class. The absence or lack of participation of one individual impacts the performance of all persons.
Make-up Policy

If you will miss an assignment or a meeting and you need to be excused, inform your course instructor as soon as possible. The instructor will either provide the student an opportunity to make up any quiz, exam or other work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence.

You are responsible for providing satisfactory evidence to the course instructor to substantiate the reason for the absence. Among the reasons absences are considered excused by the university are the following (see Student Rule 7 for details http://student-rules.tamu.edu/rule07). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.

1) Participation in an activity that is required for a class and appears on the university authorized activity list at https://stuactonline.tamu.edu/app/sponsauth/index
2) Death or major illness in a student's immediate family.
3) Illness of a dependent family member.
4) Participation in legal proceedings or administrative procedures that require a student's presence.
5) Religious holy day. NOTE: Prior notification is NOT required.
6) Injury or illness that is too severe or contagious for the student to attend class.
   a) Injury or illness of three or more class days: Student will provide a medical confirmation note from his or her medical provider within one week of the last date of the absence (see Student Rules 7.1.6.1)
   b) Injury or illness of less than three class days: Student will provide one or both of these (at instructor's discretion), within one week of the last date of the absence: (i.) Texas A&M University Explanatory Statement for Absence from Class form available at http://attendance.tamu.edu (ii.) Confirmation of visit to a health care professional affirming date and time of visit.
   c) An absence for a non-acute medical service does not constitute an excused absence.
7) Required participation in military duties.
8) Mandatory admission interviews for professional or graduate school that cannot be rescheduled.
9) Mandatory participation as a student-athlete in NCAA-sanctioned competition.
10) In accordance with Title IX of the Educational Amendments of 1972, Texas A&M University shall treat pregnancy (childbirth, false pregnancy, termination of pregnancy and recovery therefrom) and related conditions as a justification for an excused absence for so long a period of time as is deemed medically necessary by the student's physician. Requests for excused absence related to pregnancy should be directed to the instructor.

Other absences may be excused at the discretion of the instructor with prior notification and proper documentation.

In cases where prior notification is not feasible (e.g., accident or emergency), the student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.

Accommodations sought for absences due to the observance of a religious holiday can be sought either prior or after the absence, but not later than two working days after the absence.
Course Change Request

New Course Proposal

Date Submitted: 10/23/17 3:24 pm

Viewing: GEOG 663 : GIS in Petroleum

Last edit: 11/07/17 3:54 pm
Changes proposed by: klein

Contact(s)

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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Andrew Klein</td>
<td><a href="mailto:klein@tamu.edu">klein@tamu.edu</a></td>
<td>979 845 5219</td>
</tr>
</tbody>
</table>

Course prefix  GEOG  
Department     Geography  
College/School Geosciences  
Academic Level Graduate  
Effective term 2018-2019  

Complete Course Title GIS in Petroleum  
Abbreviated Course Title GIS IN PETROLEUM  

Catalog course description
Investigation of the use of Geographic Information Systems within the Petroleum industry; case studies present geospatial workflows used in various industry sectors; laboratory exercises provide practical applications incorporating industry-standard data sources

Prerequisites and Restrictions
GEOG 660 or equivalent, or approval of instructor.

Concurrent Enrollment
No  
Should catalog prerequisites / concurrent enrollment be enforced?
Yes

Enforced Prerequisites / Concurrent Enrollment

And/Or (Course Prefix/Number Min Grade/Score Academic Level ) Concurrency?

In Workflow
1. GEOG Department Head  
2. Curricular Services Review  
3. GE Committee Preparer GR  
4. GE Committee Chair GR  
5. GE College Dean GR  
6. GC Preparer  
7. GC Chair  
8. Faculty Senate Preparer  
9. Faculty Senate  
10. Provost II  
11. President  
12. Curricular Services  
13. Banner

Approval Path
1. 10/24/17 10:18 am Dave Cairns (cairns): Approved for GEOG Department Head  
2. 10/26/17 10:27 am Sandra Williams (sandra-williams): Approved for Curricular Services Review  
3. 10/26/17 10:42 am Roxanna Russell (rrussell): Approved for GE Committee Preparer GR  
4. 11/07/17 3:55 pm Christian Brannstrom (cbrannst): Approved for GE Committee Chair GR  
5. 11/07/17 3:58 pm Christian Brannstrom (cbrannst): Approved for GE College Dean GR  
6. 11/22/17 8:50 am LaRhesa Johnson (ljohnson): Approved for GC Preparer  
7. 12/14/17 10:56 am LaRhesa Johnson (ljohnson): Approved for GC Chair
GEOG 663: GIS in Petroleum

Crosslistings: No
Crosslisted With: 
Stacked: No
Stacked with: 

Semester: 3 Credit: 3
Contact Hour(s): (per week):
Lecture: 3 Lab: 1 Other: 0 Total: 4

Repeatable for credit? No
CIP/Fund Code: 4507020006
Default Grade Mode: Letter Grade(G)
Method of instruction: Lecture and Laboratory
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) Yes

Learning Outcomes: Meets traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met.
This documentation is provided in the attached College of Geosciences Nontraditional Course Equivalency Checklist

Hours: Meets traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met.
This documentation is provided in the attached College of Geosciences Nontraditional Course Equivalency worksheet.

Will this course be taught as a distance education course? Yes

I verify that I have reviewed the FAQ for Export Control Basics for Distance Education. Yes

Is 100% of this course going to be taught in Texas? No

Will classroom space be needed for this course? Yes

This will be a required course or an elective course for the following programs:
Required (select program)
Elective (select program)

Course Syllabus

Syllabus: Upload syllabus
Upload syllabus  GEOG663_Syllabus_GIS_in_Petroleum.pdf

Letters of support or other documentation  Yes

Upload files  Cairns_GEOG663_course-offering-memo_10-2017.pdf
GEOG 663 Checklist.pdf

Additional information  Additional Documentation includes

1) A letter of support from Petroleum Engineering
2) A completed College of Geosciences Nontraditional Course Equivalency Checklist that describes how the course meets the Learning Objectives.
GIS in Petroleum  
GEOG 663

Instructor: Stacey D. Lyle, PhD, RPLS, PLS  
Office: O&M 706c  
Communication Policy: Instructor Office Hours are TBD or by appointment or please contact me on my cell 361-548-8852 at anytime. Response will be within one business day.  
Email: Stacey.Lyle@tamu.edu  
Web: http://geography.tamu.edu//people/faculty/stacey.lyle

Catalog Description
Investigates the use of Geographic Information Systems within the Petroleum Industry; case studies present geospatial workflows used in various industry sectors; laboratory exercises provide practical applications incorporating industry-standard data sources.

Course Description
This course introduces students to the theories and applications of geospatial science and geographic information science to solve petroleum energy problems. Concepts and workflows in the proper application of GIS in the upstream, midstream, and downstream industry to extract hydrocarbon energy for the public with the least impact to the Earth are covered in detail. Utilization of advanced modeling, business intelligence, and geospatial analytics are applied to improve the processes of Health/Safety/Security/Environmental regulation, facility/operation management, public utilities, geophysics, mineral land management, regulatory/reservoir/petroleum/pipeline/facility engineering and land surveying. This is followed by a complete industry workflow project applying the newly developed analytical processes and science.

Learning Outcomes
At the end of the course, students should be able to:
1) Utilize and design analytical GIS tools specific to the downstream, midstream and upstream petroleum energy industry.
2) Apply GIS tools to improve processes of facility management, public utilities, geophysics, mineral land management, regulatory/reservoir/petroleum/pipeline/facility engineering and land surveying in the Geosciences.
3) Analyze current Geosciences research problems to facilitate continuous improvement in health, safety, environment, security, social responsibility.
Each student must schedule a one-on-one 1-hour meeting with Instructor

Course Topic Modules (**Note that this outline is subject to change**)  

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<th>Week</th>
<th>Topics</th>
<th>Chapter</th>
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<td>Intro with HSSE and Social Responsibility</td>
<td>1-2</td>
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<td>Topic Module 2</td>
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<td>Downstream: Consumers/Refineries</td>
<td>5</td>
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<tr>
<td>Topic Module 3 &amp; Student</td>
<td>3</td>
<td>Midstream and Upstream: Global Mineral and</td>
<td>4</td>
<td>Project 1 Due: Environment Assessment</td>
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<td>Presentation</td>
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<td>Surface Ownership</td>
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<td>4</td>
<td>Upstream: Regulatory</td>
<td>3 &amp; 6</td>
<td></td>
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<tr>
<td>Topic Module 5</td>
<td>5</td>
<td>Upstream: Site Development</td>
<td>7</td>
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</tr>
<tr>
<td>Topic Module 6 &amp; Student</td>
<td>6</td>
<td>Upstream: Well and Wellbore Design</td>
<td>8</td>
<td>Project 2 Due: Complete Regulatory Application</td>
</tr>
<tr>
<td>Presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topic Module 7</td>
<td>7</td>
<td>Upstream and Midstream: Operations</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Topic Module 8 &amp; Student</td>
<td>8</td>
<td>Upstream: Reclamation</td>
<td>10</td>
<td>Project 3: Field Management GIS</td>
</tr>
<tr>
<td>Presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Grading Scheme

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percent of Total Grade</th>
<th>Grading follows the Texas A&amp;M University grading system and cutoffs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter Exercises</td>
<td>20</td>
<td>A = Excellent ≥ 90 %</td>
</tr>
<tr>
<td>Project 1</td>
<td>20</td>
<td>B = Good 80-89 %</td>
</tr>
<tr>
<td>Project 2</td>
<td>20</td>
<td>C = Satisfactory 70-79 %</td>
</tr>
<tr>
<td>Project 3</td>
<td>20</td>
<td>D = Passing 60-69 %</td>
</tr>
<tr>
<td>Research Paper</td>
<td>20</td>
<td>F = Failing &lt; 60 %</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Version 3.0 10/4/2017
Chapter Exercises:
Textbook Chapter Exercises are designed to provide hands-on practical lab work. The chapters cover topic areas in GIS in Petroleum.

Projects:
Three projects will be completed in this course. Each project builds on each other along the course. The projects are designed in a workflow of developing new well locations. Option to work onshore or offshore is permitted.

Project 1: GIS built to support regulatory environmental and mineral lease requirement.
Project 2: Complete set of regulatory documents needed for permit to explore
Project 3: GIS of all exploration assets in field study area using SSDM, PODS, or other standards.

Final Paper:
A paper, comprised from the best Project must be completed using an industry conference call for paper from the following:
   1. ESRI User Conference
   2. Petroleum User Group Houston Conference
   3. NAPE call for Abstract
   4. Society of Exploration Geophysicists Call for Papers
   5. OTC 2018

Attendance and make-up policies
All work, including labs, exams, and reports, will be turned in via Canvas. Attendance and grading policies follow the Texas A&M Student Rules http://student-rules.tamu.edu/academicrules including Student Rule 7 (Attendance) and 10 (Grading).

Instructional materials:
Reading
Instructors are publishing a text with ESRI Press will be coincide with this course. In 2018 preliminary chapters will be made available to students. Selected scientific articles.

IOGP Required Reading

<table>
<thead>
<tr>
<th>IOGP Report</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>373-1</td>
<td>Geodetic awareness guidance note (S&amp;P 01)</td>
</tr>
<tr>
<td>373-02</td>
<td>Use of bin grids and coordinate reference systems in workstations (S&amp;P 02)</td>
</tr>
<tr>
<td>373-16</td>
<td>Guidelines for the quality control of proposed well coordinates (S&amp;P 16)</td>
</tr>
<tr>
<td>373-20</td>
<td>Coordinate reference systems for the Arctic – Geomatics guidance note 20</td>
</tr>
<tr>
<td>373-17</td>
<td>Co-ordinate transformation in the Gulf of Mexico</td>
</tr>
<tr>
<td>483-1</td>
<td>OGP P1/11 Geophysical position data exchange format</td>
</tr>
</tbody>
</table>
Lecture Topics
Lecture Topics will be provided via online interaction. Attendance or reviewing of recorded lectures is required. Lectures will cover critical topics required geoscience industry body of knowledge needed to obtain Professional Texas Professional Geoscientist, Certified Environmental Scientist, Certified Photogrammetrist, Geospatial Information Science Professional, Professional Land Surveyor and/or other licenses and certifications.

COURSE AND UNIVERSITY POLICIES

Class Attendance
The university views class attendance as an individual student responsibility. Students are expected to attend all scheduled meetings with instructor. University rules regarding attendance (e.g. excused absences) can be found at http://student-rules.tamu.edu/rule07.

Americans with Disabilities Act (ADA)
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Academic Integrity

Aggie Code of Honor

For many years Aggies have followed a Code of Honor, which is stated in this very simple verse: "An Aggie does not lie, cheat or steal or tolerate those who do."

The Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified

The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other.
Hopefully academic dishonesty will not be a problem in this class. Texas A&M does, however, have an Academic Integrity policy to which both students and faculty must comply. The Aggie Honor System Office all cases of academic misconduct. Details about the Aggie Honor Policy can be found at http://aggiehonor.tamu.edu/.

The materials used in this course are copyrighted. These materials include, but are not limited to, syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless permission is expressly granted.

As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated.

If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, http://student-rules.tamu.edu, under the section “Scholastic Dishonesty.”

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Note: The structure and content of this course follows the instructional and education guidelines and requirements of the Department of Geography of Texas A&M University.

### Learner Engagement

<table>
<thead>
<tr>
<th>Activity</th>
<th>Assignments</th>
<th>Estimated hours for the average student</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Engagement</strong></td>
<td>Listening to or reading course lectures: 25 pages per hour (1 per week)</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Reading additional website documents: 25 pages per hour (.5 per week)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>6 Web-X meetings: 1.5 each</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Text chapter Reading: 1 hour per week</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Review each Student Presentations: .25 hour per student 3 Projects</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>One-on-One with Instructor</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL: should be at least 45 hours per semester</strong></td>
<td>51</td>
</tr>
<tr>
<td><strong>Preparation (outside of class)</strong></td>
<td>Required textbooks, ordinary reading level: 30 pages per hour</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Reaction/reflection papers and book reports: 1 hours per page</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Chapter Exercises: 3 hour per page</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Research paper: 20 hours per page</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Project Videos 3 @ 4 hours each</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL: should be at least 90 hours per semester</strong></td>
<td>92</td>
</tr>
</tbody>
</table>

| Overall Total                   | Should be at least 135 hours for a 3 credit course per semester            | 143                                    |

### Technology and Accessibility

**Computer Screen Size:** Your courses should be viewed at a minimum of 800x600, which is the average size of a notebook computer.

**Operating Systems:** Windows 7 and newer (users on Windows 10 need to download the Windows 10 Anniversary Update, Mac OSX 10.6 and newer.

**Computer Speed and Processor:** Use a 5-year-old or newer computer with 1GB of RAM (4GB recommended) 2GHz processor.

**Graphics Card:** Your hardware should have a graphics card with at least 512 MB of video memory. For the best performance, it is recommended that you have a graphics card with at least 1 GB of video memory, especially for working with larger or more memory-intensive scenes.

**Internet Access & Speed:** You should have high-speed internet access and must be able to have unlimited access to resources. If you aren't able to get through a corporate firewall you may have trouble completing your assignments in Canvas.

**Supported Internet Browsers:** Explorer 11 and Edge (Windows only—please make sure your operating system is also current as noted in the computer specifications lesson; you may need to
download the Windows 10 Anniversary Update to submit Canvas assignments Safari 9 and 10 (Macintosh only), Chrome 57 and 58, Firefox 52 and 53 (Extended Releases not supported).

**Virtual Desktop:** Some of the applications you will use to complete your lab assignments will be housed on a Virtual Machine hosted by Texas A&M University. You will be able to connect to that computer off-campus by installing the AnyConnect VPN client and Microsoft Remote Desktop on your computer. Geosciences IT Staff will provide instruction for accessing the Virtual Desktop used in this course.

---

**Learner Support**

A Report a Problem section in the OMS provides the ability to report an issue if Canvas misbehaves. Students can Chat with Canvas Support via Live chat with Canvas Support at Canvas Support Hotline 1 (844) 802-4049 Student needing help with Non-Canvas Technology can contact the GEOS Helpdesk. email: online-support@geos.tamu.edu

Students are encouraged to contact their Instructor with Questions via email, chat, or appointment. TAMU Howdy Portal helps students more easily connect to their university records and resources.

Please be advised the times listed on the print version of the syllabus - and any other printed materials - usually refer to the course time zone which is US Central time. (Daylight Saving time is observed until 2:00 AM on Sunday, November 5.)

By default, all dates and times throughout your Canvas course are displayed according a course's respective time zone. However, you can set your own time zone for your user account and have your local time zone display throughout Canvas. Displaying dates in your local time may help you stay up to date on assignments and due dates, especially if your course time zone differs significantly from where you reside.
October 23, 2017

MEMORANDUM

TO: Dr. David M. Cairns
Professor and Head, Department of Geography

FROM: A. Daniel Hill
Stephen A. Holditch ’69 Department Head Chair

SUBJECT: Geography 663 – GIS in Petroleum

The Harold Vance Department of Petroleum Engineering has no objections to the Department of Geography offering Geology 663 - GIS in Petroleum.
Note: Please read University Rule 11.03.99.M1 before completing this checklist.

College of Geosciences
Nontraditional Course Equivalency Checklist

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Number</th>
<th>Instructor</th>
<th>Department</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS in Petroleum</td>
<td>GEOG 663</td>
<td>Lyle</td>
<td>Geography</td>
<td></td>
</tr>
</tbody>
</table>

The standards contained in the checklist below will be utilized in developing and scheduling all nontraditional courses.

Faculty Course Developer/Date

Department Head/Date

COURSE SYLLABUS REQUIREMENTS

Course Overview
- A statement introduces the student to the purpose of the course and its components.
- Instructor contact information is clear.
- Communication policy is clearly stated such as email response time and virtual office hours.

Learning Objectives
- The course learning objectives describe outcomes that are measurable.
- All learning objectives are stated clearly and written from the students' perspective.
- The course is developed in modules with stated learning objectives for each module.

Assessment and Grading
- The grading policy is clearly stated.
- Assessments measure the stated learning objectives.
- Clear instructions are provided for the evaluation of work and are tied to the grading policy.

Instructional Materials
- Required instructional materials are listed and coordinated with the textbook or other sources.
- Instructional materials are current and contribute to the achievement of learning objectives.
- A variety of instructional materials are used in the course.

Learner Engagement
- Learner engagement and preparation have been calculated in the attached worksheet.
- Learning activities promote achievement of learning objectives and foster student-instructor, student-content, and where appropriate, student-student interaction.
- Interaction, communication, timelines for feedback, and participation requirements are clearly articulated.
- Tools and media used support learning objectives and learner engagement.

Technology and Accessibility
- Student identity is verified via CAS Authentication.
- Technical requirements are clearly stated.
- Technologies in the course are readily obtainable.
- The course incorporates ADA standards and reflects conformance with institutional policy regarding accessibility in online and blended courses.

Learner Support
- Instructions articulate or link to a clear description of the technical support offered.
- Additional instructions are included if needed that answer questions related to research, writing, technology, etc. or link to other tutorials/resources that provide the information.

Canvas and VM

Write capital?
Note: The structure and content of this course follows the instructional and education guidelines and requirements of the Department of Geography of Texas A&M University.

### Learner Engagement

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<thead>
<tr>
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</tr>
<tr>
<td><strong>TOTAL:</strong> should be at least 90 hours per semester</td>
<td></td>
<td>92</td>
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<tr>
<td><strong>Overall Total</strong></td>
<td>Should be at least 135 hours for a 3 credit course per semester</td>
<td>143</td>
</tr>
</tbody>
</table>

---

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Version 3.0  
10/4/2017
# Course Change Request

## New Course Proposal

**Date Submitted:** 11/14/17 11:06 am  
**Viewing:** MSCI 605: Foundations of Biomedical Informatics  
**Last edit:** 11/17/17 12:07 pm  
**Changes proposed by:** sriram-iyengar

### Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. Sriram Iyengar</td>
<td><a href="mailto:iyengar@medicine.tamhsc.edu">iyengar@medicine.tamhsc.edu</a></td>
<td>713-677-7562</td>
</tr>
<tr>
<td>Jose F Florez-Arango</td>
<td><a href="mailto:florezarango@medicine.tamhsc.edu">florezarango@medicine.tamhsc.edu</a></td>
<td>979-436-0663</td>
</tr>
</tbody>
</table>

- **Course prefix:** MSCI  
- **Course number:** 605  
- **Department:** College of Medicine  
- **College/School:** Medicine  
- **Academic Level:** Graduate  
- **Effective term:** 2018-2019  
- **Complete Course Title:** Foundations of Biomedical Informatics  
- **Abbreviated Course Title:** FOUNDATIONS BIOMED INFORMATICS

### Catalog course description

Medical decision-making; performance of diagnostic tests clinical decision support; mobile health and telemedicine; systems biology; visual analytics; data mining; medical information retrieval; public health informatics; algorithms; software engineering in healthcare; electronic health records; consumer health informatics.

### Prerequisites and Restrictions

- Graduate classification or approval of instructor.

### Concurrent Enrollment

- No

### Should catalog prerequisites / concurrent enrollment be enforced?

- No

### Crosslistings

- No  
- Crosslisted With

### Stacked

- No  
- Stacked with

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credit</th>
<th>Contact Hour(s) (per week):</th>
<th>Lecture</th>
<th>Lab</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td></td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

- Repeatable for credit? No
- CIP/Fund Code: 5127060006
- Default Grade Mode: Letter Grade (G)
- Method of instruction: Lecture
- Will sections of this course be taught as

[Visit Approval Path](https://nextcatalog.tamu.edu/courseleaf/approve/)
non-traditional? (i.e., parts of term, distance education)

Will this course be taught as a distance education course?  
No

Is 100% of this course going to be taught in Texas?  
Yes

Will classroom space be needed for this course?  
Yes

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Required (select program)</th>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(PHD-MDSC) Doctor of Philosophy in Medical Sciences</td>
<td></td>
</tr>
<tr>
<td>(MS-MDSC) Master of Science in Medical Sciences</td>
<td></td>
</tr>
</tbody>
</table>

Course Syllabus

Syllabus:  
Upload syllabus

Upload syllabus  
syllabus_template_revised_12082015-4-sr.pdf

Letters of support or other documentation  
No

Additional information  
Course is required for the Clinical and Translational Sciences Track in the MS/PhD programs in Medical Sciences. It is available also to those in any discipline with permission of instructor

Reviewer Comments  
Sandra Williams (sandra-williams) (11/12/17 5:57 pm): Rollback: If this is a graduate course, it cannot list undergraduate prerequisites or reference it in the catalog prerequisites; form shows hours as "03" but not sure what this means. Syllabus is missing course number; prerequisites must match form; grading scale is missing grades of D and F.

Van Wilson (v-wilson) (11/17/17 12:08 pm): I changed the question about distance education from "Yes" to "No". Our campus-to-campus videoconferenced courses are not considered distance education.
Course title and number: Foundations of Biomedical Informatics, MSCI 605
Term: Fall 2016
Meeting times and location: Mondays 9 AM – noon

Course Description and Prerequisites

Biomedical Informatics (BMI) is an important and exciting interdisciplinary field at the intersection of healthcare, biomedical research, computing, and mathematics/statistics. As a coherent discipline BMI is very young, having emerged in the early 1990s. Yet, it has had profound impact on the practice of medicine and of biomedical research. This impact will only increase as BMI’s scope increases. There is currently a great need for individuals well trained in this discipline to support the needs of healthcare in the USA and globally.

The present course is intended to be a ‘tasting menu’ of the important topics in BMI.

Learning Outcomes or Course Objectives

Upon successfully completing this course, students will be able to:

- Apply the thought processes of health informatics to real world problems
- Discuss the advantages and disadvantages of using information technology in healthcare
- Discuss the role of Data, Information, and Knowledge in modern healthcare
- Read and discuss the contemporary Informatics scientific literature
- Identify topics of personal interest for future in-depth study and explorations

Instructor Information

Name: M Sriram Iyengar, PhD, Associate Professor
Telephone number: 713-677-7562
Email address: iyengar@medicine.tamhsc.edu
Office hours: Mondays 1 PM to 2 PM or by appointment
Office location: 2121W. Holcombe, Suite 1109, Houston, TX 77030

Textbook and/or Resource Material


Grading Policies
In this course there will be an online multiple choice quiz every week, a midterm and a final exam. All of these are online multiple choice exams. All of these are mandatory. They are all “open-book and open-notes” but must be your sole unaided work. You may seek clarifications from the instructor.

The following evaluation criterion will be used for determining your grade for this course. Letter grades will be assigned based on the percentage of total points received (e.g., 90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, <60% = F, and I (Incomplete)). Incomplete are given only when situations outside of the student’s control occur. School policy mandates that incompletes must be completed by the end of the following semester. Incompletes that are not completed by the end of the next semester turn into Fs automatically.

Due to the nature of this course, your final class grade will largely be based on the results of all the assignments and activities (weekly quizzes, midterm, final exam, all of which consist of multiple choice questions) that are designed to reflect your understanding of the course content. Finishing all the assigned readings, assignments, and activities on time will enable you to achieve the objectives for this course.

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Percentage of Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes (worst quiz will be dropped)</td>
<td>40%</td>
</tr>
<tr>
<td>Midterm</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>40%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What is biomedical Informatics</td>
<td>Chapter 1, Shortliffe Text, Papers to be assigned</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 12, Shortliffe text</td>
</tr>
<tr>
<td>2</td>
<td>Clinical Information: Clinical Information Systems &amp; EHRs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Processing data, Algorithms, Programming</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Probabilistic Reasoning in Medicine, Part 1,</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Probabilistic Reasoning in medicine, Part 2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Securing Data and Protecting Health Information</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Midterm exam</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Data Display and Information Visualization</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Clinical Decision Support Systems</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Biological Information: Bioinformatics &amp; Systems Biology</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Telehealth, Mobile health, Consumer health Informatics</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Population Information: Public Health Informatics</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Information Retrieval</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chapter 5.2, 5.3 Shortliffe text, handouts from Instructor
Online Multiple choice, All material covered in Weeks 1 to 6
Chapter 18 Shortliffe text, Handouts from instructor
Chapter 20, Shortliffe text, Handouts from Instructor
Chapter 22, Shortliffe text, Handouts from Instructor
Chapter 14, Shortliffe text
Chapter 15 Shortliffe text
Chapter 19, Shortliffe text
Other Pertinent Course Information

**Instructional Method**

The course is a module based online course that follows a weekly format, which means that new instructional units are presented on a weekly basis. Each unit contains the following elements:

- Unit Overview
- PowerPoint presentation(s)
- In class discussions
- Weekly Quiz
- Midterm
- Final Exam

The activities for each week should take you about 8 hours depending on your present study skills and previous experience with graduate education, technology, online learning and Moodle. Dedicate at least 3 hours each week on the current assignment and 3 hours of work outside of the course each week.

It is expected that you will initially need to access the course on a regular basis. As the course progresses you will be able to determine how frequently you need to access the course site to complete and submit the assignments and meet the course objectives. Moodle monitors your access and activities in the course and the course instructor may contact you if you do not access and make reasonable progress in the course over a period of time.

Successful course completion requires having access to the current course resources and materials, reading the course materials, actively participating in discussion, group participation and required class activities as well as completing the weekly assignments. Completing all the assignments is required in order to receive a course grade.

The instructor will respond to student emails, monitor student responses and answer questions posted on the discussion forums, send out weekly announcements or clarifications on certain quiz questions via email.

Instructions and expectations are provided for assignments. It is critical for your success in this course to align your effort with the criteria in the instructions when working on the assignments.

**Americans with Disabilities Act (ADA)**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit [http://disability.tamu.edu](http://disability.tamu.edu).

**Academic Integrity**

For additional information please visit: [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu)

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
Course Change Request

New Course Proposal

Date Submitted: 11/09/17 8:16 pm

Viewing: MSEN 634 : Nano-scale Phenomena in Polymeric Systems

Last edit: 11/17/17 9:33 am
Changes proposed by: jules.henry

<table>
<thead>
<tr>
<th>Contact(s)</th>
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<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Jules Henry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<thead>
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<table>
<thead>
<tr>
<th>Complete Course Title</th>
<th>Nano-scale Phenomena in Polymeric Systems</th>
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</thead>
<tbody>
<tr>
<td>Abbreviated Course Title</td>
<td>NANO SCALE PHENOMENA POLYM R SYS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Catalog course description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamental and practical knowledge related to nano-scale phenomena in polymeric systems; discussions and critiques on related research activities; preparation for nanotechnology related career.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prerequisites and Restrictions</th>
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</thead>
<tbody>
<tr>
<td>Approval of instructor.</td>
</tr>
</tbody>
</table>

| Concurrent Enrollment | No |
| Should catalog prerequisites / concurrent enrollment be enforced? | No |

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<table>
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<th>Lecture:</th>
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<th>Lab:</th>
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<tbody>
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<td>Method of instruction</td>
<td>Lecture</td>
</tr>
<tr>
<td>Will sections of this course be taught as</td>
<td>No</td>
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</table>

https://nextcatalog.tamu.edu/courseleaf/approve/
non-traditional? (i.e., parts of term, distance education)  No

Will this course be taught as a distance education course?  Yes

Is 100% of this course going to be taught in Texas?  Yes

Will classroom space be needed for this course?  

This will be a required course or an elective course for the following programs:

<table>
<thead>
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<th>Program(s)</th>
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</thead>
<tbody>
<tr>
<td>(MEN-MSEN) Master of Engineering in Materials Science and Engineering</td>
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</tr>
<tr>
<td>(MS-MSEN) Master of Science in Materials Science and Engineering</td>
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</tr>
<tr>
<td>(PHD-MSEN) Doctor of Philosophy in Material Science and Engineering</td>
<td></td>
</tr>
</tbody>
</table>

Course Syllabus

Syllabus: Upload syllabus

Upload syllabus  [MSEN 634 (4).docx](https://nextcatalog.tamu.edu/courseleaf/approve)

Letters of support or other documentation  No

Additional information

Reviewer Comments

Sandra Williams (sandra-williams) (11/09/17 7:53 pm): Rollback: Syllabus grading scale - missing grade of "D".

Sandra Williams (sandra-williams) (11/15/17 8:50 pm): Syllabus - what grade will a student get if they get 80 (A or B) - syllabus not clear.

Sandra Williams (sandra-williams) (11/15/17 8:52 pm): Moving forward.

Key: 18356
Course title and number: MSEN 634 – Nano-scale Phenomena in Polymeric Systems
Term (e.g., Fall 200X): Fall 2018
Meeting times and location: TBD

Course Description and Prerequisites
The course aims at providing the necessary background to the students for their nanotechnology related career. To provide both fundamental and practical knowledge related to nanoscale phenomena in polymeric systems, (2) to facilitate discussions and critiques on related research activities from the literature, and (3) to better prepare students for nanotechnology related career.

Prerequisites: Approval of instructor.

Learning Outcomes or Course Objectives
Course Objectives: (1) To provide both fundamental and practical knowledge related to nano-scale phenomena in polymeric systems, (2) to facilitate discussions and critiques on related research activities from the literature, and (3) to better prepare students for nanotechnology related career.

Instructor Information
Name: H.-J. Sue
Telephone number: 979.845.5024
Email address: hjsue@tamu.edu
Office hours: Tuesday/Thursday, 2:00 – 3:00 pm or by appointment
Office location: RDMC 220

Textbook and/or Resource Material
A series of journal papers and book chapters will be utilized for the teaching. Several reference books will also be recommended.

Grading Policies/Grading Scale

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Grading System:</th>
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<tr>
<td>Homework:</td>
<td>15%</td>
<td>Score of 80 and above: A</td>
</tr>
<tr>
<td>Participation in Class</td>
<td>10%</td>
<td>Score of 70 – 79.99: B</td>
</tr>
<tr>
<td>Discussion:</td>
<td></td>
<td>Score of 60 – 69.99: C</td>
</tr>
<tr>
<td>Mid-Term Exam.:</td>
<td>20%</td>
<td>Score of 50 – 59.99: D</td>
</tr>
<tr>
<td>Term Paper:</td>
<td>20%</td>
<td>Score below 50: F</td>
</tr>
<tr>
<td>Presentation:</td>
<td>10%</td>
<td></td>
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<tr>
<td>Final Exam.:</td>
<td>25%</td>
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</table>
Course Topics, Calendar of Activities, Major Assignment Dates

Attendance Policy: Students are expected to follow Student Rule 7 for classroom attendance. For additional information visit http://student-rules.tamu.edu/rule07.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Polymer Structure &amp; Morphology</td>
</tr>
<tr>
<td>2</td>
<td>Nanoscale Structure in Polymers</td>
</tr>
<tr>
<td>3</td>
<td>Molecular Motions and Crystalline Structure</td>
</tr>
<tr>
<td>4</td>
<td>Characterization Techniques (Term-Paper Topic Discussed and Decided)</td>
</tr>
<tr>
<td>5</td>
<td>Multi-Phase Systems</td>
</tr>
<tr>
<td>6</td>
<td>Dispersion and Assembly of Nanoparticles</td>
</tr>
<tr>
<td>7</td>
<td>Mid-Term Exam/ Nanofiber Processing and Properties</td>
</tr>
<tr>
<td>8</td>
<td>Nanoscale properties</td>
</tr>
<tr>
<td>9</td>
<td>Manipulation of Mechanical Properties Through Control of Molecular Scale Motions (student presentations)</td>
</tr>
<tr>
<td>10</td>
<td>Barrier Properties &amp; Electrical Conductivity (student presentations)</td>
</tr>
<tr>
<td>11</td>
<td>Nano-tribology and Surface Deformation</td>
</tr>
<tr>
<td>12</td>
<td>Discussion on most recent literature findings(I)</td>
</tr>
<tr>
<td>13</td>
<td>Discussion on most recent literature findings(II)</td>
</tr>
<tr>
<td>14</td>
<td>Term-paper due</td>
</tr>
<tr>
<td></td>
<td>Final Exam</td>
</tr>
</tbody>
</table>

Americans with Disabilities Act (ADA)

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Academic Integrity

For additional information please visit: http://aggiehonor.tamu.edu

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
Course Change Request

New Course Proposal

Date Submitted: 11/17/17 11:27 am

Viewing: MSEN 643: Materials Electrochemistry and Corrosion

Changes proposed by: jules.henry

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jules Henry</td>
<td><a href="mailto:jules.henry@tamu.edu">jules.henry@tamu.edu</a></td>
<td>979-862-1089</td>
</tr>
</tbody>
</table>

Course prefix: MSEN  
Department: Materials Science & Engr  
College/School: College of Engineering  
Academic Level: Graduate  
Academic Level (alternate): Undergraduate  
Effective term: 2018-2019  
Complete Course Title: Materials Electrochemistry and Corrosion  
Abbreviated Course Title: MATLS ELECTROCHEM CORROSION

Catalog course description:
Survey of thermodynamic and kinetic fundamentals of electrochemistry; multiscale materials corrosion mechanisms; details of interfacial aqueous electrochemical mechanisms and the environmental effects when materials are exposed to different conditions.

Prerequisites and Restrictions:
Grade of C or better in MSEN 601; or approval of instructor.
Concurrent Enrollment: No (Yes)  
Should catalog prerequisites / concurrent enrollment be enforced: Yes

Enforced Prerequisites / Concurrent Enrollment:

<table>
<thead>
<tr>
<th>And/Or</th>
<th>Course Prefix/Number</th>
<th>Min Grade/Score</th>
<th>Academic Level</th>
<th>Concurrency?</th>
</tr>
</thead>
</table>

https://nextcatalog.tamu.edu/courseleaf/approve/
### Course Syllabus

**Syllabus:** Upload syllabus

**Upload syllabus** [MSEN 643.docx](https://nextcatalog.tamu.edu/courseleaf/approve/)

**Letters of support or other documentation**

No

**Additional information**

NOTE: Minimum syllabus requirements state syllabus for stacked courses must clearly indicate additional work required for graduate students - sw.
Reviewer Comments

Sandra Williams (sandra-williams) [11/09/17 7:57 pm]: Rollback: Syllabus grading scale - missing grades of D and F.

Sandra Williams (sandra-williams) [11/15/17 8:54 pm]: Rollback: Minimum syllabus requirements state syllabus for stacked courses must clearly indicate additional work required for graduate students - sw.

Sandra Williams (sandra-williams) [11/17/17 2:28 pm]: Update received.

Reported to state?

Add
Course title and number: MSEN 643: MATERIALS ELECTROCHEMISTRY AND CORROSION

Term (e.g., Fall 200X): Fall 2018
Meeting times and location: TBD

Course Description and Prerequisites

This course will introduce students to the thermodynamic and kinetic fundamentals of electrochemistry, and cover the multiscale level (micro-scale to mega-scale) materials performance for materials science and corrosion engineering applications. An in-depth understanding of the aqueous electrochemical (interfacial) mechanisms and the effects of the environment when materials are exposed to different conditions. Understanding and application of laboratory and semi-empirical methods to be used in electrochemical characterization for materials interacting with its environment.

Prerequisites: MSEN 601 or approval of instructor.

Goals: The students will attain an understanding and working knowledge of electrochemistry and corrosion science mechanisms at the fundamental level. The students will develop skills to apply different methodologies in the laboratory to characterize different materials based on interfacial properties.

Learning Outcomes

Listed below are the learning outcomes for this course that will be addressed

- Able to apply electrochemistry, corrosion science and engineering by using thermodynamics, kinetics at the interface substrate/electrolyte level.
- Have knowledge of corrosion principles and degradation due to interaction with corrosive media
- Use modern laboratory tools necessary for understanding basic principles in materials electrochemistry and corrosion

Instructor Information

Name: Homero Castaneda
Telephone number: 979 458 9844
Email address: hcastaneda@tamu.edu
Office hours: M (9 to 11am)
Office location: 228 Reed McDonald

Textbook and/or Resource Material

Alternative references:

Grading Policies

Changes in Schedule
The instructor reserves the right to change the order of content of lectures as necessary (and to make up for holidays and unscheduled class cancellations). Exam dates may be changed by the instructor, but in each case, at least 1 week notice will be given.

Assessment and Evaluation:
Knowledge of materials electrochemistry and corrosion will be evaluated through homework’s, exams, and completion of class projects.

Grading Policies:

<table>
<thead>
<tr>
<th></th>
<th>UG</th>
<th>GR</th>
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</thead>
<tbody>
<tr>
<td>Homework</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>30%</td>
<td>25%</td>
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<tr>
<td>Final</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Project</td>
<td>15%</td>
<td></td>
</tr>
</tbody>
</table>

Note: This course is stacked with MSEN 440. Undergraduate students are required to complete six (6) homeworks and three (3) examinations. Graduate students are required to complete five (5) homework, three examinations and a research project. Examinations will have no resemblance between undergraduate and graduate level. Graduate level will have more depth scientific content. Undergraduate homeworks will have more number of problems and less complex than graduate level.

Grade Basis:
A = 90-100
B = 80-89.99
C = 70-79.99
D = 60-69.99
F = <60

* Course will not be graded on a curve.
**Extra credit opportunities may be provided at the lecturer’s discretion.
Students will be expected to submit homework minimum of 5 assignments.  
Students will be expected to participate during in-class discussions or quizzes  
Students will be expected to complete 2 exams and one final exam  
Students will be expected to complete project that can be used for national corrosion competition.

**Attendance and Make-up Policies**

Please follow the following link for attendance and Make-up policies [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07).

**Course Topics, Calendar of Activities, Major Assignment Dates**

**Calendar**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Chapter</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to electrochemical cells and chemistry (potential redox, potential, pH)</td>
<td>1,2</td>
</tr>
<tr>
<td>2</td>
<td>Charged Interfaces (Electrolytes, Electrical double layer, potentials)</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Thermodynamics review (State functions, Chemical potential, Nernst expression)</td>
<td>4</td>
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<tr>
<td>4</td>
<td>Thermodynamics of materials electrochemistry (Electrochemical cells)</td>
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<tr>
<td>5</td>
<td>Electrochemical Thermodynamics (E-pH diagrams at different conditions)</td>
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<tr>
<td>6</td>
<td>Exam 1</td>
<td></td>
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<tr>
<td>7</td>
<td>Kinetics of materials electrochemistry (Methods of determining corrosion rates by electrochemical testing)</td>
<td>7</td>
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<tr>
<td>8</td>
<td>Electrochemical polarization (Electrode kinetics for activation polarization)</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>Concentration polarization and Diffusion</td>
<td>8</td>
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<tr>
<td>10</td>
<td>Fundamentals on concentration polarization and corrosion</td>
<td>8</td>
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<tr>
<td>11</td>
<td>Exam 2</td>
<td></td>
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<tr>
<td>12</td>
<td>Application to materials selection (infrastructure, Oil and Gas)</td>
<td>9</td>
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<tr>
<td>13</td>
<td>Application to Energy Devices (Batteries, Fuel Cells and Capacitors)</td>
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<tr>
<td>14</td>
<td>Applications to Environment and Health (Bioelectrochemistry, Biomaterials)</td>
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</tr>
<tr>
<td>15</td>
<td>Final Exam/Project Submission</td>
<td></td>
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</table>

**Other Pertinent Course Information**

**Journal related to corrosion**

1. Corrosion (NACE)  
2. Electrochemical Acta  
3. Journal of Electrochemical Society  
4. Materials and Alloys  
5. Corrosion Science  
6. Journal of Applied Electrochemistry  
7. Journal of Solid State Electrochemistry  
8. Materials and Corrosion  
9. Materials Performance  
10. Materials Engineering
Professional Societies related with corrosion
NACE (National Association of Corrosion Engineering)
ASM (American Society of Materials)
ISE (International Society of Electrochemistry)
ECS (Electrochemical Society)
ICC (International Corrosion Council)

Americans with Disabilities Act (ADA)

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Academic Integrity

Aggie Honor Code: “An Aggie does not lie, cheat, or steal, or tolerate those who do.” It is the responsibility of students and instructors to help maintain scholastic integrity at the university by refusing to participate in or tolerate scholastic dishonesty. Conduct contradicting to this policy will be punished according to the current rules and regulations. For additional information please visit: http://aggiehonor.tamu.edu

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
Course Change Request

New Course Proposal

Date Submitted: 11/17/17 1:00 pm

Viewing: MSEN 644 : Corrosion and Electrochemistry Lab

Last edit: 11/17/17 2:30 pm

Changes proposed by: jules.henry

Contact(s)

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<td>979-862-1089</td>
</tr>
</tbody>
</table>

Course prefix: MSEN

Course number: 644

Department: Materials Science & Engr

College/School: College of Engineering

Academic Level: Graduate

Academic Level (alternate): Undergraduate

Effective term: 2018-2019

Complete Course Title: Corrosion and Electrochemistry Lab

Abbreviated Course Title: CORROSION ELECTROCHEM LAB

Catalog course description:

Laboratory practice and principles for corrosion and electrochemistry methods; design, carry out and analyze a series of labs illustrating the most important techniques in the field; builds to an open-ended corrosion engineering problem resulting in preparation of a technical report for a hypothetical client.

Prerequisites and Restrictions:

Grade of C or better in MSEN 643; or approval of instructor.

Concurrent Enrollment: No

Should catalog prerequisites / concurrent enrollment be enforced? Yes

Enforced Prerequisites / Concurrent Enrollment

<table>
<thead>
<tr>
<th>And/Or</th>
<th>Course Prefix/Number</th>
<th>Min Grade/Score</th>
<th>Academic Level</th>
<th>Concurrency?</th>
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https://nextcatalog.tamu.edu/courseleaf/approve/
1/11/2018

MSEN 644: Corrosion and Electrochemistry Lab

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<td>Stacked with</td>
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<tr>
<td></td>
<td></td>
<td>MSEN 444 - Corrosion and Electrochemistry Lab</td>
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<table>
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<th>Semester</th>
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<tbody>
<tr>
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<tr>
<td>Hour(s)</td>
<td>Letter Grade (G)</td>
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<tr>
<td>Contact Hour(s) (per week):</td>
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<table>
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<tr>
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<tbody>
<tr>
<td>Lab:</td>
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<tr>
<td>Other:</td>
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</tr>
<tr>
<td>Total</td>
<td>5</td>
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</table>

Repeatable for credit? No
Three-peat? No
Alternate Grade Modes Satisfactory/Unsatisfactory
Method of instruction Lecture and Laboratory
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) No
Will this course be taught as a distance education course? No
Is 100% of this course going to be taught in Texas? Yes
Will classroom space be needed for this course? Yes

This will be a required course or an elective course for the following programs:

**Required (select program)**

<table>
<thead>
<tr>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(CERT-CG71) Corrosion Science and Engineering - Certificate</td>
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</table>

**Elective (select program)**

<table>
<thead>
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<th>Program(s)</th>
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<tbody>
<tr>
<td>(PHD-MSEN) Doctor of Philosophy in Material Science and Engineering</td>
</tr>
<tr>
<td>(MS-MSEN) Master of Science in Materials Science and Engineering</td>
</tr>
<tr>
<td>(MEN-MSEN) Master of Engineering in Materials Science and Engineering</td>
</tr>
</tbody>
</table>

**Course Syllabus**

Syllabus: Upload syllabus
Upload syllabus: MSEN 644.docx

Letters of support or other documentation
No

Additional information

Reviewer Comments

https://nextcatalog.tamu.edu/courseleaf/approve/ 2/3
Sandra Williams (sandra-williams) (11/09/17 8:02 pm): Rollback: Syllabus grading scale - missing grade of D and F. Also, minimum syllabus requirements state syllabus for stacked courses must clearly indicate additional work required for graduate students.


Sandra Williams (sandra-williams) (11/17/17 2:30 pm): Update received.

Reported to state?

No
Course title and number: MSEN 644: CORROSION AND ELECTROCHEMISTRY LABORATORY

Term: Spring 2019

Meeting times and location: TBD

Course Description and Prerequisites

This course will introduce laboratory practice and principles for corrosion and electrochemistry methods; design, carry out and analyze a series of experimental conditions illustrating the most important techniques in materials preparation, electrochemistry and mathematical modeling; builds to an open-ended corrosion science problem resulting in preparation of a technical content for a scientific publication.

Prerequisites: MSEN 643.

Goals: The students will attain the hands-on experiences necessary to be able to measure, characterize, and quantify corrosion phenomena and electrochemical mechanisms (charge and mass transfer). The students will develop abilities in the laboratory leading to the skills needed to design electrochemical systems, to use the proper electrochemical technique, to apply the most suitable analysis tool and solve research oriented problems.

Learning Outcomes

Listed below are the learning outcomes for this course that will be addressed

1. Demonstrate ability to use reference electrodes and open circuit potentials.
2. Demonstrate the ability to recognize different electrochemical cells design (2, 3 and 4 electrode system set up).
3. Demonstrate ability to conduct electrochemical and weight loss measurements of corrosion rate.
4. Demonstrate ability to generate potentiodynamic polarization curves to study anodic mechanisms and processes (i.e. passivity and localized corrosion).
5. Demonstrate ability to conduct low field electrochemical measurements (polarization resistance)
6. Demonstrate ability to characterize and study electrochemical/corrosion systems.

Instructor Information

Name: Homero Castaneda
Telephone number: 979 458 9844
Email address: hcastaneda@tamu.edu
Textbook and/or Resource Material

Textbook(s): Electrochemical Techniques in Corrosion Testing and Research, John Scully Editor, 1983

Alternative references:
8. Gamry technical notes for electrochemical testing(wwwm.gamry.com)

Grading Policies

Changes in Schedule
The instructor reserves the right to change the order of content of lectures as necessary (and to make up for holidays and unscheduled class cancellations). Exam dates may be changed by the instructor, but in each case, at least 1 week notice will be given.

Assessment and Evaluation:
Knowledge of corrosion and electrochemistry laboratory will be evaluated through homework’s, exams, and completion of an open-ended case of study.

Grading Policies:

<table>
<thead>
<tr>
<th></th>
<th>UG</th>
<th>GR</th>
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</thead>
<tbody>
<tr>
<td>Laboratory Assignments</td>
<td>15%</td>
<td>25%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>30%</td>
<td>25%</td>
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<tr>
<td>Exam 2</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>Case of study</td>
<td>25%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Note: This course is stacked with MSEN 444. Undergraduate students are required to complete seven (7) laboratory assignments, one open-ended case of study and two (2) examinations. Graduate students are required to complete seven (7) homework, two examinations and an open-ended research project (case of study). Examinations will have no resemblance between undergraduate and graduate level. Graduate level will have more depth scientific content. Undergraduate Laboratory assignments will have more number of questions and less complex than graduate level. Open-ended case of study for undergraduate will be less complex and engineering type of approach. Graduate level open-ended case of study will contain more scientific in depth approach.

Grade Basis:
A = 90-100
B = 80-89.99
C = 70-79.99
D = 60-69.99
F = <60
Attendance and Make-up Policies
Please follow the following link for attendance and Make-up policies http://student-rules.tamu.edu/rule07.

Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Week #</th>
<th>Lab Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction, laboratory safety</td>
</tr>
<tr>
<td>2</td>
<td>Lab 1: Materials sample and preparation and characterization</td>
</tr>
<tr>
<td>3</td>
<td>Materials sample and preparation and characterization (cont.)</td>
</tr>
<tr>
<td>4</td>
<td>Lab 2: Corrosion Rate, Weight Loss vs. Potentiostatic measurements</td>
</tr>
<tr>
<td>5</td>
<td>Corrosion Rate, Weight Loss vs. Potentiostatic measurements (cont.)</td>
</tr>
<tr>
<td>6</td>
<td>Lab 3: Tafel Slopes and Linear Polarization Resistance</td>
</tr>
<tr>
<td>7</td>
<td>Lab 4: Potentiodynamic Polarization, Active to Passive Transitions</td>
</tr>
<tr>
<td>8</td>
<td>Exam 1</td>
</tr>
<tr>
<td>9</td>
<td>Potentiodynamic Polarization, Active to Passive Transitions (cont.)</td>
</tr>
<tr>
<td>10</td>
<td>Lab 5: Pitting Corrosion</td>
</tr>
<tr>
<td>11</td>
<td>Pitting corrosion (cont.)</td>
</tr>
<tr>
<td>12</td>
<td>Exam 2</td>
</tr>
<tr>
<td>13</td>
<td>Lab 6: Coatings</td>
</tr>
<tr>
<td>14</td>
<td>Lab 7: Passivity (passive layer)</td>
</tr>
<tr>
<td>15</td>
<td>Case of study</td>
</tr>
</tbody>
</table>

Americans with Disabilities Act (ADA)
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services in 701 West Campus Blvd, 1224 TAMU, College Station, Texas 77843-1224, or call 845-1637. For additional information visit http://disability.tamu.edu

Academic Integrity

Aggie Honor Code: “An Aggie does not lie, cheat, or steal, or tolerate those who do.” It is the responsibility of students and instructors to help maintain scholastic integrity at the university by refusing to participate in or tolerate scholastic dishonesty. Conduct contradicting to this policy will be punished according to the current rules and regulations. For additional information please visit: http://aggiehonor.tamu.edu

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
# Course Change Request

## New Course Proposal

**Date Submitted:** 11/16/17 5:57 pm  
**Viewing:** MSEN 646 : Corrosion Prevention and Control Methods  
**Last edit:** 11/17/17 9:15 am  
**Changes proposed by:** jules.henry

### Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jules Henry</td>
<td><a href="mailto:jules.henry@tamu.edu">jules.henry@tamu.edu</a></td>
<td>979-862-1089</td>
</tr>
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</table>

### Course Information

<table>
<thead>
<tr>
<th>Course prefix</th>
<th>MSEN 646 : Corrosion Prevention and Control Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Materials Science &amp; Engr</td>
</tr>
<tr>
<td>College/School</td>
<td>College of Engineering</td>
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<td>Academic Level</td>
<td>Graduate</td>
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<td>Effective term</td>
<td>2018-2019</td>
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<tr>
<td>Abbreviated Course Title</td>
<td>CORROSION PREV CTRL METHODS</td>
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</table>

### Catalog course description

Cathodic protection and coatings; functional engineering approach to controlling and preventing aqueous corrosion; impressed current, galvanic anodes, organic, inorganic and hybrid coatings; case studies in oil and gas, energy, automotive and different industries.

### Prerequisites and Restrictions

Grade of C or better in MSEN 643; or approval of instructor.

### Concurrent Enrollment

No

### Should catalog prerequisites/concurrent enrollment be enforced?

No

### Crosslistings

No  
Crosslisted With MSEN 446 - Corrosion Prevention and Control Methods

### Stacked

Yes  
Stacked with MSEN 446 - Corrosion Prevention and Control Methods

### Semester

<table>
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<th>Lab:</th>
<th>0</th>
<th>Other:</th>
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<tbody>
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<td>(per week):</td>
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<td></td>
</tr>
</tbody>
</table>

### Repeatable for credit?

No

### Three-peat?

No

### CIP/Fund Code

1418010006

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**In Workflow**

1. MSEN Department Head  
2. Curricular Services Review  
3. EN Committee Preparer GR  
4. EN Committee Chair GR  
5. EN College Dean GR  
6. GC Preparer  
7. GC Chair  
8. Faculty Senate Preparer  
9. Faculty Senate  
10. Provost II  
11. President  
12. Curricular Services  
13. Banner

**Approval Path**

1. 11/16/17 6:14 pm  
İbrahım Karaman (karaman): Approved for MSEN Department Head  
2. 11/17/17 9:16 am  
Sandra Williams (sandra-williams): Approved for Curricular Services Review  
3. 11/17/17 5:11 pm  
Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR  
4. 11/22/17 8:25 am  
Prasad Enjeti (enjeti): Approved for EN Committee Chair GR  
5. 11/22/17 8:27 am  
Prasad Enjeti (enjeti): Approved for EN College Dean GR  
6. 11/22/17 8:51 am  
LaRhesa Johnson (lrjohnson): Approved for GC Preparer  
7. 12/14/17 10:57 am  
LaRhesa Johnson (lrjohnson): Approved for GC Chair
Default Grade Mode Letter Grade(G)
Alternate Grade Modes Satisfactory/Unsatisfactory
Method of instruction Lecture
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) No
Will this course be taught as a distance education course? No
Is 100% of this course going to be taught in Texas? Yes
Will classroom space be needed for this course? Yes
This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Required (select program)</th>
<th>Program(s)</th>
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</thead>
<tbody>
<tr>
<td>(CERT-CG71) Corrosion Science and Engineering - Certificate</td>
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<table>
<thead>
<tr>
<th>Elective (select program)</th>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>(MEN-MSEN) Master of Engineering in Materials Science and Engineering</td>
<td></td>
</tr>
</tbody>
</table>

**Course Syllabus**

Syllabus: Upload syllabus
Upload syllabus [MSEN 646 [005].docx]

Letters of support or other documentation No

Additional information

Reviewer Comments Sandra Williams [sandra-williams] [11/09/17 8:08 pm]: Rollback: Minimum syllabus requirements state syllabus for stacked courses must clearly indicate additional work required for graduate students.
Sandra Williams [sandra-williams] [11/17/17 9:16 am]: Update received.

Reported to state? Add
Course title and number  MSEN 646: Corrosion Prevention and Control Methods
Term (e.g., Fall 200X)  Fall 2018
Meeting times and location  TBD

Course Description and Prerequisites
Study of corrosion prevention and control methods for different applications; cathodic protection and coatings; functional aspects of the corrosion science and engineering approach to controlling and preventing aqueous corrosion based on engineering methodologies.

Study of techniques such as impressed current, galvanic anodes, organic, inorganic and hybrid coatings; case of studies in the oil and gas, energy, automotive and different industries are included to illustrate the application of each method.

Prerequisites: MSEN 643; or approval of instructor.

Learning Outcomes or Course Objectives
At the end of the course, you will be able to:

- Demonstrate ability to use fundamentals and basics of corrosion science for protection & design for different metallic structures.
- Demonstrate ability to select the most suitable action and solution for corrosion control and mitigation based on the system conditions.
- Demonstrate ability to characterize and monitor the performance of each prevention and corrosion method in laboratory and field conditions.
- Show the ability to identify the state of the art in the knowhow and research in the field of corrosion science and its application to corrosion control methodology

Instructor Information
Name  Dr. Raymundo Case
Telephone number  979-458-1090
Email address  raymundo.case@tamu.edu
Office hours  TBD
Office location  RDMC 210

Textbook and/or Resource Material
Textbook (required):

- NACE Certification Manuals (CP2, CP3, CIP 1)
Additional References:
Lecture notes, assignments, solutions, grades, project instructions, and additional material will be available at [http://ecampus.tamu.edu](http://ecampus.tamu.edu).

Grading Policies

Changes in schedule:
The instructor reserves the right to change the order and content of lectures as necessary (and to make up for holidays and unscheduled class cancellations). Exam dates may be changed by the instructor, but in each case at least 1-week notice will be given.

Assessment and Evaluation:
Knowledge of corrosion prevention and control methods will be evaluated through homework’s, exams, and completion of class projects.

Grading Policies:

<table>
<thead>
<tr>
<th></th>
<th>UG</th>
<th>GR</th>
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</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>25%</td>
<td>25%</td>
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<tr>
<td>Exam 3</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Final</td>
<td>25%</td>
<td>--</td>
</tr>
<tr>
<td>Research Project</td>
<td>--</td>
<td>25%</td>
</tr>
</tbody>
</table>

Note: This course is stacked with MSEN 446. Undergraduate students are required to complete four (4) examinations. Graduate students are required to complete three (3) examinations and a research project. Examinations will have no resemblance between undergraduate and graduate level.

Grading Scale

Standard Letter Grading Scale:
A = ≥90
B = 80.00 – 89.99
C = 70.00 – 79.99
D = 60.00 - 69.99
F = <60

*Course will not be graded on a curve.
**Extra credit opportunities may be provided at the lecturer’s discretion.

Course Topics, Calendar of Activities, Major Assignment Dates

Tentative lecture and assignment schedule*

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Anodic dissolution &amp; Passivity</td>
</tr>
<tr>
<td>2</td>
<td>Localized corrosion</td>
</tr>
<tr>
<td>3</td>
<td>Environmentally assisted cracking</td>
</tr>
<tr>
<td>4</td>
<td>Fitness for service and asset integrity criteria</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>5</td>
<td>Case analysis: Materials Selection in the oil &amp; gas Industry</td>
</tr>
<tr>
<td>6</td>
<td>Exam 1</td>
</tr>
<tr>
<td>7</td>
<td>Cathodic protection system fundamentals</td>
</tr>
<tr>
<td>8</td>
<td>Cathodic protection system design, study of actual field use case analysis</td>
</tr>
<tr>
<td>9</td>
<td>Assignment of research projects: Exam 2</td>
</tr>
<tr>
<td>10</td>
<td>Fundamentals of coatings and barrier protection systems</td>
</tr>
<tr>
<td>11</td>
<td>Coatings types and selection criteria</td>
</tr>
<tr>
<td>12</td>
<td>Fundamentals of chemical corrosion inhibition</td>
</tr>
<tr>
<td>13</td>
<td>Corrosion inhibition selection methods</td>
</tr>
<tr>
<td>14</td>
<td>Experimental techniques for corrosion evaluation in laboratory and field monitoring</td>
</tr>
<tr>
<td>15</td>
<td>Analysis of Corrosion inhibition cases</td>
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<tr>
<td>16</td>
<td>Exam 3</td>
</tr>
<tr>
<td>17</td>
<td>Evaluation of Research Project</td>
</tr>
</tbody>
</table>

**Attendance**

The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line ([http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07)).

**Late Work Policy**

No late work will be accepted, unless in the case of excused attendance. University rules related to excused and unexcused absences are located on-line at [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07).

**Make-Up Policy**

If an absence is excused, the instructor will either provide the student an opportunity to make up any quiz, exam or other work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. If the instructor has a regularly scheduled make up exam, students are expected to attend unless they have a university approved excuse. The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence.

The student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for the absence. Among the reasons absences are considered excused by the university are the following (see Student Rule 7 for details [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07)). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the Honor Code.
1. Participation in an activity that is required for a class and appears on the university authorized activity list at https://studentactivities.tamu.edu/app/sponsauth/index
2. Death or major illness in a student's immediate family.
3. Illness of a dependent family member.
4. Participation in legal proceedings or administrative procedures that require a student's presence.
5. Religious holy day. NOTE: Prior notification is NOT required.
6. Injury or illness that is too severe or contagious for the student to attend class.
   a. Injury or illness of three or more class days: Student will provide a medical confirmation note from his or her medical provider within one week of the last date of the absence (see Student Rules 7.1.6.1)
   b. Injury or illness of less than three class days: Student will provide one or both of these (at instructor’s discretion), within one week of the last date of the absence:
      i. Texas A&M University Explanatory Statement for Absence from Class form available at http://attendance.tamu.edu, or
      ii. Confirmation of visit to a health care professional affirming date and time of visit.
7. Required participation in military duties.
8. Mandatory admission interviews for professional or graduate school that cannot be rescheduled.
9. Mandatory participation as a student-athlete in NCAA-sanctioned competition.
10. In accordance with Title IX of the Educational Amendments of 1972, Texas A&M University shall treat pregnancy (childbirth, false pregnancy, termination of pregnancy and recovery therefrom) and related conditions as a justification for an excused absence for so long a period of time as is deemed medically necessary by the student's physician. Requests for excused absence related to pregnancy should be directed to the instructor.

Other absences may be excused at the discretion of the instructor with prior notification and proper documentation.

In cases where prior notification is not feasible (e.g., accident or emergency) the student must provide notification by the end of the second working day after the absence, including an explanation of why notice could not be sent prior to the class.

Accommodations sought for absences due to the observance of a religious holiday can be sought either prior or after the absence, but not later than two working days after the absence.

**Americans with Disabilities Act (ADA)**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services in 701 West Campus Blvd, 1224 TAMU, College Station, Texas 77843-1224, or call 845-1637. For additional information, visit http://disability.tamu.edu.

**Academic Integrity**

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Course Change Request

New Course Proposal

Date Submitted: 10/16/17 10:23 am

Viewing: MSEN 659 : Materials Design ePortfolio

Last edit: 10/17/17 11:06 am
Changes proposed by: jules.henry

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jules Henry</td>
<td><a href="mailto:jules.henry@tamu.edu">jules.henry@tamu.edu</a></td>
<td>979-862-1089</td>
</tr>
</tbody>
</table>

Course prefix: MSEN
Course number: 659
Department: Materials Science & Engr
College/School: College of Engineering
Academic Level: Graduate
Academic Level (alternate): Undergraduate
Effective term: 2018-2019
Complete Course Title: Materials Design ePortfolio
Abbreviated Course Title: MATL DESIGN EPORTFOLIO

Catalog course description
Capture and reflect upon components of what has been learned; why it matters within an electronic portfolio aligned with learning outcomes of the interdisciplinary program.

Prerequisites and Restrictions
Grade of C or better in ECEN 769, MSEN 660, or MSEN 601 and MEEN 601, or equivalent; MSEN 655 or concurrent enrollment; approval of instructor.

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced? Yes

Enforced Prerequisites / Concurrent Enrollment

<table>
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<th>And/Or</th>
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https://nextcatalog.tamu.edu//courseleaf/approve/
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</table>

Repeatable for credit? No

Three-peat? No

CIP/Fund Code 1418010006

Default Grade Mode Satisfactory/Unsatisfactory(5)

Alternate Grade Modes

Method of instruction Independent Study

Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) No

Will this course be taught as a distance education course? No

Is 100% of this course going to be taught in Texas? Yes

Will classroom space be needed for this course? Yes

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Required (select program)</th>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(CERT-CG72) Materials, Informatics and Design - Certificate</td>
<td></td>
</tr>
</tbody>
</table>

Elective (select program)
Reviewer Comments

Ibrahim Karaman (karaman) (10/14/17 10:05 pm): Rollback: There are issues with pre-requisites
Sandra Williams (sandra-williams) (10/17/17 11:11 am): Notes for GC: This is a zero credit hour course, required for the certificate as recommended by CTE.

Reported to state?

Add
## Course Description and Prerequisites

Students will capture and reflect upon components of what they learned and why it matters within an electronic portfolio aligned with learning outcomes of the interdisciplinary program. Some experiences may be from previous or concurrent courses that are captured in the electronic portfolio format where it can be shared with other researchers or future employers.

### Prerequisites:
ECEN 769, MSEN 660, or MSEN 601 and MEEN 601, or equivalent; or approval of instructor.

### Corequisite: MSEN 655

### Goals:
The goal is to capture learning experiences throughout student participation in a Materials, Informatics and Design context that exemplify the knowledge and skills obtained.

### Learning Outcomes

Upon completion of the course a student will be able to:

- Articulate how foundational components of their discipline contribute to addressing problems in a materials, informatics and design context.
- Describe how corresponding discipline concepts and methodologies relate and oppose your foundational discipline.
- Describe how potential threats to effective group progress were addressed and issues of conflict resolved to assist in collaboration with team members.
- Describe your role in the interdisciplinary collaboration and what the experience will mean for future interactions.
- Create and display ideas and results in a format that is understood by lay people as well as colleagues or potential employers describing why you chose that particular format.
- Share examples of confronting an ethical choice and your actions during and following the situation.
- Summarize experiences in designing interdisciplinary research or project including what you chose to design and why it matters.

## Instructor Information

<table>
<thead>
<tr>
<th>Name</th>
<th>Debra Fowler</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>979-845-0717</td>
</tr>
<tr>
<td>Email address</td>
<td><a href="mailto:dfowler@tamu.edu">dfowler@tamu.edu</a></td>
</tr>
<tr>
<td>Office hours</td>
<td>TBD</td>
</tr>
<tr>
<td>Office location</td>
<td>YMCA 206A</td>
</tr>
</tbody>
</table>
Textbook and/or Resource Material

Textbook(s):
There is no textbook for this course.
Class resources will be posted on the course website at http://ecampus.tamu.edu to include the following:
1. Articles about ePortfolio and Interdisciplinarity
2. ePortfolio templates using google sites
3. ePortfolio self-reflection and student survey

Grading Policies

Daily Practical Exercises

*Grade Basis*: S/U

Students are expected to complete all daily exercises in order to receive S grade.

Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ePortfolio and Interdisciplinary</td>
</tr>
<tr>
<td>2</td>
<td>Introduction to Google Sites</td>
</tr>
<tr>
<td>3</td>
<td>Personal Profile and Future Plan</td>
</tr>
<tr>
<td>4</td>
<td>D3EM Courses, Activities, and References</td>
</tr>
<tr>
<td>5</td>
<td>D3EM Publications and Special Projects</td>
</tr>
<tr>
<td>6</td>
<td>Reflection on Your D3EM Courses</td>
</tr>
<tr>
<td>7</td>
<td>Reflection on Your D3EM Courses</td>
</tr>
<tr>
<td>8</td>
<td>Reflection on Your D3EM Activities</td>
</tr>
<tr>
<td>9</td>
<td>Reflection on Your D3EM Activities</td>
</tr>
<tr>
<td>10</td>
<td>Benefits from D3EM</td>
</tr>
<tr>
<td>11</td>
<td>Professional Skills You Learned from D3EM</td>
</tr>
<tr>
<td>12</td>
<td>Professional Skills You Learned from D3EM</td>
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<tr>
<td>13</td>
<td>Technical Skills You Learned from D3EM</td>
</tr>
<tr>
<td>14</td>
<td>Technical Skills You Learned from D3EM</td>
</tr>
</tbody>
</table>

Attendance

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The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence. The reasons absences are considered excused by the university are located online. See Student Rule 7 for details (http://student-rules.tamu.edu/rule07).

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### Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services in 701 West Campus Blvd, 1224 TAMU, College Station, Texas 77843-1224, or call 845-1637. For additional information, visit http://disability.tamu.edu.

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### Academic Integrity

**Aggie Honor Code:** “An Aggie does not lie, cheat, or steal, or tolerate those who do.”

It is the responsibility of students and instructors to help maintain scholastic integrity at the university by refusing to participate in or tolerate scholastic dishonesty. Conduct contradicting this policy will be punished according to the current rules and regulations.

For additional information please visit: http://aggiehonor.tamu.edu
Course Change Request

New Course Proposal

Date Submitted: 10/30/17 3:43 pm

Viewing: MSEN 666 : Nanoindentation and Small-Scale Contact Mechanics

Last edit: 11/09/17 8:14 pm
Changes proposed by: jules.henry

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jules Henry</td>
<td><a href="mailto:jules.henry@tamu.edu">jules.henry@tamu.edu</a></td>
<td>979-862-1089</td>
</tr>
</tbody>
</table>

Course prefix: MSEN
Course number: 666

Department: Materials Science & Engr
College/School: College of Engineering
Academic Level: Graduate
Academic Level (alternate): Undergraduate
Effective term: 2018-2019

Complete Course Title:
Nanoindentation and Small-Scale Contact Mechanics

Abbreviated Course Title:
NANO/INDENT SMALL SCALE MECH

Catalog course description:
Basic principles of elastic and plastic contact as they determine hardness and influence the measurement of mechanical properties by load and depth sensing indentation methods; application of nanoindentation techniques to small scale mechanical characterization of solid materials.

Prerequisites and Restrictions:
Grade of C or better in MSEN 320, MEEN 467, MSEN 625, MEEN 625, AERO 603, MEMA 602, or CVEN 613; or approval of instructor.

Concurrent Enrollment:
No

Should catalog prerequisites / concurrent enrollment be enforced:
Yes

Enforced Prerequisites / Concurrent Enrollment

<table>
<thead>
<tr>
<th>And/Or</th>
<th>Course Prefix/Number</th>
<th>Min Grade/Score</th>
<th>Academic Level</th>
<th>Concurrency?</th>
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</thead>
</table>

https://nextcatalog.tamu.edu/courseleaf/approve/
MSEN 666: Nanoindentation and Small-Scale Contact Mechanics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Type</th>
<th>Year Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSEN 320</td>
<td></td>
<td>C</td>
<td>UG</td>
</tr>
<tr>
<td>Or</td>
<td>MEEN 467</td>
<td>C</td>
<td>UG</td>
</tr>
<tr>
<td>Or</td>
<td>MSEN 625</td>
<td>C</td>
<td>GR</td>
</tr>
<tr>
<td>Or</td>
<td>MEEN 625</td>
<td>C</td>
<td>GR</td>
</tr>
<tr>
<td>Or</td>
<td>AERO 603</td>
<td>C</td>
<td>GR</td>
</tr>
<tr>
<td>Or</td>
<td>MEMA 602</td>
<td>C</td>
<td>GR</td>
</tr>
<tr>
<td>Or</td>
<td>CVEN 613</td>
<td>C</td>
<td>GR</td>
</tr>
</tbody>
</table>

Crosslistings: No  Crosslisted With: No
Stacked: No  Stacked with: No

Semester: 3  Credit: 3  Contact Hour(s): 3

Lecture: 3  Lab: 0  Other: 0  Total: 3  (per week):

Repeatable for credit?: No
Three-peat?: No

CIP/Fund Code: 1418010006
Default Grade Mode: Letter Grade (G)
Alternate Grade Modes: Satisfactory/Unsatisfactory
Method of instruction: Lecture

Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education): No

Will this course be taught as a distance education course?: No

Is 100% of this course going to be taught in Texas?: Yes

Will classroom space be needed for this course?: Yes

This will be a required course or an elective course for the following programs:

- (MEN-MSEN) Master of Engineering in Materials Science and Engineering
- (MS-MSEN) Master of Science in Materials Science and Engineering
- (PHD-MSEN) Doctor of Philosophy in Materials Science and Engineering

Course Syllabus

Syllabus: Upload syllabus
Course title and number: MSEN 666: Nanoindentation and Small-Scale Contact Mechanics

Term (e.g., Fall 200X): Spring 2020

Meeting times and location: TBD

Course Description and Prerequisites

Basic principles of elastic and plastic contact as they determine hardness and influence the measurement of mechanical properties by load and depth sensing indentation methods. Application of nanoindentation techniques to small scale mechanical characterization of solid materials.

Prerequisites: MSEN 320, MEEN 467, MSEN 625, MEEN 625, AERO 603, MEMA 602, or CVEN 613; or approval of instructor.

Learning Outcomes or Course Objectives

At the end of the course, you will be able to:

- Understand the fundamental relationships between hardness and mechanical properties as measured in a tensile test
- Compute stresses, strains, and displacements in the vicinity of an indentation contact for elastic and plastic deformation
- Use principles of elasticity and plasticity to predict indentation force-displacement relationships for various contact geometries
- Use nanoindentation measurements of indentation force and displacement to measure the hardness and elastic modulus of small volumes
- Be familiar with the basic calibrations required in a nanoindentation experiment

Instructor Information

Name: George M. Pharr IV
Telephone number: 979-458-3182
Email address: pharr@tamu.edu
Office hours: TR 11:00 AM to noon
Office location: RDMC 244

Textbook and/or Resource Material

Textbook (required):

Additional References:

Numerous journal papers to be provided in class.

Grading Policies

Midterm Exam: 50%
Final Exam: 50%

Homework: Occasional assignments made in class but not turned in for grading.

Grading Scale

*Standard Letter Grading Scale:*
A = 90-100
B = 80-89
C = 70-79
D = 60-69
F = <60

**Grading may be based on a curve.**

Course Topics, Calendar of Activities, Major Assignment Dates

*Tentative lecture and assignment schedule*

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hardness: testing methods and general scientific principles</td>
<td>Chapter 9 in Dieter</td>
</tr>
<tr>
<td>2</td>
<td>Tabor’s contributions to the science of hardness</td>
<td>Chapters 1, 2, &amp; 5 in Tabor</td>
</tr>
<tr>
<td>3</td>
<td>Stress-strain analysis for 2D elastic contact</td>
<td>Sections 2.1-2.5 in Johnson</td>
</tr>
<tr>
<td>4</td>
<td>Stress-strain analysis for 3D elastic contact</td>
<td>Sections 3.1, 3.2, &amp; 3.4 in Johnson Sneddon 1965 paper</td>
</tr>
<tr>
<td>5</td>
<td>Hertzian contact theory</td>
<td>Sections 4.1-4.2 in Johnson Hertz 1881 Paper</td>
</tr>
<tr>
<td>6</td>
<td>Rigid-plastic contact: slip line field theory</td>
<td>Chapters 3 &amp; 4 in Tabor Sections 6.1-6.2 in Johnson Chapter 9 in Hosford and Cadell</td>
</tr>
<tr>
<td>7</td>
<td>Elastic-plastic contact: the expanding cavity solution</td>
<td>Sections 6.3-6.4 in Johnson pp. 97-106 in Hill Johnson 1970 paper</td>
</tr>
<tr>
<td></td>
<td>MIDTERM EXAM</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Influences of work hardening</td>
<td>Tabor pp. 6-15; 51-54; 76-78 Matthews 1980 paper Johnson pp. 199-201</td>
</tr>
<tr>
<td>9</td>
<td>Load and depth sensing indentation</td>
<td>Berkovich 1951 paper Stillwell and Tabor 1961 paper Bulychev 1975 paper</td>
</tr>
<tr>
<td>11</td>
<td>The Oliver-Pharr method</td>
<td>Pharr, Oliver, Brotzen 1992 paper Oliver &amp; Pharr 1992 paper</td>
</tr>
<tr>
<td>13</td>
<td>The effective indenter shape concept</td>
<td>Pharr &amp; Bolshakov paper 2002</td>
</tr>
<tr>
<td>14</td>
<td>Best techniques for nanoindentation testing</td>
<td>Hay and Pharr review 2000 Oliver &amp; Pharr review 2004</td>
</tr>
</tbody>
</table>
Attendance
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Course Change Request

New Course Proposal

Date Submitted: 10/16/17 9:56 am

Viewing: PHEO 671 : Environmental and Occupational Health Communication

Last edit: 11/14/17 11:19 am
Changes proposed by: bappiah1

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
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<tbody>
<tr>
<td>Bernard Appiah</td>
<td><a href="mailto:bappiah@tamu.edu">bappiah@tamu.edu</a></td>
<td>9794369456</td>
</tr>
</tbody>
</table>

Course prefix: PHEO
Course number: 671
Department: Environmental & Occptnl HLth
College/School: Public Health
Academic Level: Graduate
Effective term: 2018-2019

Complete Course Title:
Environmental and Occupational Health Communication

Abbreviated Course Title:
ENV OCCPTNL HEALTH COMM

Catalog course description:
Topics in environmental and occupational health communication, including risk communication, messages, key audiences, channels, communication plans and assessment of communication interventions; includes case studies of U.S. and global environmental and occupational health communication issues.

Prerequisites and Restrictions:
- Doctoral classification or approval of instructor.

Concurrent Enrollment:
No

Should catalog prerequisites / concurrent enrollment be enforced?
No

Crosslistings:
No

Stacked:
No

Semester: 3
Credit Hour(s): 3
Contact Hour(s): 3
Lecture: 3
Lab: 0
Other: 0

Repeatable for credit?
No

CIP/Fund Code: 5122020014
Default Grade Mode: Letter Grade
Method of instruction: Lecture

In Workflow
1. PHEO Reviewer
2. PHEO Department Head
3. Curricular Services Review
4. PH Committee Preparer
5. PH Committee Chair
6. PH College Dean
7. GC Preparer
8. GC Chair
9. Faculty Senate Preparer
10. Faculty Senate
11. Provost II
12. President
13. Curricular Services
14. Banner

Approval Path
1. 10/16/17 9:58 am
   Fawne Toler (fntoler): Approved for PHEO Reviewer
2. 10/16/17 10:01 am
   Mark Benden (mthowdy): Approved for PHEO Department Head
3. 10/16/17 11:04 am
   Sandra Williams (sandra-williams): Approved for Curricular Services Review
4. 11/03/17 9:48 am
   Rick Danko (danko): Approved for PH Committee Preparer
5. 11/14/17 11:22 am
   Szu-hsuan Lin (micheyszu): Approved for PH Committee Chair
6. 11/14/17 11:39 am
   Jay Maddock (maddock): Approved for PH College Dean
7. 11/22/17 8:51 am
   Lathiessa Johnson (lnjohnson): Approved for GC Preparer
8. 12/14/17 10:57 am
   Lathiessa Johnson (lnjohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courselea/approve#
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)  
Yes

Learning Outcomes

Meets traditional face-to-face learning outcomes.
Describe how learning outcomes are met or provide justification why they are not met.

There is no traditional version of this course, so outcomes cannot be compared.

Hours

Meets traditional face-to-face hours.
Describe how hours are met or provide justification why they are not met.

Please see the attached worksheet showing about 46 hours of formalized instruction and about 96 hours of homework, thus meeting the requirement.

Will this course be taught as a distance education course?  
Yes

I verify that I have reviewed the FAQ for Export Control Basics for Distance Education.

Yes

Is 100% of this course going to be taught in Texas?  
Yes

Will classroom space be needed for this course?  
No

This will be a required course or an elective course for the following programs:

Required (select program)

Elective (select program)

<table>
<thead>
<tr>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(DRPH-EPie) Doctor of Public Health in Epidemiology and Environmental Health</td>
</tr>
</tbody>
</table>

## Course Syllabus

Syllabus:  
Upload syllabus

Upload syllabus  
PHEO 671 Env and Occ Hlth Comm.docx

Letters of support or other documentation  
No

Additional information

Reviewer Comments  
Fawne Toler (fmtoler) (10/16/17 9:41 am): Rollback: Please verify the method of instruction. (web only vs distance education)

Rick Danko (danko) (11/03/17 9:45 am): Proposed new course number changed from 700 series to 600 series to conform with A&M numbering conventions 11-3-17. Confirmed with faculty that sections of this course will be offered by distance education, and faculty verified review of FAQs for Export Control 11-3-17.

Instructor Information

Course title and number | PHEO 671 Environmental and Occupational Health Communication
Term | Fall 2018
Meeting times and location | TBD
Instructor Name(s) | Bernard Appiah, DrPH, MDC, MS, B.Pharm
Teaching Assistant(s) | N/A
Telephone number | (979) 436-9456
Email address | bappiah1@tamu.edu
Office hours | By Appointment
Office location | Rm 311, Admin Building

Course Description

Topics in environmental and occupational health communication, including risk communication, messages, key audiences, channels, communication plans and assessment of communication interventions; includes case studies of U.S. and global environmental and occupational health communication issues.

Prerequisites

Doctoral classification or approval of instructor

Course Competencies and Objectives

<table>
<thead>
<tr>
<th>Competencies</th>
<th>Course Objectives</th>
</tr>
</thead>
</table>
| Apply the current approaches for risk assessment and risk communication | • Explain the importance of communication in addressing environmental and occupational health issues, including risks and disasters  
• Describe communication interventions for addressing environmental and occupational health issues, including risks and disasters |

| Plan, implement, and evaluate interventions designed to respond to environmental hazards that threaten individual, community and population health. | • Write an environmental or occupational risk communication plan  
• Assess the strengths and weaknesses of communication interventions for addressing environmental and occupational health issues |

| Select communication strategies for different audiences and sectors | • Describe the types and features of communication channels for addressing environmental and occupational health issues  
• Describe the types and characteristics of audiences that serve as targets of environmental and occupational health communication interventions |
Discuss the types and roles of key stakeholders involved in implementing environmental and occupational health communication interventions

Communicate audience-appropriate public health content, both in writing and through oral presentation

- Write specific messages for addressing environmental and occupational risk communication issues

Textbook and/or Resource Material

There is no required textbook for this class. Book chapters, relevant journal articles and other course materials will be posted on the course eCampus website for students to download.

Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to the Course: Why Environmental and Occupational Health Communication Matter</td>
<td>eCampus slide sets and other materials Introductory forum: ice-breaker</td>
</tr>
<tr>
<td>2</td>
<td>Overview of Environmental and Occupational Health Communication</td>
<td>eCampus slide sets and other materials</td>
</tr>
<tr>
<td>3</td>
<td>Psychology of Environmental and Occupational Crises</td>
<td>eCampus slide sets and other materials</td>
</tr>
<tr>
<td>4</td>
<td>Messages and Audiences for Environmental and Occupational Health Communication</td>
<td>eCampus slide sets and other materials</td>
</tr>
<tr>
<td>5</td>
<td>Developing Communication Plans for Addressing Environmental and Occupational Health Issues</td>
<td>eCampus slide sets and other materials Quiz 1 due</td>
</tr>
<tr>
<td>6</td>
<td>Communication Channels: Types, Attributes and Applications to Environmental and Occupational Health Issues</td>
<td>eCampus slide sets and other materials</td>
</tr>
<tr>
<td>7</td>
<td>Assessing Environmental and Occupational Communication Interventions</td>
<td>Journal paper “The effectiveness of disaster risk communication: a systematic review of interventional studies” or eCampus slide sets and other materials Quiz 2 due</td>
</tr>
<tr>
<td>8</td>
<td>Case Study 1: Environmental Communication</td>
<td>Journal paper “Best Practices in Environmental Communication: A Case Study of Louisiana’s Coastal Crisis”; or eCampus slide sets and other materials Discussion Forum 1</td>
</tr>
<tr>
<td>9</td>
<td>Case Study 2: Environmental Communication</td>
<td>Journal paper “Legitimation Strategies Used in Response to Environmental Disaster: A French Case Study of Total SA’s Erika and AZF Incidents” or eCampus slide sets and other materials Discussion Forum 2</td>
</tr>
</tbody>
</table>

Updated 10/12/2017
### Grading Policies

This course has graded quizzes, discussion forums and other assignments.

**Quizzes:** There will be two quizzes in this course. Quiz 1 will be based on reading materials for Weeks 1-4, and Quiz 2 will be based on reading materials for Weeks 5 and 6. Instructions regarding the quizzes will be available via eCampus. Make-up for the quizzes will be offered only in the case of a university excused absence (See “Attendance and Make-Up Policies” section below).

**Discussion Forums:** There will be 6 graded discussion forums that will be based on case studies. Instructions regarding the discussions forum will be available via eCampus. Make-up for the discussion forums will be offered only in the case of a university excused absence (See “Attendance and Make-Up Policies” section below).

**Risk/Crisis Communication Plan:** Each student will be required to write a communication plan for addressing an environmental or occupational risk or crisis. More information on the communication plan will be available via eCampus. Make-up for this assignment will be offered only in the case of a university excused absence (See “Attendance and Make-Up Policies” section below).
Final Project. Please choose one of the following options:

1. Identify a research article or report published within the past 4 years on an environmental or occupational health risk, and write a policy brief on it (1,000-1,200 words).
2. Identify a research article or report published within the past 4 years on an environmental or occupational health risk, and write a blog on it for a non-professional audience such as residents affected by the issue (1,000-1,200 words).
3. Identify a research article on an environmental or occupational health risk, and write a newspaper article about it (1,000-1,200 words).

If you choose options 2 or 3, you should interview at least two experts and one non-expert including a worker or community resident.

More information on the final project will be available via eCampus.

Grading Scale

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>30%</td>
</tr>
<tr>
<td>Discussion Forums</td>
<td>30%</td>
</tr>
<tr>
<td>Crisis/Risk Communication Plan</td>
<td>10%</td>
</tr>
<tr>
<td>Final Project</td>
<td>30%</td>
</tr>
</tbody>
</table>

Attendance and Make-up Policies

The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line at [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07).

A university-excused absence is the only excuse acceptable for missing an assignment credit.

If an absence is excused, the instructor will either provide the student an opportunity to make up any work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. The make-up work must be completed in a timeframe not to exceed 30 calendar days from the last day of the initial absence.

Other Pertinent Course Information

Every effort will be made to ensure that power point lecture files, notes, articles and assignments are available online in a timely manner. Written assignments will be delivered through the eCampus course website. Handouts, changes in assignments or the schedule of class modules will be announced on the Bb course webpage. E-mail contact will be initiated with all students the first week of class. If you do not have access to your assigned TAMHSC e-mail account, it is your responsibility to make the instructor aware of that fact so that other arrangements may be made. You are expected to use Blackboard e-mail address for all official correspondence.
eCampus (Blackboard)

If this course uses eCampus: Within the course’s eCampus site you will access the learning materials, tutorials, and syllabus; discuss issues; submit assignments; take quizzes; email other students and the instructor; participate in online activities; and display your projects.

In order to access the course material you will need to go to login into Howdy and then click the eCampus button on the top right or look for Quick Links on the bottom of the School’s homepage or go to http://ecampus.tamu.edu Please do not contact your instructor with technical problems. If you are having a technical problem with the course, review the Blackboard Learn Tutorials (at the top-right of School’s Office of Academic Assessment and Instructional Technology website). For login issues (password not working), please contact TAMU Help Desk at helpdesk@tamu.edu via E-mail, or phone to (979) 845-8300.

Your eCampus login is the same as your Howdy login (NetID).

Computer Requirements for Online Courses
For this and all online courses we recommend the minimum technical requirements outlined on our “SPH Computer Requirements for Online Courses” web page, located at http://www.sph.tamhsc.edu/assessment-instructional/com-requirement.html

All computing problems or other technical issues not related to eCampus, please contact:

- TAMHSC related account: helpdesk@tamhsc.edu via E-mail, or phone to (979) 862-8029
- TAMU related account: helpdesk@tamu.edu via E-mail, or phone to (979) 845-8300

Important!!! Save your work as you go along. Nothing is more discouraging than to lose an assignment due to a computer hang ups! You may want to also make hard copies of your work to have “proof” and save yourself time and trouble!

Plagiarism Virtual Course

Plagiarism is the leading form of academic dishonesty that the School of Public Health has to address. As a SPH student, you are responsible for knowing what plagiarism is and how to avoid it. All SPH students are automatically enrolled in Plagiarism Virtual Course on eCampus. This virtual course provides you with information and examples related to plagiarism in an effort to reduce the number of reported incidents. Please find a tutorial and resources under “Content.” In addition, please find Turnitin, a software package that allows you to check whether you may have plagiarized your document. Please see Phuong Huynh: phuong@sph.tamhsc.edu for additional information.

Course Evaluation

Constructive feedback from students on course evaluations is taken very seriously at the School of Public Health. I am asking for your assistance in helping the School in its assessment of courses and faculty through your participation in the evaluation of your courses. As public health professionals you will one day have the responsibility to evaluate colleagues and health initiatives. The School views providing feedback on the School’s courses as part of your professional responsibility.

SPH Mission
The Texas A&M School of Public Health is committed to transforming health through interdisciplinary inquiry, innovative solutions, and development of leaders through the Aggie tradition of service to engage diverse communities worldwide.

**Americans with Disabilities Act (ADA)**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit [http://disability.tamu.edu](http://disability.tamu.edu).

**Academic Integrity**

Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Students are expected to adhere to all TAMUS, TAMU, HSC, and School policies regarding academic integrity and classroom conduct. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used, or tampering with the academic work of another student. Individuals found guilty of academic dishonesty may be dismissed from the degree program, and at a minimum will receive an F for the course. It is the student’s responsibility to have a clear understanding of how to reference other individuals’ work, as well as having a clear understanding in general as to the various aspects of academic dishonesty. A tutorial on this issue is available at: [http://SPH.tamhsc.edu/academic-affairs/academic-integrity.html](http://SPH.tamhsc.edu/academic-affairs/academic-integrity.html). A plagiarism tutorial can be found in Blackboard. Information on the Aggie Honor Code can be found at [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu).

Remember:

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”

**Copyright Statement**

The materials used in this course are copyrighted. These materials include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless permission is expressly granted by the instructor.

**FERPA**

The Federal Education Rights & Privacy Act requires that we advise students that by registering for this course, their HSC assigned e-mail address will be revealed to classmates and the instructor. By continuing your enrollment in the course you acknowledge your understanding of this policy. By enrolling in this course you agree to the following statement: “I understand that as a result of registering for this course, my HSC/Blackboard assigned e-mail address will be revealed to classmates and the instructor.”

**Equal Opportunity Statement**

The Texas A&M Health Science Center is an Equal Opportunity/ Affirmative Action employer. Inquiries regarding nondiscrimination policies may be directed to the Human Resources Officer by phone at (979) 436-9208, email hr@tamhsc.edu, or by mail at 200 Technology Way, College Station, TX 77845.
DISCLAIMER

This syllabus is representative of materials that will be covered in this class; the schedule and topics list are subject to change. These changes will be discussed in class and subsequently communicated via email or posted as announcements. If you have any problems related to this course, please feel free to discuss them with the instructor.

Title IX

Title IX of the Education Amendments of 1972 protects people from sex discrimination in educational programs and activities at institutions that receive federal financial assistance. Texas A&M University and the Texas A&M Health Science Center are committed to maintaining a learning environment that is free from discriminatory conduct based on gender. As required by Title IX, the University does not discriminate on the basis of sex in its education programs and activities, and it encourages any student or non-student who thinks that he or she has been subjected to sex discrimination, sexual harassment (including sexual violence) or sexual misconduct by another student, member of the faculty or staff, or campus visitor or contractor, to immediately report the incident to any of the individuals persons or offices listed below.

WHERE TO REPORT:
James Nachlinger,
Executive Director, Payroll and HR Services
Title IX Coordinator
979-436-9207
nachlinger@tamhsc.edu

The University encourages students to immediately consult with or report incidents of sex discrimination, sexual harassment (including sexual violence) or sexual misconduct to the TAMHSC Title IX Coordinator. Students may also report incidents of sex discrimination, sexual harassment (including sexual violence) or sexual misconduct to any School of Public Health administrator, university administrator, official or unit supervisor, who is then responsible for promptly notifying any of the above Title IX coordinators of the reported incident.
APPENDIX A: CEPH COMPETENCIES

D1. MPH & DrPH Foundational Public Health Knowledge

Profession & Science of Public Health
D1.1. Explain public health history, philosophy and values
D1.2. Identify the core functions of public health and the 10 Essential Services
D1.3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health
D1.4. List major causes and trends of morbidity and mortality in the US or other community relevant to the school or program
D1.5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.
D1.6. Explain the critical importance of evidence in advancing public health knowledge

Factors Related to Human Health
D1.7. Explain effects of environmental factors on a population's health
D1.8. Explain biological and genetic factors that affect a population's health
D1.9. Explain behavioral and psychological factors that affect a population's health
D1.10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities
D1.11. Explain how globalization affects global burdens of disease
D1.12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (e.g., One Health)

D2. MPH Foundational Competencies

Evidence-based Approaches to Public Health
D2.1. Apply epidemiological methods to the breadth of settings and situations in public health practice
D2.2. Select quantitative and qualitative data collection methods appropriate for a given public health context
D2.3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
D2.4. Interpret results of data analysis for public health research, policy or practice

Public Health & Health Care Systems
D2.5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings
D2.6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels

Planning & Management to Promote Health
D2.7. Assess population needs, assets and capacities that affect communities’ health
D2.8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs
D2.9. Design a population-based policy, program, project or intervention
D2.10. Explain basic principles and tools of budget and resource management
D2.11. Select methods to evaluate public health programs

Policy in Public Health
D2.12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence
D2.13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes
D2.14. Advocate for political, social or economic policies and programs that will improve health in diverse populations
D2.15. Evaluate policies for their impact on public health and health equity

Updated 10/12/2017
Leadership
D2.16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making
D2.17. Apply negotiation and mediation skills to address organizational or community challenges

Communication
D2.18. Select communication strategies for different audiences and sectors
D2.19. Communicate audience-appropriate public health content, both in writing and through oral presentation
D2.20. Describe the importance of cultural competence in communicating public health content

Interprofessional Practice
D2.21. Perform effectively on interprofessional teams

Systems Thinking
D2.22. Apply systems thinking tools to a public health issue

EHC. MPH/DrPH in Environmental Health Concentration Competencies
EHC.1. Develop and implement strategies for mitigating environmental health hazards
EHC.2. Explain the synergistic and multiplicative factors that influence solutions for environmental health hazards.
EHC.3. Explain the process in which policies are developed and implemented to handle and reduce environmental health risks and hazards.
EHC.4. Apply the current approaches for risk assessment and risk communication.
EHC.5. Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues.

OHC. MPH in Occupational Health Concentration Competencies
OHC.1. Evaluate occupational health risk in multiple industrial and office settings.
OHC.2. Apply theoretical and conceptual models and skills relevant to Occupational Health.
OHC.3. Apply theoretical and conceptual models and skills relevant to Occupational Health.
OHC.4. Apply appropriate analytical techniques to evaluate research questions.
OHC.5. Communicate audience appropriate research methods and findings.

Dr.PH in Epidemiology and Environmental Health Competencies
DRHC.1. Evaluate epidemiologic and environmental health evidence pertaining to the scope and magnitude of environmental threats to public health.
DRHC.2. Plan, implement, and evaluate interventions designed to respond to environmental hazards that threaten individual, community and population health.
DRHC.3. Explain the theoretical foundations and change strategies for addressing critical public health issues.
DRHC.4. Relate epidemiology and environmental health issues to interdisciplinary research.
DRHC.5. Prepare reports and scholarly presentations and participate in conference presentations in order to appropriately influence relevant state-of-the-art practice.

Updated 10/12/2017
Course Change Request

New Course Proposal

Date Submitted: 09/21/17 11:49 am

Viewing: SPMT 640 : Psychology for Coaches

Last edit: 09/25/17 3:32 pm
Changes proposed by: pek

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul Keiper</td>
<td><a href="mailto:pek@tamu.edu">pek@tamu.edu</a></td>
<td>979-458-2724</td>
</tr>
</tbody>
</table>

Course prefix: SPMT
Course number: 640

Department: Health & Kinesiology
College/School: Education & Human Development

Academic Level: Graduate
Academic Level (alternate): Undergraduate

Effective term: 2018-2019

Complete Course Title:
Psychology for Coaches

Abbreviated Course Title:
PSYCHOLOGY FOR COACHES

Catalog course description:
Examination of the basic principals of sport psychology regarding coaching; includes personal assessment, motivation, handling adversity, leadership and communication.

Prerequisites and Restrictions
Graduate classification.

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced? No

Crosslistings: No
Crosslisted With:

Stacked: No
Stacked with:

Semester: 3
Credit Hour(s) (per week):
Contact Hour(s):
Lecture: 3
Lab: 0
Other: 0

Repeatable for credit? No
Three-peat? No

CIP/Fund Code: 3105040016
Default Grade Mode: Letter Grade(G)
Alternate Grade Modes: Satisfactory/Unsatisfactory
Method of instruction: Lecture
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education): Yes
Learning Outcomes: Does not meet traditional face-to-face learning outcomes.
Describe how learning outcomes are met or provide justification why they are not met: This course will only be taught as a non-traditional distance education course. We do not offer this course in a face-to-face manner.
Hours: Does not meet traditional face-to-face hours.
Describe how hours are met or provide justification why they are not met: We are planning that the student will spend 2 hours a week with the lecture material and 8 hours a week with lab type work with research and writings.
Will this course be taught as a distance education course: Yes
I verify that I have reviewed the FAQ for Export Control Basics for Distance Education: Yes
Is 100% of this course going to be taught in Texas: Yes
Will classroom space be needed for this course: No
This will be a required course or an elective course for the following programs:
Required (select program)
Elective (select program)

Program(s)
(MS-SPMT) Master of Science in Sport Management

Course Syllabus

Syllabus: Upload syllabus
Upload syllabus: SPMT 640 - Syllabus (updated).pdf
Letters of support or other documentation: Yes
Upload files: SPMT 640 RC_course approval.pdf
Additional information: This is a new course within our master's program. This will be a part of a certificate.
Reviewer Comments: Sandra Williams (sandra-williams) [04/25/17 5:32 pm]: Rollback: Syllabus: late assignment policy seems to contradict student rule 7 - may want to include exceptions for University Excused absences; missing grading
scale (A=+, B=, C=, D=, F=); has outdated ADA statement; schedule of topics - is this course taught in the summer - doesn't show 14 week schedule of topics.

pek (09/21/17 9:49 am): We have received approval from the Psychology Department.

Sandra Williams (sandra-williams) (09/21/17 11:12 am): Rollback: Based on the uploaded syllabus, the course appears to be web-based. Please answer the new question "Will sections of the course be taught as non-traditional".

Sandra Williams (sandra-williams) (09/25/17 3:33 pm): Update received.

Reported to state?

Add
SPMT 640
PSYCHOLOGY FOR COACHES

Spring Semester 2018

INSTRUCTOR
John F. Eliot, Ph.D.
Texas A&M University, Division of Sport Management
Office: 979.845.1064 • E-Mail: eliot@tamu.edu

OFFICE HOURS
By appointment

OVERVIEW
Big dollars, big media, big politics... as the stakes in professional and collegiate sport continue to escalate, with the implications for youth sport escalating in parallel, we can no longer afford for coaching to be merely about physical development. Youngsters with 4.4 40 speed or 90 m.p.h. fastballs are a dime-a-dozen these days. So many pin their career hopes on their genetic gifts; So many fail to make it. And then there are the Cinderella teams rolling through March Madness on the backs of players not recruited by any top tier programs. How do these phenomena happen? Why do some supremely skilled athletes choke under pressure? How can team chemistry trump talent? Why do so many first round draft picks end up broke, desolate, and unemployed? These and many other questions will be explored in this course as we roll up our sleeves to take an in-depth look at the ultimate performance intangible: the human brain.

PREREQUISITES
Completion of baccalaureate degree; Permission of program chair.

LEARNING OBJECTIVES
By the conclusion of this course, each enrollee will:

(1) Have a comprehensive, working understanding of the core principles of psychology that apply to coaching individual and team sports.

(2) Be able to accurately assess one’s own strengths and weaknesses in the psychological aspects of coaching.

(3) Be able to devise strategies for teaching athletes how to manage and improve their psychological performance skills.

(4) Be able to teach teams how to develop stronger, more impactful chemistry.
REQUIRED TEXTBOOKS


COURSE STRUCTURE

SPMT 640 is a web-based course. Each enrollee is thereby responsible for taking the initiative to read all course materials, ask questions, stay abreast of all assignments (as outlined on eCampus), engage in assigned exercises, and participate in online course dialog with other students. Combined, these efforts are expected to be the equivalent of weekly 3 hour meetings.

Regarding structure, this course is designed as a series of ten self-paced modules. Each module involves: (a) eCampus instructions, (b) a deck of instructional, interactive PowerPoint slides, (c) a set of required readings, (d) a real-world laboratory activity or set of exercises, (e) an interactive discussion with your peers, and (f) a lab notebook entry to connect and apply all of the above with your own coaching pursuits.

As you will note on the course outline (at the end of this syllabus), there are no dues dates for readings, assignments, or course dialog participation. This class is self-paced. You can complete the modules at whatever speed you deem most beneficial to your learning. With this, though, comes the responsibility to set and maintain a reasonable schedule for yourself. If you leave the majority of the modules to the end of the semester, your submitted work will reflect that and you will have trouble passing the course.

COURSE POLICIES & EXPECTATIONS

CORRESPONDENCE. All course correspondence will be delivered online, via the course website. Consistent with Student Rule 61.2.3 (http://student-rules.tamu.edu/rule61), all students will be expected to regularly (daily at the very minimum) check their TAMU e-mail account for course-related communications, plus check eCampus for announcements and updates.

E-MAIL PROFESSIONALISM. Consistent with Student Rule 61, e-mail is an official means of communication. As such, you are expected to follow simple guidelines of professionalism. You should: (a) use a subject line that is relevant to your message; (b) clearly state your question or concern; (c) use complete sentences and proper grammar—as opposed to abbreviated, colloquial, and/or texting-style communications; (d) include a signature block containing your name, phone number, and e-mail address; and always (e) proofread your email prior to sending it. You can find additional information about writing emails via the A&M Writing Center: http://writingcenter.tamu.edu/2010/how-to/business/emails/.
SUBMITTING ASSIGNMENTS. All assignments must be submitted via the eCampus portal provided. No assignments will be accepted offline or via e-mail. Any attachments or files uploaded to eCampus must, no exceptions, be in PDF form (Word, Notes, Pages, etc. are not acceptable formats).

CITATIONS. Avoid any issues with plagiarism by properly citing your sources. All coursework must include references, with citations adhering to APA formatting and guidelines. For more information regarding formatting guidelines visit: https://owl.english.purdue.edu/owl/resource/560/01/.

PLAGIARISM STATEMENT. As commonly defined, plagiarism consists of passing off—as one’s own ideas—words, writings, etc., those which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of any other person, even if you have the permission of that person. Plagiarism is one of the most severe academic sins. If you have any questions regarding plagiarism or if you witness instances of plagiarism by classmates, please consult the latest issue of the Texas A&M University Student Rules, http://student-rules.tamu.edu, and review the section titled “Scholastic Dishonesty.”

COPYRIGHT STATEMENT. All materials used in this course are copywritten. Reproducing or disseminating any of these materials, in any form or fashion, is strictly prohibited without prior, expressed, written permission.

ASSIGNMENTS

READINGS. All readings listed on eCampus (also see the last section of this syllabus) are REQUIRED. You may consume the readings either before or after working through each module’s instructional slides, but it is highly recommended that you do your reading prior to conducting each module’s assigned activities. Your lab notebook entries (see below) for every module must reference assigned readings to demonstrate the connections you are drawing between your academic work and your professional pursuits.

LAB EXERCISES & ACTIVITIES. For each module, one or two laboratory activities will be provided, specifically designed to help you experiment with course principles. In addition to any verbal directions provided in the slide sets, eCampus will also provide you with a detailed PDF assignment sheet for each exercise. All Labs are REQUIRED.

Please Note: The more effort you put into tailoring these activities to your personal and professional ambitions, the more you will get out of this course. Lab exercises do not have “right” answers; you should not engage in them with a specific result in mind. Rather, use them to explore course principles and to practice the application of this course.
Following completion of the lab(s) for each module, you will document your experiences and learning via the course Lab Notebook. These entries are not formal papers; rather, view them like a comprehensive “scientific diary” of sorts in which you are exploring theory-to-practice connections between course principles, actual coaching, and your own professional development. Your lab book is an opportunity to push yourself to transcend traditional classroom-and-homework style learning.

By the end of the semester, you will have recorded 10 total lab entries, one for each module. Each entry must be clearly titled with its module’s number and topic. Each entry will then be scored on a 0-3 point scale (with partial credit available) in evaluation of these three required ingredients:

1. RESULTS: Clear evidence of having conducted the assigned lab(s), complete with any results you observed and/or recorded.

2. READING CONNECTIVITY: Thoughtfully linking the lab(s) with the readings assigned for the corresponding module.

3. APPLICATION: Significant and tangible planning that demonstrates how—specifically and concretely—you will put the lessons learned in the lab(s) into professional practice in your future endeavors.

As emphasized above, do NOT let your laboratories, nor your lab notebook entries, pile up at the end of the semester. The work you submit will reflect procrastination and your final grade will suffer in parallel. Please do not underestimate the impact of the time you devote to lab engagement.

DISCUSSION BOARD. The course website includes a discussion board to allow students an opportunity for peer interaction, sharing of ideas, and learning from other’s perspectives and viewpoints. As this is an invaluable part of the educational process, discussion board posting is REQUIRED.

Over the course of the semester you are required to contribute a MINIMUM of 2 discussion posts FOR EVERY MODULE. At least one of your entries for each module must be a reply to another student’s post, i.e. contributing to an existing thread. By all means, you are welcome to contribute more than this minimum!

Please Note: This is not a forum for opinion-espousing. This assignment is for the purpose of scholarly discussion. Professional writing, including proper grammar and formatting, is expected; “text-speak” is not acceptable. Also, please be mindful of “net-etiquette”—any post that is deemed inappropriate will be removed and 0 points scored.
QUIZZES. To help you review and solidify class principles, three mid-term quizzes will be used. Each quiz covers 1/3 of the course (see eCampus) and is comprehensive of all lectures and readings for the corresponding modules within that course 1/3. You are welcome to take these quizzes at any time, but you cannot repeat them.

All quizzes are CLOSED BOOK. On your honor, you may not use your notes or any supplemental materials, so make sure to study sufficiently. Once you begin each quiz, you must complete it in one sitting; you may not pause, go back, or edit your answers. Plan accordingly!

EVALUATION & GRADING

Your course performance will be assessed as a total accumulation of points. Each assignment provides the following potential points:

<table>
<thead>
<tr>
<th>COURSE ACTIVITIES</th>
<th>NO.</th>
<th>POINTS PER</th>
<th>POSSIBLE</th>
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<tbody>
<tr>
<td>Lab Notebook Entries</td>
<td>10x</td>
<td>3 points each</td>
<td>30</td>
</tr>
<tr>
<td>Discussion Board Participation</td>
<td>20x</td>
<td>1 point each</td>
<td>20</td>
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<tr>
<td>Quizzes</td>
<td>3x</td>
<td>15 points each</td>
<td>45</td>
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<tr>
<td>Professor’s Overall Assessment</td>
<td>1x</td>
<td>5 points</td>
<td>5</td>
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</table>

TOTAL COURSE POINTS 100

GRADING SCALE: A=100-90, B=89-80, C=79-70, D=69-60, F=59-0

LATE POLICY. All work not submitting by the final day of the semester will be considered late, except in the case of excused absences, per Student Rule 7. For more information see http://student-rules.tamu.edu/rule07.

IMPORTANT

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<table>
<thead>
<tr>
<th>MODULE/SECTION &amp; TOPICS</th>
<th>SCHEDULE</th>
<th>READINGS</th>
<th>LABS &amp; EXERCISES</th>
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<tbody>
<tr>
<td><strong>Section I – Course Introduction</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td><strong>MODULE 1. COACHING THE MIND</strong></td>
<td>Week 1</td>
<td>No Readings</td>
<td>Introductory Lab</td>
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<td><strong>Section II – Individual Performance</strong></td>
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<td>-</td>
<td>-</td>
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<tr>
<td><strong>MODULE 2. MOTIVATION</strong></td>
<td>Week 2</td>
<td>Eliot 6; Murphy 1</td>
<td>The WHY Exercise</td>
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<td><strong>A. Foundations of Motivation</strong></td>
<td>Murphy 2 &amp; 4</td>
<td>Goal Setting Exercise</td>
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<tr>
<td><strong>B. Goal Setting</strong></td>
<td>Eliot 6; Murphy 1</td>
<td>Goal Setting Exercise</td>
<td></td>
</tr>
<tr>
<td><strong>MODULE 3. SELF-CONFIDENCE</strong></td>
<td>Weeks 3-4</td>
<td>Eliot 7</td>
<td>In-Lecture Question</td>
</tr>
<tr>
<td><strong>A. Forms of Confidence</strong></td>
<td>Eliot 1 &amp; 5</td>
<td>60/40 Charting</td>
<td></td>
</tr>
<tr>
<td><strong>B. Training and Trusting Mindsets</strong></td>
<td>Eliot 1 &amp; 5</td>
<td>60/40 Charting</td>
<td></td>
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<tr>
<td><strong>MODULE 4. FOCUS &amp; CONCENTRATION</strong></td>
<td>Weeks 5-6</td>
<td>Eliot 8 &amp; 9</td>
<td>Distraction Game</td>
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<tr>
<td><strong>A. Attentional Control</strong></td>
<td>Murphy 7 &amp; 8</td>
<td>Ponder Lecture Note</td>
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<td><strong>B. Mental Imagery</strong></td>
<td>Eliot 8 &amp; 9</td>
<td>Distraction Game</td>
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<td><strong>MODULE 5. PSYCHOPHYSIOLOGY</strong></td>
<td>Week 7</td>
<td>Eliot 2; Murphy 5</td>
<td>ZOF Profiles</td>
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<td><strong>MODULE 6. HANDLING ADVERSITY</strong></td>
<td>Week 8</td>
<td>Eliot 11</td>
<td>Philosophies Exercise</td>
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<td><strong>A. Choking and Slumps</strong></td>
<td>Murphy 12</td>
<td>In-Lecture Question</td>
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<td><strong>B. The Psychology of Rehabilitation</strong></td>
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<td>In-Lecture Question</td>
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<tr>
<td><strong>Section III – Team Performance</strong></td>
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<td>-</td>
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<td><strong>MODULE 7. LEADERSHIP</strong></td>
<td>Weeks 9-10</td>
<td>Murphy 9 &amp; 10</td>
<td>EQ Inventory</td>
</tr>
<tr>
<td><strong>A. Leader Engagement</strong></td>
<td>Reading TBA</td>
<td>Pygmalion Activity</td>
<td></td>
</tr>
<tr>
<td><strong>B. The Self-Fulfilling Prophecy</strong></td>
<td>Reading TBA</td>
<td>Pygmalion Activity</td>
<td></td>
</tr>
<tr>
<td><strong>MODULE 8. COMMUNICATION</strong></td>
<td>Weeks 11-12</td>
<td>Murphy 11</td>
<td>Communication Ex.</td>
</tr>
<tr>
<td><strong>A. Learning Styles</strong></td>
<td><strong>READING TBA</strong></td>
<td>Communication Ex.</td>
<td></td>
</tr>
<tr>
<td><strong>B. Feedback and Reinforcement</strong></td>
<td><strong>READING TBA</strong></td>
<td>Communication Ex.</td>
<td></td>
</tr>
<tr>
<td><strong>MODULE 9. PSYCHOMETRICS</strong></td>
<td>Week 13</td>
<td>Eliot 12</td>
<td>Evaluation Exercise</td>
</tr>
<tr>
<td><strong>Section IV – Course Conclusion</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>MODULE 10. THE ZONE</strong></td>
<td>Week 14</td>
<td>Eliot 10 &amp; 13</td>
<td>Concluding Lab</td>
</tr>
</tbody>
</table>
Hello Paul:

This course seems to reflect psychology content and does not overlap with any of our current or planned courses at the graduate level. We’ll look forward to seeing how it develops.

Heather C. Lench, PhD  
Associate Professor & Department Head  
Department of Psychological and Brain Sciences  
Texas A&M University  
http://psychology.tamu.edu/

****************************************
4235 TAMU  
College Station, TX 77843  
979-845-0377  
hlench@tamu.edu

Hi Heather,

I am Paul Keiper in the Division of Sport Management. We are looking at getting a course approved that has Psychology in the title. I am sending you the syllabus. I would be happy to come over and visit along with the potential instructor. Do you have time in your schedule to meet? The title of the course is Psychology for Coaches. I can give you more background on the course, if you would like.

We are looking for your blessing to go forward with this course. Thank you very much for your time concerning this matter.

Paul
Course Change Request

New Course Proposal

Date Submitted: 09/05/17 9:49 am

Viewing: TCMT 610 : Engineering Personal Leadership

Last edit: 09/11/17 3:39 pm
Changes proposed by: jsass

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan Sass</td>
<td><a href="mailto:jsass@tamu.edu">jsass@tamu.edu</a></td>
<td>979-458-5083</td>
</tr>
<tr>
<td>Dr. Ben Zoghi</td>
<td><a href="mailto:zoghi@tamu.edu">zoghi@tamu.edu</a></td>
<td>979-676-3533</td>
</tr>
</tbody>
</table>

Course Prefix: TCMT  Course Number: 610

Department: Eng Tech & Ind Distribution
College/School: College of Engineering
Academic Level: Graduate
Academic Level (alternate): Undergraduate
Effective term: 2018-2019

Complete Course Title: Engineering Personal Leadership
Abbreviated Course Title: ENGR PERSONAL LEADERSHIP

Catalog Course Description:
Development of cognitive, emotional, behavioral capabilities; identification and exploration of Emotional Intelligence (EQ) competencies; focuses on both the art and science of emotional EQ.

Prerequisites and Restrictions:
Admission to the Master of Engineering Technical Management program.

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced? No
Crosslistings: No Crosslisted With
Stacked: No Stacked with

Semester: 3 Contact Hour(s) (per week): 3
Credit Hour(s): 3 Lecture: 3 Total 3 Lab: 0 Other: 0
Repeatable for credit? No Three-peat? No
CIP/Fund Code: 1515010006

In Workflow
1. ETID Department Head
2. Curricular Services Review
3. EN Committee Preparer GR
4. EN Committee Chair GR
5. EN College Dean GR
6. GC Preparer
7. GC Chair
8. Faculty Senate Preparer
9. Faculty Senate
10. Provost II
11. President
12. Curricular Services
13. Banner

Approval Path
1. 09/05/17 3:44 pm
   Reza Langari (rlangari): Approved for ETID Department Head
2. 09/11/17 3:42 pm
   Sandra Williams (sandra-williams): Approved for Curricular Services Review
3. 09/27/17 4:55 pm
   Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR
4. 10/23/17 3:16 pm
   Prasad Enjeti (enjeti): Approved for EN Committee Chair GR
5. 11/13/17 1:14 pm
   Prasad Enjeti (enjeti): Approved for EN College Dean GR
6. 11/22/17 8:52 am
   LaRhesa Johnson (lrjohnson): Approved for GC Preparer
7. 12/14/17 10:58 am
   LaRhesa Johnson (lrjohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve# 1/3
Course Syllabus

Syllabus: Upload syllabus

Upload syllabus: TCMT 610 - Engineering Leadership - Zoghi - V8.docx

Letters of support or other documentation: No

Additional information: 

Reviewer Comments: Sandra Williams (sandra-williams) (07/19/17 5:26 pm): Made its to form.
Sandra Williams (sandra-williams) (07/20/17 4:54 pm): Rollback: Please update: page 5 of syllabus shows TCMT
601; late work not accepted - what about university excused absences?; shows old ADA statement.

**Sandra Williams (sandra-williams) (09/05/17 8:30 am)**: Rollback: New questions were added to the form effective September 1 per new requirements. Please answer and resubmit. (Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)?)

**Sandra Williams (sandra-williams) (09/11/17 3:42 pm)**: Update received.

Reported to state?

Add
TCMT 610: Engineering Personal Leadership  
Fall 2018  
*The first-Year residency*

Instructor: Dr. Ben Zoghi  
Telephone: (979) 676-3533  
Email: zoghi@tamu.edu  
Location: Fermier Hall, Room 012  

**Course Description:**  
This course addresses Emotional Intelligence (EQ) and developing your cognitive, emotional, and behavioral capabilities so you will become an effective leader. We will explore the area of emotional intelligence, identify personal EQ competencies and areas for improvement, and build on these competencies and skills. Emotional Intelligence, is what every leader uses to make pivotal decisions, plan projects and initiatives, solve problems, interact with clients, set performance expectations, communicate feedback, and interact with colleagues of all levels. This course combines lectures, in-class experiences, scenario discussions, reflections, partner exercises, and the practical application of learning beyond the classroom. We will work individually and in teams, use activities, discussion and reflection to attain our objectives. This course focuses on both the art and science of emotional intelligence.

Prerequisites:  
First year residency

**Overall Course Learning Outcomes**  
Upon completion of this course, you will be able to:

1. Assess and develop your emotional intelligence to engage with a wider range of constituents for more effective leadership  
2. Learn the EI Model and its competencies  
3. Develop greater self-awareness to become a more effective and authentic leader  
4. Learn how to manage your emotional intelligently  
5. Identify personal learning goals aimed at improving interpersonal communications skills  
6. Develop Empathic communication skills
7. Create a personalized leadership development plan which identifies your strengths and unique contributions

Getting Started:

To get started within this course, you will need to:

- Review the syllabus in its entirety
- Login to the course website, eCampus (see directions below), to:
  - ensure that you have access and the correct plug-ins installed,
  - update your user profile,
  - spend some time becoming familiar with the course layout, and
  - complete the introductory forum.

Resource Materials & Course Technology

Required Textbook and Resource Materials will be provided to you in a pdf format on your laptop.

- Search Inside Yourself (Chade Meng Tan), Publisher: HarperOne; Reprint edition (September 2, 2014), ISBN-10: 0062116932
- Selected chapters and articles distributed either in class and/or on Blackboard class site

eCampus:

This course will use the TAMU eCampus, powered by Blackboard Learn, as the virtual classroom. Within eCampus, you can find all course related content and assessments (including but not limited to course materials, content, videos, activities, assessments, etc.). The recommended browsers for eCampus access are Mozilla Firefox or Google Chrome (Internet Explorer is not recommended). For additional information on support browsers for eCampus, please visit http://tx.ag/eCampusBrowserSupport. To login to eCampus:

- Go to http://ecampus.tamu.edu
- Click the Login button
- Use your TAMU NetID and password to login

Once logged into eCampus, you will see a list of all courses for which you are enrolled in for the semester. To navigate to this course, click on the name of the course. If you have any problems logging into the course, please see the technology support section below.

Technology Requirements & Recommendations:

Technology Requirements:

- Reliable and frequent access to a computer and to the high-speed Internet. If you do not have frequent and reliable access to a computer with Internet connection, please contact the instructor to discuss your situation and determine an appropriate solution.

Technology Recommendations:

- Google Hangouts can also be used to work collaboratively in a virtual environment for group projects. You will need to make sure they have claimed a TAMU Google account. To claim and learn more about your account, please visit http://google.tamu.edu.

Course Support

In addition to contacting the instructor or graduate assistant for course content related questions, there are a variety of campus resources for course support.
Academic Services Support - The Office of Graduate & Professional Studies (OGAPS) offers graduate student services and advocates for graduate education for Texas A&M you who are both on-campus and at a distance. For additional information regarding OGAPS, visit: http://ogaps.tamu.edu/Home

Technology Support - For technological issues related to eCampus and software, contact the TAMU Help Desk:
- Student eCampus Help Website, http://ecampus.tamu.edu/student-help.php
- TAMU IT Help Desk:
  - Website: http://hdc.tamu.edu/index.php (Online Chat is available)
  - Phone: (979) 845-8300
  - Email: helpdesk@tamu.edu

The TAMU Help Desk is open 24 hours a day 7 days a week. If your technical problems are unable to be resolved within 48 hours, please contact the instructor for additional assistance. Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and address issues well in advance of deadlines.

Course Activities and Assessments

Using the behavioral and social sciences as a basis, this course examines concepts relevant to the effective management of oneself, other people and organizations. In this course, you will learn and engage in a process of personal development and growth. This will include receiving feedback by engaging in a 360-feedback session, and receiving individual coaching that culminates in a personal vision statement and development plan. You will also gain a better understanding of working in a team by learning about group and team dynamics. In order to be better managers and more effective leaders, they will also gain a better understanding of working in a team by learning about group and team dynamics. In order to be better managers and more effective leaders, they will also study various aspects of organizational life such as culture; motivation and reward systems; power, politics and influence; and social capital and social networks. A variety of methods, including self-assessments, experiential and interactive activities, case studies, and other types of media are used to study these topics. You are encouraged to reflect on their experiences throughout the course.

Confidentiality Policy

Confidentiality is critical to the success of your active involvement in the Engineering Leadership class. To create a safe environment in which risk taking and trying new behaviors are supported, the following is expected of both you and faculty as they work together. No student is to discuss, outside of the class, any details of what other you say and do in the exercises and discussions. If a student shares information of a personal nature with any faculty, that information will not be shared (with other you, or Faculty) unless the student gives her/his express permission to do so.

Determination of Final Grades within the Course

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Total Points (600)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90% - 100%</td>
<td>Above 540 points</td>
</tr>
<tr>
<td>B</td>
<td>80% - 89%</td>
<td>480 - 539 points</td>
</tr>
<tr>
<td>C</td>
<td>70% - 79%</td>
<td>420 - 479 points</td>
</tr>
<tr>
<td>D</td>
<td>60% - 69%</td>
<td>360 - 419 points</td>
</tr>
<tr>
<td>F</td>
<td>Less than 60%</td>
<td>Below 359 points</td>
</tr>
</tbody>
</table>
# TCMT 610 – Engineering Personal Leadership – Residency I Time-table

## 2018 Pre-Residency Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friday - July 27th 2018: Send e-mail to students to take the EQ-360 &amp; MBTI assessments</td>
<td></td>
</tr>
<tr>
<td>Deadline - August 3rd</td>
<td></td>
</tr>
<tr>
<td>August 6th – 10th One-on-One coaching via phone</td>
<td></td>
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<tr>
<td>August 13th – 17th Pre-residency reading assignments</td>
<td></td>
</tr>
<tr>
<td>- Search Inside Yourself (Chade Meng Tan), Publisher: HarperOne; Reprint edition (September 2, 2014), ISBN-10: 0062116932</td>
<td></td>
</tr>
</tbody>
</table>

## 2018 Residency Week Activities

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday 8/13</th>
<th>Tuesday 8/14</th>
<th>Wednesday 8/15</th>
<th>Thursday 8/16</th>
<th>Friday 8/17</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 – 10:00</td>
<td>EQ &amp; MBTI Discussion</td>
<td>Self Management</td>
<td>Social Awareness</td>
<td>Paul Hill - NASA Leading in Chaos &amp; Uncertainty</td>
<td>Steve Thompson</td>
</tr>
<tr>
<td>10:00 – 12:00</td>
<td>EQ Model</td>
<td>Motivation, Stress &amp; Time Management</td>
<td>Communication &amp; Empathy</td>
<td>General Van Alstyne Global Leadership</td>
<td>Xiaomin Yang</td>
</tr>
<tr>
<td>12:00 – 1:00 <strong>lunch</strong></td>
<td>Team Building</td>
<td>Lunch – Class President</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
</tr>
<tr>
<td>1:00 – 3:00</td>
<td>Team Building</td>
<td>Self-Awareness</td>
<td>Ron Lerner No-verbal Communication</td>
<td>Secretary England Leadership &amp; Ethics</td>
<td>PLDP Proposal Presentation</td>
</tr>
<tr>
<td>3:00 – 5:00</td>
<td>Team Building</td>
<td>Mindfulness</td>
<td>Texas A&amp;M Stuff</td>
<td>Leading in Diverse Teams</td>
<td>PLDP Proposal Presentation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>President Elsa Murano</td>
<td></td>
</tr>
</tbody>
</table>

## 2018 Post-Residency Activities

- October 1, 2018: PLDP Progress Status Report #1
- November 1, 2018: PLDP Progress Status Report #2
- December 1, 2018: PLDP Final Report
<table>
<thead>
<tr>
<th>Modules</th>
<th>Topics &amp; Assignments</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1: Emotional Intelligence Model</td>
<td>Emotional Intelligence (EQ) 360 &amp; MBTI Assessments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emotional Intelligence Model</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>● <a href="https://drive.google.com/file/d/0B3UX89n0nuneSzBnbWZldThGa3c/view">https://drive.google.com/file/d/0B3UX89n0nuneSzBnbWZldThGa3c/view</a></td>
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<tr>
<td></td>
<td>Neuroscience: One person, three Brains (Triune)</td>
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<tr>
<td></td>
<td></td>
<td>● The Neuroscience of Mindfulness Meditation</td>
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<td><a href="https://drive.google.com/file/d/0B3J90UKhHeDBZZiZZUVOTlueG8/view">https://drive.google.com/file/d/0B3J90UKhHeDBZZiZZUVOTlueG8/view</a></td>
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<tr>
<td></td>
<td><strong>Reflection 1 - EQ 360 Assessment – Strengths and Areas for growth</strong></td>
<td>100 Points</td>
</tr>
<tr>
<td>Module 2: Emotional Self-Management</td>
<td>Trigger Points</td>
<td></td>
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<tr>
<td></td>
<td>Emotional Hijacking</td>
<td></td>
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<tr>
<td></td>
<td>Motivation (Self &amp; Team)</td>
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<tr>
<td></td>
<td>Stress &amp; Time-Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Reflection 2 – Trigger Points</strong></td>
<td>100 Points</td>
</tr>
<tr>
<td>Module 3: Self-Awareness</td>
<td>Mindfulness</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>● After reading, write your two-paragraph personal reflection (you can write two paragraphs that cover all three of these articles):</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● <a href="https://www.theguardian.com/sustainable-business/thich-nhat-hanh-mindfulness-google-tech">https://www.theguardian.com/sustainable-business/thich-nhat-hanh-mindfulness-google-tech</a></td>
</tr>
<tr>
<td></td>
<td><strong>Reflection 3 - Giving and Receiving Feedback</strong></td>
<td>100 Points</td>
</tr>
<tr>
<td>Module 4: Social Awareness</td>
<td>Social Awareness – Effective Communications (verbal and nonverbal)</td>
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<tr>
<td></td>
<td>Social Awareness – Empathy</td>
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<tr>
<td></td>
<td><strong>Reflection 4 – Empathy</strong></td>
<td>100 Points</td>
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<tr>
<td>Module 5: Social Skills</td>
<td>Conflict Resolution</td>
<td></td>
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<tr>
<td></td>
<td>Coaching &amp; Mentoring</td>
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<tr>
<td></td>
<td>One-one-one Coaching</td>
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<tr>
<td></td>
<td>Personal Leadership Development Plan (PLDP)</td>
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<tr>
<td></td>
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<td><a href="https://drive.google.com/file/d/0B3UX89n0nuneVGVNeWizdUI5WG8/view">https://drive.google.com/file/d/0B3UX89n0nuneVGVNeWizdUI5WG8/view</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Project: Personal Leadership Development Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Progress report #1 (October 1, 2018)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Progress report #2 (November 1, 2018)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Final report #3 (December 1, 2018)</td>
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<tr>
<td></td>
<td></td>
<td>50 points</td>
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<td></td>
<td></td>
<td>100 Points</td>
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</tbody>
</table>
Pre-Residency

NOTE: All lecture materials, case studies, reading papers, presentations, and templates will be on eCampus.

Course Outline

<table>
<thead>
<tr>
<th>Module 1</th>
<th>Module: Emotional Intelligence (EQ) 360 &amp; MBTI Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module Synopsis:</strong> The participant and the raters will automatically receive a unique URL that they then use to access the tool and to rate the participant two weeks before the residency week.</td>
<td></td>
</tr>
<tr>
<td><strong>Read:</strong> The EQ 360 assessment report - Participants will nominate their own raters, the system emails raters automatically with a unique URL that they then use to access the tool and to rate the participant. The Workplace EQ 360 Report includes not only the feedback of all the raters, but also the feedback of the participant. The EQ 360 identifies key employee strengths that can be leveraged to the benefit of the organization, as well as impediments to high performance that could be improved.</td>
<td></td>
</tr>
<tr>
<td><strong>Assignment:</strong> Reflection 1 - EQ 360 Assessment – Strengths and Areas for growth</td>
<td></td>
</tr>
<tr>
<td><strong>Assessment:</strong> Web-based EQ-360 and MBTI assessments</td>
<td></td>
</tr>
<tr>
<td><strong>Objectives:</strong> Upon completion of this module, you will create a personalized leadership development plan which identifies your strengths, unique contributions, and potential areas for growth.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Points</th>
<th>600 Points</th>
</tr>
</thead>
</table>

Reflection 5 - Personal Leadership Development Plan (PLDP)
<table>
<thead>
<tr>
<th>Day 1</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module 1</strong></td>
<td><strong>Module: Emotional Intelligence Model</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Module Synopsis:</strong> Student introduction to the physiology of the brain. You will discover how emotional responses can lead to behaviors they later regret if they don’t know how to manage what is happening.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Read:</strong> Harvard Paper: Leadership That Gets Results and Why Smart People Fail, <a href="https://drive.google.com/file/d/0B3UX89n0nuneSzBnbWZldThGa3c/view">https://drive.google.com/file/d/0B3UX89n0nuneSzBnbWZldThGa3c/view</a></td>
<td>Before the 1st day</td>
<td></td>
</tr>
<tr>
<td><strong>Video:</strong> <a href="https://www.youtube.com/watch?v=Y7m9eNoB3NU">https://www.youtube.com/watch?v=Y7m9eNoB3NU</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lecture Materials:</strong> G/B Boss, EQ Model, Competencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Activities:</strong> class exercise on analyzing good/bad boss.</td>
<td></td>
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</tr>
<tr>
<td><strong>Objectives:</strong> Upon completion of this module, you will be more aware of Emotional intelligence competencies, apply it for better interpersonal relationships, enhanced ability to work effectively in teams, and committed to develop self and others continuously.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Key Assessment Topics Covered:</strong> 1. Assess and develop your emotional intelligence to engage with a wider range of constituents for more effective leadership 2. Learn the EI Model and its competencies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module: Neuroscience: One person, three brains: Understanding Thinking, Feeling, and Behaviors.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Module Synopsis:</strong> Student introduction to discover how negative emotional responses can lead to behaviors they later regret if they don’t know how to manage what is happening.</td>
<td></td>
</tr>
<tr>
<td><strong>Read:</strong> <a href="https://drive.google.com/file/d/0B3J90UKhHeDBZzJZZUVOT0lucG8/view">https://drive.google.com/file/d/0B3J90UKhHeDBZzJZZUVOT0lucG8/view</a></td>
<td>Before the 1st day</td>
</tr>
<tr>
<td><strong>Video:</strong> Neuroscience of emotion and decision making <a href="https://www.youtube.com/watch?v=UUPmJmFmbhE">https://www.youtube.com/watch?v=UUPmJmFmbhE</a></td>
<td>Before the 1st day</td>
</tr>
<tr>
<td><strong>Lecture Materials:</strong> Neocortex, Limbic brain, and Primitive brain</td>
<td></td>
</tr>
<tr>
<td><strong>Activities:</strong> The Neuroscience of Mindfulness Meditation <a href="https://drive.google.com/file/d/0B3J90UKhHeDBZzJZZUVOT0lucG8/view">https://drive.google.com/file/d/0B3J90UKhHeDBZzJZZUVOT0lucG8/view</a></td>
<td></td>
</tr>
<tr>
<td><strong>Objectives:</strong> Upon completion of this module, you will be able to explain different parts of the brain, its functions, and how to utilize best practices to calm down the emotional brain to minimize emotional hijacking.</td>
<td></td>
</tr>
<tr>
<td><strong>Key Assessment Topics Covered:</strong> 1. Assess and develop your emotional intelligence to engage with a wider range of constituents for more effective leadership</td>
<td></td>
</tr>
</tbody>
</table>
2. Learn the EI Model and its competencies
3. Develop greater self-awareness to become a more effective and authentic leader
4. Create a personalized leadership development plan which identifies your strengths and unique contributions

**Assignment:**

**Reflection 1 - EQ 360 Assessment – Strengths and Areas for growth**

<table>
<thead>
<tr>
<th>Day 2</th>
<th>Module: Mindfulness</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 3</td>
<td><strong>Module Synopsis:</strong> Student introduction to the concept and importance of Mindfulness.</td>
<td><strong>Read:</strong> <a href="https://www.nytimes.com/2016/02/28/magazine/what-google-learned-from-its-quest-to-build-the-perfect-team.html?_r=0">https://www.nytimes.com/2016/02/28/magazine/what-google-learned-from-its-quest-to-build-the-perfect-team.html?_r=0</a></td>
<td>Before the 2nd day</td>
</tr>
<tr>
<td>Video: Mindfulness - eCampus</td>
<td><strong>Lecture Materials:</strong> Mindfulness Understanding range of emotions</td>
<td>Before the 2nd day</td>
<td></td>
</tr>
<tr>
<td><strong>Homework:</strong> After reading, write your two-paragraph personal reflection (you can write two paragraphs that cover all three of these articles):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● <a href="https://www.theguardian.com/sustainable-business/thich-nhat-hanh-mindfulness-google-tech">https://www.theguardian.com/sustainable-business/thich-nhat-hanh-mindfulness-google-tech</a></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Objectives:</strong> Upon completion of this module, you will recognize emotions as they occur in themselves and in others, and understand emotions and their purpose and impact.</td>
<td><strong>Key Assessment Topics Covered:</strong></td>
<td>Before the 2nd day</td>
<td></td>
</tr>
<tr>
<td>1. Learn the EI Model and its competencies</td>
<td>1. Learn the EI Model and its competencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Develop greater self-awareness to become a more effective and authentic leader</td>
<td>2. Develop greater self-awareness to become a more effective and authentic leader</td>
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</tr>
<tr>
<td>3. Create a personalized leadership development plan which identifies your strengths and unique contributions</td>
<td>3. Create a personalized leadership development plan which identifies your strengths and unique contributions</td>
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</tr>
</tbody>
</table>
**Johari’s Window – Model of Feedback and Group Dynamics**
Understanding range of emotions
ABC Process awareness

**Objectives:** Upon completion of this module, you will analyze and label emotions, impact on thinking and actions. They will articulate their personal values and understand why there are important. You will develop their personal mission statement.

**Key Assessment Topics Covered:**
1. Learn the EI Model and its competencies
2. Develop greater self-awareness to become a more effective and authentic leader
3. Create a personalized leadership development plan which identifies your strengths and unique contributions

**Assignment:**
**Reflection 2 - Giving and Receiving Feedback**

---

<table>
<thead>
<tr>
<th>Day 3</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 3</td>
<td><strong>Module: Self-Management</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Module Synopsis:** People who can “snap out of it” usually perform better than those who swallow in doom and gloom. In this module, you will explore self-talk, reframing, and how they can use these tools to manage their reactions to emotion.

**Read:** Book Summary – Leadership Blind spots, Soundview Executive Book Summaries, and Manage Your Energy, Not Your Time, Soundview Executive Book Summaries,

**Video:** Self-Regulation - eCampus

**Lecture Materials:**
➢ ABC process – Feeling, Thinking, Actions, Consequences
➢ Emotional Hijacking
➢ Motivation – How to motivate yourself and your employees
➢ Resilience
➢ Stress Management
➢ Time Management

**Objectives:** Upon completion of this module, you will explore your trigger points and its impact on their behavior and leadership impact. Student will utilize best practices to calm down while being emotionally hijacked.

**Key Assessment Topics Covered:**
1. Learn the EI Model and its competencies
2. Develop Empathic communication skills
3. Create a personalized leadership development plan which identifies your strengths and unique contribution

**Personal and Team Motivation**

**Read:** Handouts

**Video:** Motivation - eCampus
Lecture Materials:
Motivation – How to motivate yourself and your employees
Resilience

Objectives: Upon completion of this module, you explain the range and type of motivations. You will analyze the intrinsic vs extrinsic motivation personally and how to motivate their team. Discover and hone the values that drive your actions, Learn practices to dream big and increase motivation, and Practice emotional and cognitive resilience, trainable skills that enable you to persevere towards your goals.

Key Assessment Topics Covered:
4. Learn the EI Model and its competencies
5. Develop Empathic communication skills
6. Create a personalized leadership development plan which identifies your strengths and unique contribution

Module: Stress-Management

Module Synopsis:

Read:
Book Summary – Work Under Stress, Soundview Executive Book Summaries

Before the 3rd day

Video: Stress Management - http://www.youtube.com/watch?v=sPS7GnromGo

Before the 3rd day

Lecture Materials:
Resilience
Stress Management

Objectives: Upon completion of this module, you will demonstrate how to deal with stress more effectively in personal and professional lives.

Key Assessment Topics Covered:
1. Learn the EI Model and its competencies
2. Develop Empathic communication skills
3. Create a personalized leadership development plan which identifies your strengths and unique contribution

Time-Management

Read:
Handouts

Before the 3rd day

Assignment:
Reflection 9 – Time-Management

From Sep 1st - 14th

Lecture Materials:
Motivation
Time Management

Objectives: Upon completion of this module, you will design your time management plan utilizing the model discussed in class.

Key Assessment Topics Covered:
1. Learn the EI Model and its competencies
2. Develop Empathic communication skills
3. Create a personalized leadership development plan which identifies your strengths and unique contribution

**Module: Goal Setting & Change**

**Module Synopsis:** Student introduction to the concept and importance of a range of emotions, being able to name the emotions, and discuss how different emotions can lead to alternative behavior choices and dissimilar end results.

**Read:** Handouts, and EQ-360 assessment report

**Lecture Materials:**
- SMART Model
- Write

**Assignment:**
- Reflection 5 - Proposal for the PLDP

**Objectives:** Upon completion of this module, you will develop your personal leadership development goals using the SMART-W model. Goals will be specific, measurable, attainable, realistic, time-related, and written.

**Assessment:**
- Draft proposal on PLDP

**Assignment:**
- Reflection 3 – Trigger Points

---

<table>
<thead>
<tr>
<th>Day 4</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 3</td>
<td><strong>Module: Social Awareness - Communication</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Module Synopsis:</strong> Emotionally intelligent people are keenly aware of how others are feeling. During this module, you will learn how to look for cues, ask questions for better understanding, and empathize with another person’s point of view.</td>
<td></td>
<td></td>
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<tr>
<td><strong>Read:</strong> Read:</td>
<td></td>
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</tr>
<tr>
<td>Book Summary – Just Listen, Soundview Executive Book Summaries</td>
<td>Before the 4th day</td>
<td></td>
</tr>
<tr>
<td>Book Summary – Speaking as a leader, Soundview Executive Book Summaries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Book Summary – Crucial Conversation, Soundview Executive Book Summaries</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lecture Materials:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective communication (Verbal and non-verbal)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotion: Facial expression, tone of voice, Pitch, and Gesture</td>
<td></td>
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<tr>
<td>Empathy, other point of view, Not-judgmental</td>
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</tbody>
</table>
Objectives: Upon completion of this module, you will interpret better communication, know the underlying issues with poor communication and develop models that work well for them in their personal and professional working environment.

Key Assessment Topics Covered:
1. Learn the EI Model and its competencies
2. Develop Empathic communication skills
3. Create a personalized leadership development plan which identifies your strengths and unique contribution

Social Awareness - Empathy

Module Synopsis: Emotionally intelligent people are keenly aware of how others are feeling. During this module, you will learn how to look for cues, ask questions for better understanding, and empathize with another person’s point of view.

Read: SV: Just Listen, Voice Power, Speaking as a leader, Crucial Conversation, Work Under Stress

Lecture Materials:
Effective communication (Verbal and non-verbal)
Emotion: Facial expression, tone of voice, Pitch, and Gesture
Empathy, other point of view, Not-judgmental

Objectives: Upon completion of this module, you will articulate the importance of and the models for empathic listening and listening to understand. You will describe why empathic listening is the key for all other interpersonal relationships, and they will practice and demonstrate the ability to listen empathically.

Key Assessment Topics Covered:
1. Learn the EI Model and its competencies
2. Develop Empathic communication skills
3. Create a personalized leadership development plan which identifies your strengths and unique contribution

Module: Conflict Resolution

Module Synopsis: The ability to consistently settle employee, supervisor, customer, supplier and vendor matters in a timely fashion is crucial to the future success of you. This module examines the principles and methodology of managing conflict that include five conflict management styles: collaborating, competing, compromising, avoiding and accommodating. During the Lab, you practice their conflict management skills in several cases and receive immediate feedback on their strengths and areas for improvement.

Read:
Handouts

Lecture Materials:
Inspire
Team Building
Conflict Resolution Skills (Covey - Win/Win or Win/Lose)

Activities: Conflict Resolution Case Study
<table>
<thead>
<tr>
<th>Activities:</th>
<th>One-on-One Coaching session</th>
<th>7:00 pm – 9:00 pm second and third day</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives:</strong></td>
<td>Upon completion of this module, you will describe why conflict occurs and what has to be present for collaboration to occur. You will articulate a model for turning conflict to collaboration.</td>
<td></td>
</tr>
</tbody>
</table>
| **Key Assessment Topics Covered:** | 1. Assess and develop your emotional intelligence to engage with a wider range of constituents for more effective leadership  
2. Learn the EI Model and its competencies  
3. Develop greater self-awareness to become a more effective and authentic leader  
4. Learn how to manage your emotional intelligently  
5. Identify personal learning goals aimed at improving interpersonal communications skills  
6. Develop Empathic communication skills  
7. Create a personalized leadership development plan which identifies your strengths and unique contributions |
<p>| <strong>Assignment:</strong> | <strong>Reflection 4 – Empathic Listening</strong> | 8:00 am, 5th day |</p>
<table>
<thead>
<tr>
<th>Day 5</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 5</td>
<td><strong>Module: Personal Leadership Development Plan (PLDP)</strong></td>
<td></td>
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</tbody>
</table>

**Module Synopsis:** The course concludes with an action planning session. You will identify the behaviors you plan to stop, those you intend to start, and the ones you should continue. How will you measure progress and determine whether successful change has occurred? At this point, you should have an understanding of how you can develop your EQs and any roadblocks that would prevent your success.

**Read:** EQ-360 Feedback report, [https://drive.google.com/file/d/0B3UX89n0muneVGVNeWtzdUI5WG8/view](https://drive.google.com/file/d/0B3UX89n0muneVGVNeWtzdUI5WG8/view)  
Before the 5th day

**Lecture Materials:**  
Handout: Catching your dream (Value, Legacy, Personal Mission Statement)  
PLDP Template  
EQ-360 Feedback report

**Objectives:** Upon completion of this module, you will develop your personal leadership development plan based on your EQ-360 assessment and coaching discussion.

**Key Assessment Topics Covered:**
1. Assess and develop your emotional intelligence to engage with a wider range of constituents for more effective leadership  
2. Learn the EI Model and its competencies  
3. Develop greater self-awareness to become a more effective and authentic leader  
4. Learn how to manage your emotional intelligently  
5. Identify personal learning goals aimed at improving interpersonal communications skills  
6. Develop Empathic communication skills=  
7. Create a personalized leadership development plan which identifies your strengths and unique contributions

**Assignment:**  
**Reflection 5. PLDP Final Report**  
5:00 pm, Dec 1, 2018
**Rubric for Reflections** - The following rubric will be used for grading reflection assignments in this course. Each reflection will receive up to 100 points, based on this rubric.

<table>
<thead>
<tr>
<th>Knowledge – Content</th>
<th>Points 50%</th>
<th>Points 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers all key elements of the assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates a complete understanding of concepts presented in course material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is comprehensive and accurate (no factual errors)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is insightful and reflective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develops a central theme or idea</td>
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<td></td>
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<tr>
<td>Displays active engagement</td>
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</tr>
<tr>
<td>Demonstrates the ability to analyze the ideas of others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation – Writing and Style</th>
<th>Points 20%</th>
<th>Points 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tone is appropriate to the content and assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization is logical; thesis is clear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The introduction includes a clear thesis and previews main points of the paper/essay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The body:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Develops thesis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Includes clearly stated main points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Is comprehensive and accurate (no factual errors)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Is insightful and reflective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Effectively uses details, examples, and/or analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The conclusion flows from the body of the paper and reviews main points of the paper/essay</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation – Writing and Style</th>
<th>Points 15%</th>
<th>Points 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grammar:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Grammar, structure, spelling and punctuation are correct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Sentences are well-structured, complete, clear, and concise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Topic and transition sentences are used and organize/maintain the flow of though</td>
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</table>

<table>
<thead>
<tr>
<th>Administrative</th>
<th>Points 15%</th>
<th>Points 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed within the prescribed time limits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conforms to prescribed word limits</td>
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<td></td>
</tr>
<tr>
<td>Conforms to any additional instructions provided</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Includes appropriate formatting: title page, tables, appendices, reference page, etc., in accordance with assignment administrative guidelines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uses citations where required and complies with the assignment administrative guideline</td>
<td></td>
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</tr>
</tbody>
</table>

| **Total = 100%** | Points = 100 |

Summary/Additional Comments:
The Social Contract

The social contract is an agreement where individuals seek to create the most effective learning environment for all participants. Individuals are asked to agree to these behaviors guidelines as a way insuring that everyone fully understand what is expected and what is accepted. The social contract states:

<table>
<thead>
<tr>
<th>Be Present:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be present mentally, physically and emotionally throughout the class. Be on time. Honor the commitment of others by giving fully of yourself.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pay Attention:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listen to what others say and focus on understanding the ideas. Try to minimize distractions that take your focus away from the activity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Speak Your Truth:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share your thoughts and opinions openly and honestly. Your opinion is as valid as anyone else’s. Don’t hold back your opinions and ideas, what you withhold may be critical piece of information or knowledge that the group needs at the moment.</td>
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</table>

<table>
<thead>
<tr>
<th>Be Open To Outcomes:</th>
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</thead>
<tbody>
<tr>
<td>Try not to prejudge what is happening. If you have preconceived notions about what you will learn or experience, you may limit your ability to perceive other insights and ideas.</td>
</tr>
</tbody>
</table>
Create a Safe Environment:

Be aware and sensitive to the impact of what you say and do. Create a level of safety for others to allow them to feel comfortable. Point out any issues or concerns that may affect this safe environment.
Course Policies

Attendance Policy:
Attendance and course participation will be measured by participation in discussion forums, assignments, taking quizzes and exams.

Late Work Policy:
LATE WORK is not accepted except for university excused absences. This course relies on discussion, interaction, and group work among class members. Therefore it is essential that work be completed on schedule. At the beginning of every module, you should spend time planning. Read the learning modules very carefully. Punctuality is especially important when assignments impact your classmates. If your schedule impacts others, notify them and me and make alternative arrangements.

If an unforeseen event(s) arises such as a university excused absence, you must follow the TAMU student rule regarding attendance to makeup these assignments. For more information on TAMU excused absences, please visit http://student-rules.tamu.edu/rule07. If you do not have a university excused absence and miss an assignment, you may see a deduction of a point or two in your overall your grade. If this is a rare occurrence and your work for this class it otherwise excellent, it should make no difference in your final grade for the course. It is only when work is frequently late and/or quality of the work is consistently below standard that your final grade will suffer. In those rare circumstances where an emergency takes you away from the course for an extended period of time, contact your instructor right away to make arrangements.

Incomplete Grade:
Grades of “INCOMPLETE” will be given only for certifiable medical reasons or in other extraordinary circumstances arranged in advance. If you are planning to be away from your usual location (travel, vacation, etc.) during this course, consider dropping the course or discuss your situation with me and we can see if you will be disadvantaged by your mobility or impacting others’ work.

Institutional Policies

Americans with Disabilities Act (ADA) Policy Statement:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Academic Integrity Statement and Policy:
For many years Aggies have followed a Code of Honor, which is stated in this very simple verse:

“An Aggie does not lie, cheat or steal, or tolerate those who do.”
The Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other.

For more information please visit, [http://student-rules.tamu.edu/aggiecode](http://student-rules.tamu.edu/aggiecode) and [http://aggiehonor.tamu.edu/](http://aggiehonor.tamu.edu/)

**Statement of Plagiarism:**

All materials generated for this class (which may include but are not limited to syllabi and in-class materials) are copyrighted. You do not have the right to copy such materials unless the instructor expressly grants permission. As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writing, etc. which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Plagiarism is one of the worst academic violations, for the plagiarist destroys trust among others. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.”

**Export Control Statement:**

United States export control laws regulate the release of goods and technologies that affect U.S. national security or foreign policy interests. Distance education you and course content MUST comply with these U.S. export control laws. If TAMU indicates that you are attempting to access course content from an IP address associated with a country currently subject to economic and trade sanction, your TAMU NetID account will be terminated and you will be contacted by the TAMU Export Control Office and the Office of Identity Management. For additional visit, [https://vpr.tamu.edu/resources/export-controls/resources](https://vpr.tamu.edu/resources/export-controls/resources).
Course Change Request

New Course Proposal

Date Submitted: 10/24/17 4:36 pm

Viewing: TCMT 611 : Financial Decision Making

Last edit: 10/26/17 10:51 am

Changes proposed by: jsass

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan Sass</td>
<td><a href="mailto:jsass@tamu.edu">jsass@tamu.edu</a></td>
<td>979-458-5083</td>
</tr>
<tr>
<td>Dr. Ben Zoghi</td>
<td><a href="mailto:zoghi@tamu.edu">zoghi@tamu.edu</a></td>
<td>979676-3533</td>
</tr>
</tbody>
</table>

Course prefix  | TCMT
Course number  | 611
Department      | Eng Tech & Ind Distribution
College/School   | College of Engineering
Academic Level   | Graduate
Academic Level   | Undergraduate
(alternate)
Effective term   | 2018-2019

Complete Course Title
Financial Decision Making

Abbreviated Course Title
FINANCIAL DECISION MAKING

Catalog course description
Addresses application of financial concepts in engineering decision making; exploration of analysis of labor and material expenses, accounting methods and forecasting; combines scenario discussions, reflections, group exercises, and practical application learning.

Prerequisites and Restrictions
Admission to the Master of Engineering Technical Management program.

Concurrent Enrollment No
Should catalog prerequisites / concurrent enrollment be enforced? No

Crosslistings No Crosslisted With
Stacked No Stacked with

Semester 3
Credit Hour(s) 3
Lecture: 3 Lab: 0 Other: 0
Total 3

Repeatable for credit? No
Three-peat? No

CIP/Fund Code 1515010006

In Workflow
1. ETID Department Head
2. Curricular Services Review
3. EN Committee Preparer GR
4. EN Committee Chair GR
5. EN College Dean GR
6. GC Preparer
7. GC Chair
8. Faculty Senate Preparer
9. Faculty Senate
10. Provost II
11. President
12. Curricular Services
13. Banner

Approval Path
1. 10/24/17 5:31 pm Reza Langari (rlangari): Approved for ETID Department Head
2. 10/26/17 10:51 am Sandra Williams (sandra-williams): Approved for Curricular Services Review
3. 11/13/17 3:43 pm Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR
4. 11/20/17 1:43 pm Prasad Enjeti (enjeti): Approved for EN Committee Chair GR
5. 11/20/17 1:44 pm Prasad Enjeti (enjeti): Approved for EN College Dean GR
6. 11/22/17 8:52 am LaRhesa Johnson (ljohnson): Approved for GC Preparer
7. 12/14/17 10:58 am LaRhesa Johnson (ljohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve#
Default Grade Mode: Letter Grade (G)
Alternate Grade Modes: Satisfactory/Unsatisfactory
Method of instruction: Lecture
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) Yes

Learning Outcomes
Does not meet traditional face-to-face learning outcomes.
Describe how learning outcomes are met or provide justification why they are not met.
This course will only be offered in a non-traditional format; therefore, it will not have traditional face-to-face learning outcomes to compare to.

Hours
Meets traditional face-to-face hours.
Describe how hours are met or provide justification why they are not met.
Students will have 15 weeks to complete the course. Each week, students will be given about 3 hours of activities seen in face-to-face offerings in the format of audio and video lectures, podcasts, videos, online discussions, and/or group work. Students will have about 90 hours of work outside of class time such as reading from assigned books/articles/case studies and completing assignments such as papers, quizzes, and course projects.
Will this course be taught as a distance education course? Yes
I verify that I have reviewed the FAQ for Export Control Basics for Distance Education. Yes
Is 100% of this course going to be taught in Texas? Yes
Will classroom space be needed for this course? No

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET-TCMT</td>
</tr>
</tbody>
</table>

---

**Course Syllabus**

Syllabus: Upload syllabus

Upload syllabus: [TCMT 611 - Financial Decision Making.docx]

Letters of support or other documentation: No
Additional information

Reviewer Comments

Sandra Williams (sandra-williams) (07/19/17 5:33 pm): Made edits to form.

Sandra Williams (sandra-williams) (07/20/17 4:55 pm): Rollback: Please update: syllabus appears to be incomplete - shows highlighted information to be completed; missing link to student rule 7; late work not accepted - what about university excused absences?; header for pages shows "ENGR 000 Course Name - Term 2015."

Sandra Williams (sandra-williams) (09/05/17 8:30 am): Rollback: New questions were added to the form effective September 1 per new requirements. Please answer and resubmit. (Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)?)

Sandra Williams (sandra-williams) (09/11/17 3:46 pm): Rollback: Syllabus header still shows ENGR 611...shouldn't it be TCMT 611?

Sandra Williams (sandra-williams) (09/18/17 10:46 pm): Update received.

Prasad Enjeti (enjeti) (10/18/17 6:04 pm): Rollback: They need to update the title of TCMT 612 and add a revised syllabus to TCMT 611.

Jennifer Veracruz (jveracruz) (10/19/17 10:30 am): Rollback: per request

Prasad Enjeti (enjeti) (10/24/17 4:19 pm): Rollback: Course title change

Jennifer Veracruz (jveracruz) (10/24/17 4:33 pm): Rollback: Per dept request

Reported to state?

Add
TCMT 611: Financial Decision Making
Fall 2018

100% Online course through eCampus platform (http://ecampus.tamu.edu)

Instructor: Prof. Marc Marini
Telephone: (830) 708-9453
Email: marini3696@tamu.edu
Location: Online
Office Hours: TBD

Virtual Office: Collaborate Ultra on eCampus

Course Description
This course addresses the application of financial concepts in engineering decision making. We will start with developing an understanding of the company big picture. This would include things like balance sheets, income statements, company business models, and cost of goods sold (COGS). We will then delve into cost center budgeting, specifically for a product development organization. We will explore analysis of labor and material expenses, accounting methods, and forecasting. An understanding of the company’s business model and position, coupled with cost analysis and estimating skills are critical to making sound engineering project decisions. This course combines lectures, scenario discussions, group exercises, and the practical application of learning beyond the classroom. We will work individually and in teams, use activities, discussion and reflection to attain our objectives. This course focuses on both the principles and techniques used for the financial evaluation of an engineering design. Students will be able to utilize concepts from this course to properly assess their projects, provide rationale in support of their financial recommendations, and justify their project decisions.

Prerequisites:
Enrolled in the METM Program.

Overall Course Learning Outcomes
Upon completion of this course, students will be able to:
1. Read, understand, and interpret balance sheets and income statements
2. Analyze the impact of project cost and review impact on the company’s business model
3. Develop project cost analysis based on labor, material, accounting, and forecast
4. Produce project financial evaluations and make business recommendations to pursue or not
5. Develop cost center plans and budget
6. Make business recommendation to replace, make, or buy equipment or a project
7. Perform parametric cost modeling
8. Apply multi-attribute decision making to properly assess the options available to execute an engineering project

Getting Started
To get started within this course, you will need to:
- Review the syllabus in its entirety
- Login to the course website, eCampus (see directions below), to:
  - ensure that you have access and the correct plug-ins installed,
  - update your user profile,
  - spend some time becoming familiar with the course layout, and
  - complete your “Profile” the “Breaking the Ice” forum.
Resource Materials & Course Technology

Required Textbook and Resource Materials (needed for the course):
- Required: Cost Analysis and Estimating for Engineering and Management by Ostwald and McLaren

Supplemental Textbook and Resource Materials:
- Supplemental articles, cases, and notes will be made available via eCampus.

You can purchase these textbooks from the University Bookstore http://tamu.bncollege.com/. Notice: As a student at Texas A&M you are not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from independent retailers, including online retailers. Supplemental or optional materials can enhance your course mastery better providing you with extra information and resources, but they are not required.

eCampus:
This course will use the TAMU eCampus, powered by Blackboard Learn, as the virtual classroom. Within eCampus, you can find all course-related content and assessments (including but not limited to course materials, content, videos, activities, assessments, etc.). The recommended browsers for eCampus access are Mozilla Firefox or Google Chrome (Internet Explorer is not recommended). For additional information on support browsers for eCampus, please visit http://tx.ag/eCampusBrowserSupport.

To log in to eCampus:
- Go to http://ecampus.tamu.edu
- Click the Login button
- Use your TAMU NetID and password to log in

Once logged into eCampus, you will see a list of all courses for which you are enrolled in for the semester. To navigate to this course, click on the name of the course. If you have any problems logging into the course, please see the technology support section below.

Within eCampus, the course menu is located on the left. The syllabus and course introductory materials can be found within the “Getting Started” section of the course menu. The course content is presented within modules and can be accessed by click on the names of the modules within the menu. Course due dates are posted within the calendar. If you have any question about navigating the eCampus course website, please contact me. We also recommend that faculty record a short course introduction video which should include highlights from the syllabus and how to navigate eCampus.

Technology Requirements & Recommendations:

Technology Requirements:
- Reliable and frequent access to a computer and to the high-speed Internet. If you do not have frequent and reliable access to a computer with Internet connection, please contact the instructor to discuss your situation and determine an appropriate solution.
- To attend virtual office hours, students will need to make sure they have setup Bb Collaborate to run on their computer(s) and mobile devices. Please visit http://blackboard.force.com/publickbarticleview?id=kA770000000CbIW to check your system requirements and test your connection.
  - It is required to have a microphone and webcam when using Bb Collaborate. While many students use a built in webcam, it is recommended to have a headset with a microphone, such as a smartphone headset, for the virtual office hours and group collaboration.
- Students will also need the following software/plug-ins for this course:
  - Microsoft Excel, Google Sheets, or equivalent

Technology Recommendations:
- Google Hangouts can also be used to work collaboratively in a virtual environment for group projects. Students will need to make sure they have claimed a TAMU Google account. To claim and learn more about your account, please visit http://google.tamu.edu.

Course Support
In addition to contacting the instructor or graduate assistant for course content related questions, there is a variety of campus resources for course support.
**Academic Services Support:**
The Office of Graduate & Professional Studies (OGAPS) offers graduate student services and advocates for graduate education for Texas A&M students who are both on-campus and at a distance. For additional information regarding OGAPS, visit: [http://ogaps.tamu.edu/Home](http://ogaps.tamu.edu/Home)

**Technology Support:**
For technological issues related to eCampus and software, contact the TAMU Help Desk:

- **Student eCampus Help Website,** [http://ecampus.tamu.edu/student-help.php](http://ecampus.tamu.edu/student-help.php)
- **TAMU IT Help Desk:**
  - Website: [http://hdc.tamu.edu/index.php](http://hdc.tamu.edu/index.php) (Online Chat is available)
  - Phone: (979) 845-8300
  - Email: helpdesk@tamu.edu
- **For Library Reserves:**
  - Phone: (979) 458-2197
  - Email: p-melgoza@tamu.edu

The TAMU Help Desk is open 24 hours a day 7 days a week. If your technical problems are unable to be resolved within 48 hours, please contact the instructor for additional assistance.

*Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and address issues well in advance of deadlines.*

### Course Activities and Assessments

<table>
<thead>
<tr>
<th>Assessment Category</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Weekly Online Discussion</td>
<td>10%</td>
</tr>
<tr>
<td>Virtual Sessions Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Exam</td>
<td>30%</td>
</tr>
<tr>
<td>Final Project</td>
<td>30%</td>
</tr>
</tbody>
</table>

**Weekly Online Discussion**
Define expectations or rubric.

**Virtual Sessions Participation**
Define expectations or rubric.

**Homework Assignments**
Define expectations or rubric.

**Exam**
Define expectations or rubric.

**Final Project**
Define expectations or rubric.

### Determination of Final Grades within the Course

<table>
<thead>
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<th>Letter Grade</th>
<th>Percentage</th>
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<tr>
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<tr>
<td>B</td>
<td>80.00 - 89.99%</td>
</tr>
<tr>
<td>C</td>
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</tr>
<tr>
<td>D</td>
<td>60.00 – 69.99%</td>
</tr>
<tr>
<td>F</td>
<td>Less than 60.00%</td>
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</table>
## Course Outline

<table>
<thead>
<tr>
<th>Modules and Activities</th>
<th>Online Sessions</th>
<th>Module Dates &amp; Deadlines</th>
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</thead>
<tbody>
<tr>
<td><strong>Module 1. Balance Sheets and Income Statements</strong></td>
<td></td>
<td>1 week</td>
</tr>
<tr>
<td>Read: Handout Materials (instructor written)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watch: Module's videos</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Participate: Module's Questions Forum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit: Module's Quiz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate: Weekly Online Session</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Participate: Class Wiki</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module 2. Components of COGS</strong></td>
<td></td>
<td>1 week</td>
</tr>
<tr>
<td>Read: Handout Materials (instructor written)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watch: Module's videos</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Participate: Module's Questions Forum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit: Module's Quiz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate: Weekly Online Session</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Participate: Class Wiki</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module 3. Components of Economic Analysis</strong></td>
<td></td>
<td>2 weeks</td>
</tr>
<tr>
<td>Read: Ostwald Chapters 1 - 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watch: Module's videos</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Participate: Module's Questions Forum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit: Module's Quiz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate: Weekly Online Session</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Participate: Class Wiki</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module 4. Departmental Budgets</strong></td>
<td></td>
<td>1 week</td>
</tr>
<tr>
<td>Read: Handout materials (instructor written)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watch: Module's videos</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Participate: Module's Questions Forum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit: Module's Quiz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate: Weekly Online Session</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Participate: Class Wiki</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module 5. Strategy Maps and Balanced Scorecard</strong></td>
<td></td>
<td>2 weeks</td>
</tr>
<tr>
<td>Read: Handout materials (HBR article)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watch: Module's videos</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Participate: Module's Questions Forum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submit: Module's Quiz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate: Weekly Online Session</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Participate: Class Wiki</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module 6. Capital Analysis</strong></td>
<td></td>
<td>1 week</td>
</tr>
<tr>
<td>Read: Ostwald Chapters 9 and 10</td>
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</tr>
<tr>
<td>Watch: Module's videos</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Participate: Module's Questions Forum</td>
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<td></td>
</tr>
<tr>
<td>Module</td>
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<td>Duration</td>
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<tr>
<td>7</td>
<td>Product Portfolio</td>
<td>1 week</td>
</tr>
<tr>
<td>8</td>
<td>Product Sustaining Cost Estimates</td>
<td>1 week</td>
</tr>
<tr>
<td>9</td>
<td>Product Development Cost Estimates</td>
<td>2 weeks</td>
</tr>
<tr>
<td>10</td>
<td>Project</td>
<td>2 weeks</td>
</tr>
</tbody>
</table>

### Module 7. Product Portfolio
- **Read**: Handout (instructor developed)
- **Watch**: Module's videos (6)
- **Participate**: Module's Questions Forum
- **Submit**: Module's Quiz
- **Participate**: Weekly Online Session (1)
- **Participate**: Class Wiki

### Module 8. Product Sustaining Cost Estimates
- **Read**: Handout (instructor developed)
- **Watch**: Module's videos (6)
- **Participate**: Module's Questions Forum
- **Submit**: Module's Quiz
- **Participate**: Weekly Online Session (1)
- **Participate**: Class Wiki

### Module 9. Product Development Cost Estimates
- **Read**: Ostwald Chapters 5 - 8
- **Watch**: Module's videos (6)
- **Participate**: Module's Questions Forum
- **Submit**: Module's Quiz
- **Participate**: Weekly Online Session (1)
- **Participate**: Class Wiki

### Module 10. Project
- **Participate**: Weekly Online Session (1)
- **Participate**: Class Wiki
Course Policies

Attendance Policy:
Attendance and course participation will be measured by watching the video lectures, participation in discussion forums, submitting assignments, taking quizzes and exams. Students should be logging into the course to view videos and participate in the course 2-3 times per week. Students not participating in the course will be notified by the instructor.

Late Work Policy:
LATE WORK is not accepted except in the event of a university excused absence. This course relies on discussion, interaction, and group work among class members. Therefore, it is essential that work is completed on schedule. At the beginning of every module, you should spend time planning. Read the learning modules in eCampus very carefully. Please do not wait until the last day to do the work. Punctuality is especially important when assignments impact your classmates. If your schedule impacts others, notify them and me and make alternative arrangements.

Course Copyright Statement:
The materials used within this course are copyrighted. These materials include, but are not limited to, the syllabi, quizzes, exams, lab problems, online handouts, course videos, etc. Because these materials are copyrighted, you do not have the right to copy or distribute these materials, unless permission is expressly granted.

Incomplete Grade:
Grades of “INCOMPLETE” will be given only for certifiable medical reasons or in other extraordinary circumstances arranged in advance. If you are planning to be away from your usual location (travel, vacation, etc.) during this course, consider dropping the course or discuss your situation with me and we can see if you will be disadvantaged by your mobility or impacting others’ work.

Communication Expectations:
The best way to contact the instructor and graduate assistant for this course is via email (see contact information at the top of the syllabus). Students should expect a response from the instructor or graduate assistant no later than 48 hours after an email is sent or voicemail is left.

Course assignments, projects, and other assessments will be graded no later than 7 days after the due dates posted within the syllabus and eCampus calendar. If dates need to be adjusted based on unforeseen circumstances, an announcement will be sent from eCampus.

Minimum Technical Skills:
A participant of this course must be able to utilize a computer system and perform the following functions:

- Operate a Mac/PC computer’s system to manage files, install and execute computer programs.
- Connect, configure and use peripherals such as a headset, webcam or microphone.
- Navigate through the Internet and web pages using a browser (i.e. Firefox or Chrome).
- Use Microsoft Word or a similar word processing software that can output .pdf files.
- Use Microsoft PowerPoint or similar presentation software.
- Be familiar with how web conferencing software operates.

Netiquette Expectations:
Netiquette is network etiquette. Netiquette covers both common courtesy online and the informal when communication with other online. TAMU Instructional Technology Services provides some general netiquette rules that students and faculty are expected to follow in this course. For more information on netiquette, please visit http://its.tamu.edu/Distance-Education/Aggie-Honor-Code-Nettiquette
Institutional Policies

Americans with Disabilities Act (ADA) Policy Statement:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information visit http://disability.tamu.edu.

This course uses Blackboard Learn as its online platform. To know more about its accessibility standards please to their website. http://www.blackboard.com/Platforms/Learn/Resources/Accessibility.aspx.

If you find that course content or software are not accessible, please contact your course instructor or disability services so that appropriate accommodations to the learning environment can be made.

Academic Integrity Statement and Policy:
For many years Aggies have followed a Code of Honor, which is stated in this very simple verse:

"An Aggie does not lie, cheat or steal, or tolerate those who do."

The Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other. For more information, please visit http://aggiehonor.tamu.edu/.

Student Rules:
Each student has the responsibility to be fully acquainted with and to comply with the Texas A&M University Student Rules. More specific rules, information and procedures may be found in various publications pertaining to each particular service or department. For more information, please visit http://student-rules.tamu.edu/.

Statement of Plagiarism:
All materials generated by the instructor for this class (which may include but are not limited to syllabi and in-class materials) are copyrighted. You do not have the right to copy such materials unless the instructor expressly grants permission. As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writing, etc. which belong to another. Plagiarism is one of the worst academic violations, for the plagiarist destroys trust among others. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.”

Export Control Statement:
United States export control laws regulate the release of goods and technologies that affect U.S. national security or foreign policy interests. Distance education students and course content MUST comply with these U.S. export control laws. If TAMU indicates that you are attempting to access course content from an IP address associated with a country currently subject to economic and trade sanction, your TAMU NetID account will be terminated and you will be contacted by the TAMU Export Control Office and the Office of Identity Management. For additional information visit, https://vpr.tamu.edu/resources/export-controls/resources.
# Course Change Request

## New Course Proposal

**Date Submitted:** 10/19/17 10:41 am  
**Viewing:** TCMT 612 : Technical Management Decision Making  
**Last edit:** 10/19/17 2:44 pm  
Changes proposed by: jsass

### Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan Sass</td>
<td><a href="mailto:jsass@tamu.edu">jsass@tamu.edu</a></td>
<td>979-458-5083</td>
</tr>
<tr>
<td>Dr. Ben Zoghi</td>
<td><a href="mailto:zoghi@tamu.edu">zoghi@tamu.edu</a></td>
<td>979-676-3533</td>
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<table>
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<tr>
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<td>College/School</td>
<td>College of Engineering</td>
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<td>Academic Level</td>
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<tr>
<td>Effective term</td>
<td>2018-2019</td>
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### Catalog course description

Key business concepts, practical processes and analytical tools to make value-driven decisions; focuses on linkage between managerial decisions and the performance of business enterprises; introduction to business strategy, financial principles, organization processes and people skills managers must weigh when making executable judgement calls; analytical tools to evaluate decisions and communicate desired outcomes with different professionals; use of business cases and real-world projects to help master practical knowledge and apply immediately.

### Prerequisites and Restrictions

Admission to the Master of Engineering Technical Management program.

### Concurrent Enrollment

No

### Should catalog prerequisites / concurrent enrollment be enforced?

No

### Crosslistings

No

### Stacked

No

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<tr>
<th>Semester</th>
<th>3</th>
<th>Contact Hour(s)</th>
<th>Lecture: 3</th>
<th>Lab: 0</th>
<th>Other: 0</th>
<th>Total: 3</th>
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<td>(per week):</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Repeatable for credit?</td>
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<td></td>
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</table>
Three-peat? No
CIP/Fund Code 1515010006
Default Grade Mode Letter Grade(G)
Alternate Grade Modes Satisfactory/Unsatisfactory
Method of instruction Lecture
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) Yes

Learning Outcomes
Does not meet traditional face-to-face learning outcomes.
Describe how learning outcomes are met or provide justification why they are not met.
This course will only be offered in a non-traditional format; therefore, it will not have traditional face-to-face learning outcomes to compare to.

Hours
Meets traditional face-to-face hours.
Describe how hours are met or provide justification why they are not met.
Students will have 15 weeks to complete the course. Each week, students will be given about 3 hours of activities seen in face-to-face offerings in the format of audio and video lectures, podcasts, videos, online discussions, and/or group work. Students will have about 90 hours of work outside of class time such as reading from assigned books/articles/case studies and completing assignments such as papers, quizzes, and course projects.

Will this course be taught as a distance education course? Yes
I verify that I have reviewed the FAQ for Export Control Basics for Distance Education.
Is 100% of this course going to be taught in Texas? Yes
Will classroom space be needed for this course? No

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Required (select program)</th>
<th>Program(s)</th>
</tr>
</thead>
</table>

Elective (select program)

Course Syllabus

Syllabus: Upload syllabus
Upload syllabus [TCMT 612 - Technical Management Decision Making.docx]
Letters of support or other documentation: No

Reviewer Comments:
Sandra Williams (sandra-williams) (07/19/17 5:39 pm): Made edits to form.
Sandra Williams (sandra-williams) (07/20/17 4:56 pm): Rollback: Please update: syllabus prerequisites do not match form; grade weights missing (project, exam, etc.); weekly dates and/or contact hours missing; appears to be incomplete - shows instructions from a template; late work not accepted - what about university excused absences?; header for pages shows "ENGR 000 Course Name - Term 2015."
Sandra Williams (sandra-williams) (09/05/17 8:31 am): Rollback: New questions were added to the form effective September 1 per new requirements. Please answer and resubmit. (Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)?)
Sandra Williams (sandra-williams) (09/11/17 3:50 pm): Rollback: Course form shows TCMT 612-Engineering Decision Making, however, uploaded syllabus is TCMT 633-Contract & Risk Management.
Sandra Williams (sandra-williams) (09/25/17 10:53 am): Update received.
Prasad Enjeti (enjeti) (10/18/17 6:05 pm): Rollback: They need to update the title of TCMT 612 and add a revised syllabus to TCMT 611.
Jennifer Veracruz (jveracruz) (10/19/17 10:30 am): Rollback: per request

Reported to state?
Add
TCMT 612 – Technical Management Decision Making

Term Fall 2018

100% Online course through eCampus platform (http://ecampus.tamu.edu)

Instructor: Dr. Xiaomin Yang
Telephone: (979) 123-1234
Email: XiaominYang@Tamu.edu
Location: TIPS Room 2043
Hours: Mon & Wed – 9:00 AM to 11:00 AM

Course Description:

The course provides technology and engineering leaders key business concepts, practical processes and analytical tools to make value-driven decisions. It is focused on the linkage between managerial decisions and the performance of business enterprises. The course introduces business strategy, financial principles, organization processes and people skills that managers must weight when making executable judgment calls. Also you will learn analytical tools, such as decision making tree and sensitivity analysis, to evaluate decisions and communicate desired outcomes with different business, engineering and operation professionals. The course will use business cases and real-world projects to help you master the practical knowledge and immediately apply it to your job.

Prerequisites:

First year residency for METM students

Overall Course Learning Outcomes

Upon completion of this course, students will be able to:

I. Develop a clear understanding of key business areas most important to achieve your company’s overall strategy.

II. Link technology and engineering decisions with the company’s business performance

III. Be prepared to make well-informed, executable decisions that produce the desired results

IV. Use analytical skills, tools and techniques for to analyze options, value and risks

V. Think critically and strategically

VI. Make a business case to communicate your decisions in a compelling manner to management and customers
Getting Started
To get started within this course, you will need to:

- Review the syllabus in its entirety
- Login to the course website, eCampus (see directions below), to:
  - ensure that you have access and the correct plug-ins installed,
  - update your user profile,
  - spend some time becoming familiar with the course layout, and
  - complete the introductory forum.

*Note: Additional details to complete these activities can be found within the eCampus.*

Resource Materials & Course Technology

Required Textbook and Resource Materials:

- Business review articles to be distributed at the beginning of modules

**eCampus:**
This course will use the TAMU eCampus, powered by Blackboard Learn, as the virtual classroom. Within eCampus, you can find all course related content and assessments (including but not limited to course materials, content, videos, activities, assessments, etc.). The recommended browsers for eCampus access are Mozilla Firefox or Google Chrome (Internet Explorer is not recommended). For additional information on support browsers for eCampus, please visit [http://tx.ag/eCampusBrowserSupport](http://tx.ag/eCampusBrowserSupport). To login to eCampus:

- Go to [http://ecampus.tamu.edu](http://ecampus.tamu.edu)
- Click the Login button
- Use your TAMU NetID and password to login

Once logged into eCampus, you will see a list of all courses for which you are enrolled in for the semester. To navigate to this course, click on the name of the course. If you have any problems logging into the course, please see the technology support section below.

Technology Requirements & Recommendations:

**Technology Requirements:**

- Reliable and frequent access to a computer and to the high-speed Internet. If you do not have frequent and reliable access to a computer with Internet connection, please contact the instructor to discuss your situation and determine an appropriate solution.
- To attend virtual office hours, students will need to make sure they have setup Bb Collaborate to run on their computer(s) and mobile devices. Please visit [http://blackboard.force.com/publickbarticleview?id=kA770000000CBIW](http://blackboard.force.com/publickbarticleview?id=kA770000000CBIW) to check your system requirements and test your connection.
  - It is required to have a microphone and webcam when using Bb Collaborate. While many student use a built in webcam, it is recommended to have a headset with a microphone, such as a smart phone headset, for the virtual office hours and group collaboration.
- Students will also need the following software/plug-ins for this course:
Technology Recommendations:

- Google Hangouts can also be used to work collaboratively in a virtual environment for group projects. Students will need to make sure they have claimed a TAMU Google account. To claim and learn more about your account, please visit [http://google.tamu.edu](http://google.tamu.edu). Technology requirements, they need to be listed within the course.

**Course Support**

In addition to contacting the instructor or graduate assistant for course content related questions, there are a variety of campus resources for course support.

**Academic Services Support:**
The Office of Graduate & Professional Studies (OGAPS) offers graduate student services and advocates for graduate education for Texas A&M students who are both on-campus and at a distance. For additional information regarding OGAPS, visit: [http://ogaps.tamu.edu/Home](http://ogaps.tamu.edu/Home)

**Technology Support:**
For technological issues related to eCampus and software, contact the TAMU Help Desk:

- TAMU IT Help Desk:
  - Website: [http://hdc.tamu.edu/index.php](http://hdc.tamu.edu/index.php) (Online Chat is available)
  - Phone: (979) 845-8300
  - Email: helpdesk@tamu.edu

The TAMU Help Desk is open 24 hours a day 7 days a week. If your technical problems are unable to be resolved within 48 hours, please contact the instructor for additional assistance.

*Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and address issues well in advance of deadlines.*

**Course Activities and Assessments**

Your active participation is important for this online class. We will discuss selected business practice materials and cases. You are encouraged to challenge yourself, your classmates and your instructor in a constructive manner so that we all develop a practical understanding of the decision making issues. Occasional lectures will be given to introduce key business principles, financial methodologies and analytical tools. These talks will be subordinate to the case discussions. It is expected that you will not only appreciate that main points of the lectures but also that you develop a practical point of view. In other words, do you agree or disagree with the points? What are their strengths, weaknesses and limitations? Also we will introduce some analytical tools, such as SmartDraw and Oracle Crystal Ball. They are not the only tools available on the market, and we welcome you share other tools that you may have used. We will also provide a management style self-assessment tool that helps you identify the management behaviors you use to influence your organization to execute your decisions.

**Determination of Final Grades within the Course**

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Total Points</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>100.00%-90.00%</td>
<td>125 - 160</td>
</tr>
<tr>
<td>B</td>
<td>89.99%-80.00%</td>
<td>110-124</td>
</tr>
<tr>
<td>C</td>
<td>79.99%-70.00%</td>
<td>100-109</td>
</tr>
<tr>
<td>D</td>
<td>69.99%-60.00%</td>
<td>90-99</td>
</tr>
<tr>
<td>F</td>
<td>Less than 59.99%</td>
<td>&lt;80</td>
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</table>
# Course Outline

## Module One: Introduction to Decision Making

**Objectives**: At the end of the module, students are expected to

- Explain great leaders balance judgment with data analysis to make good decisions
- Describe role of risk tolerance in judgment.
- Appraise individual leadership styles
- Outline the data-driven decision making process

### Week 1

**Activities**:

- Illustrate great leaders are great decision makers
- Outline data-driven decision making process
- Explain risk preference
- Apprise individual's leadership styles
- Explain management behaviors associated with decision making

**Materials**:

- UC Berkeley risk preference article
- HBS self-assessment tool
- Chapter 1 of “Judgment” textbook

**Assessment**:

- Complete self-assessment of leadership style (5 points)

## Module Two: Judgment in Decision Making

**Objectives**: At the end of the module, students are expected to

- Make intuitive judgment in decision making
- Negotiate with others to create and claim value
- Improve negotiation decision & argument with data analysis
- Motivate an organization to implement decisions

### Week 2

**Activities (Materials)**:

- Discuss cognitive bias in details (Chapter 3)
- Evaluate tactics to frame communication and influence others (Chapters 5 and 7)
- Explain analytical approach to negotiation (Chapter 10)

**Materials**:

- Chapters 3, 5, 7 & 10 of “Judgement” textbook

**Assessment**:

- Develop a negotiation term sheet with data analysis to support positions (5 points)

### Week 3

**Activities (Materials)**:

- Discuss negotiator cognition and communicate (Chapter 11)
- Explain how to improve intuitive judgment and layout a process to align decision with business (Chapter 12)

**Materials**:

- Chapters 11&12 of “Judgement” textbook

**Assessment**:

- Negotiation simulation (10 points)
### Module three: Analytical decision under uncertainty

**Objectives:** at the end of the module, students are expected to
- Analyze decisions with Decision Tree tool
- Construct decision tree with MS Excel add-in
- Incorporate both value and uncertainty in decision making
- Quantify business risk tolerance in decision analysis

**Week 4 Activities:**
- Explain probability methods for decision-making under uncertainties
- Illustrate decision tree method
- Assess decisions under uncertainty cases using the decision tree method
- Build decision tree and solver with MS Excel add-in
- Discuss utility method to quantify risk tolerance
- Incorporate risk utility into decision trees

**Materials:**
- Chapter 15 of Ragsdale “Decision Analysis” textbook

**Assessment:**
- Build decision tree in Excel (5 points)
- Add utility to the tree to address risk preference (5 points)

### Module Four: Align decision with business strategy

**Objectives:** at the end of the module, students are expected to
- Evaluate business strategy
- Explain competitive advantages of a company
- Link decisions and desired outcome with an organization’s strategy to create long-term value
- Develop project portfolio objectives that are consistent with business strategy

**Week 5 Activities (materials):**
- Assess the profitability of an industry using five force framework
- Explain how a company create value and build core capabilities to compete
- Discuss business level strategy
- Analyze how company develop competitive advantage to create value and compete with others

**Materials:**
Business review articles

**Assessment:**
- Conduct five force analysis of Tesla motor or a company of student’s choice (5 points)
- Analyze the business level strategy and competitive advantage of Tesla motor or a company of student’s choice (5 points)

**Week 6 Activities (materials):**
- Compare first mover vs. fast follower advantages
- Discuss a framework to align project portfolio with business objectives
- Develop business-driven project portfolio objectives and performance metrics

**Materials:**
Business review articles

**Assessment:**
- Assess the strategic position Strategic position for Tesla, Inc. or a company of student’s choice

**Midterm assessment (25 points):**
- Develop a portfolio decision metrics for Tesla motor or a company of your choice, to align project portfolio with business strategy (team presentation)
# Module five: measure decision performance

**Objectives:** at the end the module, students are expected to
- Evaluate the financial performance of a business
- Conduct economic evaluation of a project to measure its financial performance

**Week 7**

**Activities:**
- Explain financial performance of business with ratio methods
- Introduce economic evaluation methodologies
- Discuss cost structure of products and businesses

**Materials:**
Business review articles

**Assessment:**
- Solve economic evaluation problems for an engineering project (5 points)

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# Module six: analytical decision - forecasting

**Objectives:** at the end the module, students are expected to
- Predict product sales using time series methods
- Consider seasonality in moving average forecasting
- Construct regression models with MS Excel

**Week 8**

**Activities:**
- Use examples to explain time series method
- Explain forecasting with moving average models
- Forecast with seasonality models
- Explain trend models (linear and seasonal regression)

**Materials:**
- Chapter 11 of Ragsdale “Decision Analysis” textbook
- Additional materials: Chapter 13 of Albright “Data Analysis” textbook

**Assessment:**
- Solve problems in the textbook
- Time series method & seasonal model problems (10 points)

---

# Module seven: analytical decisions - probability statistics for product decisions

**Objectives:** at the end the module, students are expected to
- Explain estimation accuracy with probability statistics models
- Use confidence interval to gauge the estimation accuracy
- Apply confidence interval analysis to two types of product/technology decisions (analyzing cost vs. quality as well as analyzing product warranty)

**Week 9**

**Activities:**
- Discuss sampling distribution and t distribution
- Discuss mean confidence interval (estimation accuracy)
- Show confidence interval for the difference between mean and its application case (cost vs. quality)
- Explain proportion confidence interval (customer satisfaction)

**Materials:**
- Chapter 9 of Ragsdale “Decision Analysis” textbook

**Assessment:**
- Solve problems in the textbook
- Difference between mean (5 points)
- Proportion confidence interval (5 points)
<table>
<thead>
<tr>
<th>Module eight: Analytical decisions – business optimization</th>
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</thead>
<tbody>
<tr>
<td><strong>Objectives:</strong> at the end the module, students are expected to</td>
</tr>
<tr>
<td>+ Develop analytical models (linear programming and network) to maximize value and minimize risks</td>
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<tr>
<td>+ Apply the analytical models to a variety of technology, product and operation cases</td>
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<table>
<thead>
<tr>
<th>Week 10</th>
<th>Activities:</th>
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<tbody>
<tr>
<td>+ Explain Linear programming method</td>
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<tr>
<td>+ Discuss LP applications:</td>
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<tr>
<td>+ Logistics and transportation</td>
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<tr>
<td>+ Make and buy decision</td>
<td></td>
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<tr>
<td>+ Production and inventory planning</td>
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<tr>
<td>+ Investment problems</td>
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<tr>
<td><strong>Materials:</strong></td>
<td></td>
</tr>
<tr>
<td>+ Chapter 3 of Ragsdale “Decision Analysis” textbook</td>
<td></td>
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<tr>
<td><strong>Assessment:</strong></td>
<td></td>
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<tr>
<td>+ Solve LP problems in the textbook (10 points)</td>
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<table>
<thead>
<tr>
<th>Week 11</th>
<th>Activities:</th>
</tr>
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<tbody>
<tr>
<td>+ Explain integral Linear programming method</td>
<td></td>
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<tr>
<td>+ Discuss integral LP applications:</td>
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<tr>
<td>+ Capital budgeting</td>
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<tr>
<td>+ Minimum order/purchase order</td>
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<td>+ Contract award</td>
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<tr>
<td><strong>Materials:</strong></td>
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<tr>
<td>+ Chapter 6 of Ragsdale “Decision Analysis” textbook</td>
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<tr>
<td><strong>Assessment:</strong></td>
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<tr>
<td>+ Solve integral network problems in the textbook (5 points)</td>
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<table>
<thead>
<tr>
<th>Week 12</th>
<th>Activities:</th>
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<tbody>
<tr>
<td>+ Explain Network modeling</td>
<td></td>
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<tr>
<td>+ Discuss network application to distribution problems</td>
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<tr>
<td><strong>Materials:</strong></td>
<td></td>
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<tr>
<td>+ Chapter 5 of Ragsdale “Decision Analysis” textbook</td>
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<tr>
<td><strong>Assessment:</strong></td>
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<tr>
<td>+ Solve integral a distribution problems in the textbook (5 points)</td>
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</table>

<table>
<thead>
<tr>
<th>Module nine: Analytical decisions – business sensitivity</th>
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</thead>
<tbody>
<tr>
<td><strong>Objectives:</strong> at the end the module, students are expected to</td>
</tr>
<tr>
<td>+ Evaluate sensitivity of a project to determine key success control factors</td>
</tr>
<tr>
<td>+ Construct sensitivity analysis models with MS Excel</td>
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</table>

<table>
<thead>
<tr>
<th>Week 13</th>
<th>Activities:</th>
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<tbody>
<tr>
<td>+ Explain sensitivity analysis models &amp; Excel sensitivity assistant add-in tool</td>
<td></td>
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<tr>
<td>+ Discuss sensitivity analysis applications</td>
<td></td>
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<tr>
<td>+ Illustrate sensitivity communication with spider chart and tornado chart</td>
<td></td>
</tr>
<tr>
<td>+ Manage business sensitivity</td>
<td></td>
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<tr>
<td><strong>Materials:</strong></td>
<td></td>
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<tr>
<td>+ Chapter 4 of Ragsdale “Decision Analysis” textbook</td>
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<tr>
<td><strong>Assessment:</strong></td>
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<tr>
<td>+ Solve sensitivity problems in the Textbook (10 points)</td>
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</tbody>
</table>
### Module ten: Analytical decisions – risk management with simulation

<table>
<thead>
<tr>
<th>Week 14</th>
<th>Objectives: at the end of the module, students are expected to</th>
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<tbody>
<tr>
<td></td>
<td>+ Manage risks with three analytical techniques, best-case/worst-case analysis, what if analysis and simulation</td>
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<tr>
<td></td>
<td>+ Understand variable distribution to represent uncertainty</td>
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<tr>
<td></td>
<td>+ Construct Crystal Ball model to analyze risks</td>
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<tr>
<td></td>
<td>+ Identify and explain key risk factors</td>
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</tbody>
</table>

#### Activities:
- Explain risk management and three analytical techniques
  - best-case/worst-case analysis (brief)
  - what if analysis (brief)
  - simulation (in details)
- Discuss the variable distribution (normal, triangle, gamma and uniform)
- Present simulation model
- Discuss portfolio optimization with simulation tool

#### Materials:
- Chapter 12 of Ragsdale “Decision Analysis” textbook

#### Assessment:
- Build a simulation model with MS Excel (10 points)

### Data-driven decision review

<table>
<thead>
<tr>
<th>Week 15</th>
<th>Review:</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>business decision making framework and data driven analysis</td>
</tr>
</tbody>
</table>

**Team Project Assessment (35 points):**

Complete a portfolio optimization case

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### Course Policies

#### Attendance Policy:

Attendance and course participation will be measured by watching the video lectures, participation in discussion forums, submitting assignments, taking quizzes and exams. Students should be logging into the course to view videos and participate in the course 2-3 times per week. Students not participating in the course, will be notified by the instructor.

Note: Federal regulations require the university to confirm whether or not students began attendance in all courses if they are recipients of certain forms of financial aid (ie. 34 CFR 668.21, 34 CFR 674.16(f), 34 CFR 676.16(d), & 34 CFR 685.303(b)(3)). Thus, faculty may be required to verify attendance within Howdy for these students. Also, if a student receives a F, I, X, W, or U, faculty must report the last day of attendance. For distance education the attendance is measured by academic-related activity within Bb Learn (i.e. submitting an assignment, taking an exam/quiz, completing an interactive tutorial/computer-assisted instruction, participating in an online discussion about the course, or initiating contact with the faculty member to inquire about the course). Logging into an online class without actively participating or seeking academic advising/counseling is not considered academic activity.

#### Late Work Policy:

LATE WORK is not accepted except for university excused absences. This course relies on discussion, interaction, and group work among class members. Therefore it is essential that work be completed on schedule. At the beginning of every module, you should spend time planning. Read the learning modules in eCampus very carefully. Please do not wait until the last day to do the work. Punctuality is especially important when assignments impact your classmates. If your schedule impacts others, notify them and me and make alternative arrangements.

If an unforeseen event(s) arises such as a university excused absence, you must follow the TAMU student rule regarding attendance to makeup these assignments. For more information on TAMU excused absences, please visit [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07). If you do not have a university excused absence and miss an assignment, you may see a deduction of a point or two in your overall grade. If this is a rare occurrence and your work for this
class it otherwise excellent, it should make no difference in your final grade for the course. It is only when work is frequently late and/or quality of the work is consistently below standard that your final grade will suffer. In those rare circumstances where an emergency takes you away from the course for an extended period of time, contact your instructor right away to make arrangements.

Course Copyright Statement:
The materials used within this course are copyrighted. These materials include, but are not limited to, the syllabi, quizzes, exams, lab problems, online handouts, course videos, etc. Because these materials are copyrights, you do not have the right to copy or distribute these materials, unless permission is expressly granted.

Incomplete Grade:
Grades of “INCOMPLETE” will be given only for certifiable medical reasons or in other extraordinary circumstances arranged in advance. If you are planning to be away from your usual location (travel, vacation, etc.) during this course, consider dropping the course or discuss your situation with me and we can see if you will be disadvantaged by your mobility or impacting others’ work.

Communication Expectations:
The best way to contact the instructor and graduate assistant for this course is via email (see contact information at the top of the syllabus). Students should expect a response from the instructor or graduate assistant no later than 48 hours after an email is sent or voicemail is left.

Course assignments, projects, and other assessments will be graded no later than 7 days after the due dates posted within the syllabus and eCampus calendar. If dates need to be adjusted based on unforeseen circumstances, an announcement will be sent from eCampus.

Netiquette Expectations:
Netiquette is network etiquette. Netiquette covers both common courtesy online and the informal when communication with other online. TAMU Instructional Technology Services provides some general netiquette rules that students and faculty are expected to follow within this course. For more information on netiquette, please visit http://its.tamu.edu/Distance_Education/Netiquette_Aggie_Honor_Code.php

Institutional Policies
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

If you find that course content or software are not accessible, please contact your course instructor or disability services so that appropriate accommodations to the learning environment can be made.

Academic Integrity Statement and Policy:
For many years Aggies have followed a Code of Honor, which is stated in this very simple verse:

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

The Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other.

For more information please visit, http://student-rules.tamu.edu/aggiecode and http://aggiehonor.tamu.edu/
Statement of Plagiarism:
All materials generated for this class (which may include but are not limited to syllabi and in-class materials) are copyrighted. You do not have the right to copy such materials unless the instructor expressly grants permission. As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writing, etc. which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Plagiarism is one of the worst academic violations, for the plagiarist destroys trust among others. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.”

Export Control Statement:
United States export control laws regulate the release of goods and technologies that affect U.S. national security or foreign policy interests. Distance education students and course content MUST comply with these U.S. export control laws. If TAMU indicates that you are attempting to access course content from an IP address associated with a country currently subject to economic and trade sanction, your TAMU NetID account will be terminated and you will be contacted by the TAMU Export Control Office and the Office of Identity Management. For additional visit, https://vpr.tamu.edu/resources/export-controls/resources.
Course Change Request

New Course Proposal

Date Submitted: 09/05/17 9:53 am

Viewing: TCMT 621 : Technical Project Management

Last edit: 09/11/17 3:51 pm

Changes proposed by: jsass

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan Sass</td>
<td><a href="mailto:jsass@tamu.edu">jsass@tamu.edu</a></td>
<td>979-458-5083</td>
</tr>
<tr>
<td>Dr. Ben Zoghi</td>
<td><a href="mailto:zoghi@tamu.edu">zoghi@tamu.edu</a></td>
<td>979-676-3533</td>
</tr>
</tbody>
</table>

Course prefix: TCMT
Course number: 621
Department: Eng Tech & Ind Distribution
College/School: College of Engineering
Academic Level: Graduate
Academic Level (alternate): Undergraduate
Effective term: 2018-2019

Complete Course Title: Technical Project Management
Abbreviated Course Title: TECHNICAL PROJECT MANAGEMENT

Catalog course description:
Introduction to project management; emphasis on technical skills needed to manage complex projects and soft skills needed to communicate and manage the project team within a corporate structure.

Prerequisites and Restrictions:
Admission to the Master of Engineering Technical Management program.

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced? No
Crosslistings: No
Stacked with: No

Semester Credit Contact Hour(s) Lecture: 3 Lab: 0 Other: 0
Credit Hour(s) (per week): Total 3
Repeatable for credit? No
Three-peat? No
CIP/Fund Code: 1515010006

https://nextcatalog.tamu.edu/courseleaf/approve#
Default Grade Mode: Letter Grade (G)

Alternate Grade Modes: Satisfactory/Unsatisfactory

Method of instruction: Lecture

Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education): Yes

Learning Outcomes:

Does not meet traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met:

This course will only be offered in a non-traditional format; therefore, it will not have traditional face-to-face learning outcomes to compare to.

Hours:

Meets traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met:

Students will have 15 weeks to complete the course. Each week, students will be given about 3 hours of activities seen in face-to-face offerings in the format of audio and video lectures, podcasts, videos, online discussions, and/or group work. Students will have about 90 hours of work outside of class time such as reading from assigned books/articles/case studies and completing assignments such as papers, quizzes, and course projects.

Will this course be taught as a distance education course?: Yes

I verify that I have reviewed the FAQ for Export Control Basics for Distance Education: Yes

Is 100% of this course going to be taught in Texas?: Yes

Will classroom space be needed for this course?: No

This will be a required course or an elective course for the following programs:

Required (select program):

<table>
<thead>
<tr>
<th>Program(s)</th>
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<tbody>
<tr>
<td>(MET-TCMT) Master of Engineering Technical Management in Technical Management</td>
</tr>
</tbody>
</table>

Elective (select program):

Course Syllabus:

Syllabus: Upload syllabus

Upload syllabus: [TCMT 621 - Technical Project Management - RF.docx](https://nextcatalog.tamu.edu/courseleaf/approve/#)

Letters of support or other documentation: No
Additional information

Reviewer Comments
Sandra Williams (sandra-williams) (07/19/17 5:42 pm): Made edits to form.
Sandra Williams (sandra-williams) (07/20/17 4:57 pm): Rollback: Please update: syllabus shows instructions from a template; prerequisites must match form; late work not accepted - what about university excused absences?; shows old ADA statement; wrong course prefix in header for additional pages.
Sandra Williams (sandra-williams) (09/05/17 8:31 am): Rollback: New questions were added to the form effective September 1 per new requirements. Please answer and resubmit. (Will sections of this course be taught as non-traditional? i.e., parts of term, distance education)?
Sandra Williams (sandra-williams) (09/11/17 3:53 pm): Update received.

Reported to state?
Add
TCTM 621: Technical Project Management

Fall 2017

100% Online course through eCampus platform (http://ecampus.tamu.edu)

Instructor: Dr. Klaus Fink
Telephone: (417) 983-9308
Email: kfkink@tamu.edu
Location: Angler’s Port Marine, Warsaw, MO 65355

Hours: unknown at this time

Course Description:

This course will introduce the student to project management with emphasis on both the technical skills needed to manage complex projects as well as the soft skills needed to communicate and manage the project team within a corporate structure.

Prerequisites:
Admission into the METM program..

Overall Course Learning Outcomes
Upon completion of this course, students will be able to:

The student will be able to complete the planning and subsequent execution of a project within their own companies. Students will deliver process based materials from their company's project management processes and build an entire project that adds value to their companies. They will demonstrate the ability to:

1. Create and present a comprehensive plan for a project
2. Develop and present a Preliminary scope and definition of the project
3. Identify and define stakeholder expectations for the project
4. Produce appropriate project management system deliverables for their organization including timing, resources and budgets
5. Work with finance organization to build a financial project justification
6. Develop and understand project risk factors and mitigation strategies
7. Communicate interim and final project results to company management

Getting Started
To get started within this course, you will need to:

- Review the syllabus in its entirety
- Login to the course website, eCampus (see directions below), to:
  - ensure that you have access and the correct plug-ins installed,
  - update your user profile,
Resource Materials & Course Technology

Suggested Textbook and Resource Materials:

Supplemental Textbook and Resource Materials:
● Supplemental articles, cases, and notes will be made available via eCampus.
● Students should have access to a site of MS Project for several lectures and final project

You can purchase these textbooks from the University Bookstore http://tamubncollege.com/. Notice: As a student at Texas A&M you are not under any obligation to purchase a textbook from a university affiliated bookstore. The same textbook may also be available from independent retailers, including online retailers.

eCampus:
This course will use the TAMU eCampus, powered by Blackboard Learn, as the virtual classroom. Within eCampus, you can find all course related content and assessments (including but not limited to course materials, content, videos, activities, assessments, etc.). The recommended browsers for eCampus access are Mozilla Firefox or Google Chrome (Internet Explorer is not recommended). For additional information on support browsers for eCampus, please visit http://tx.ag/eCampusBrowserSupport.

To login to eCampus:
● Go to http://ecampus.tamu.edu
● Click the Login button
● Use your TAMU NetID and password to login

Once logged into eCampus, you will see a list of all courses for which you are enrolled in for the semester. To navigate to this course, click on the name of the course. If you have any problems logging into the course, please see the technology support section below.

Within eCampus the course menu is located on the left. The syllabus and course introductory materials can be found within the “Getting Started” section of the course menu. The course content is presented within modules and can be accessed by clicking on the names of the modules within the menu. Course due dates are posted within the calendar. If you have any question about navigating the eCampus course website, please contact me.

Technology Requirements & Recommendations:
Technology Requirements:
● Reliable and frequent access to a computer and to the high-speed Internet. If you do not have frequent and reliable access to a computer with Internet connection, please contact the instructor to discuss your situation and determine an appropriate solution.
● To attend virtual office hours, students will need to make sure they have setup Bb Collaborate to run on their computer(s) and mobile devices. Please visit http://blackboard.force.com/publickarticview?id=kA770000000CbljW to check your system requirements and test your connection.
  o It is required to have a microphone and webcam when using Bb Collaborate. While many student use a built in webcam, it is recommended to have a headset with a microphone, such as a smart phone headset, for the virtual office hours and group collaboration.
● Students will also need the following software/plug-ins for this course:
  o ADD any requirements for technology or software specific for the course.

Technology Recommendations:
● Google Hangouts can also be used to work collaboratively in a virtual environment for group projects. Students will need to make sure they have claimed a TAMU Google account. To claim and learn more about your account, please visit http://google.tamu.edu.
Course Support
In addition to contacting the instructor or graduate assistant for course content related questions, there are a variety of campus resources for course support.

Academic Services Support:
The Office of Graduate & Professional Studies (OGAPS) offers graduate student services and advocates for graduate education for Texas A&M students who are both on-campus and at a distance. For additional information regarding OGAPS, visit: http://ogaps.tamu.edu/Home

Technology Support:
For technological issues related to eCampus and software, contact the TAMU Help Desk:

- Student eCampus Help Website, http://ecampus.tamu.edu/student-help.php
- TAMU IT Help Desk:
  - Website: http://hdc.tamu.edu/index.php (Online Chat is available)
  - Phone: (979) 845-8300
  - Email: helpdesk@tamu.edu

The TAMU Help Desk is open 24 hours a day 7 days a week. If your technical problems are unable to be resolved within 48 hours, please contact the instructor for additional assistance.

Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and address issues well in advance of deadlines.

Course Activities and Assessments
This course will be a collection of assignment group evaluations and best practices discussions via conference calls. Students will be assessed on two primary factors:

1. The student’s ability to participate and deliver process based information from their parent companies around project management.
2. A semester long project assignment (single or small group) built on a desired outcome from one of their employers which will utilize the tools and best practices developed within the course lectures. Half of grade will come from current work supervisor assessment

Determination of Final Grades within the Course

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Total Points</th>
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<tbody>
<tr>
<td>A</td>
<td>100.00%-90.00%</td>
<td>1000-900</td>
</tr>
<tr>
<td>B</td>
<td>89.99%-80.00%</td>
<td>899-800</td>
</tr>
<tr>
<td>C</td>
<td>79.99%-70.00%</td>
<td>799-700</td>
</tr>
<tr>
<td>D</td>
<td>69.99%-60.00%</td>
<td>699-600</td>
</tr>
<tr>
<td>F</td>
<td>Less than 59.99%</td>
<td>Less than 599</td>
</tr>
<tr>
<td>Week 1</td>
<td>Week01: Activities &amp; Assignments</td>
<td>Deadlines</td>
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</tr>
<tr>
<td>Module 01: Welcome to our Team!</td>
<td><strong>Post:</strong> Personal Introductions Template</td>
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<tr>
<td><strong>Conference Call:</strong> group introductions and outcomes discussion – project discussion</td>
<td><strong>Deliverable:</strong> Personal growth written goals submitted for review</td>
<td></td>
</tr>
<tr>
<td><strong>Deliverable:</strong> Initial discussions with your current manager for course project ideas</td>
<td><strong>Learning Objectives/Outcomes</strong> – You will meet the group and understand some of the management perspectives each team member has to work within</td>
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<tr>
<td><strong>Assessment Instrument:</strong> active participation in discussion</td>
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</tbody>
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<thead>
<tr>
<th>Week 2</th>
<th>Week02: Activities &amp; Assignments</th>
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</thead>
<tbody>
<tr>
<td>Module 02: What is a project? Strategic plan and projects</td>
<td><strong>Read:</strong> PMBOK Chapter 1</td>
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<tr>
<td><strong>Deliverable:</strong> bring 5 projects from within your company to the group discussion</td>
<td></td>
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<tr>
<td><strong>Conference Call:</strong> Is this a project game - Project/Operations/Portfolio</td>
<td>Begin selecting the course project you are interested in</td>
</tr>
<tr>
<td><strong>Learning Objectives/Outcomes:</strong> You will be able to differentiate between a project and a process</td>
<td><strong>Assessment Instrument:</strong> homework assignment on strategic projects for your company</td>
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<thead>
<tr>
<th>Week 3</th>
<th>Week03: Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 03: Role of a Project Manager and a Project Management Office</td>
<td><strong>Read:</strong> PMBOK Chapter 1.6-1.8 and Chapter 9</td>
<td></td>
</tr>
<tr>
<td><strong>Conference Call:</strong> Discussion – your skills as a project leader</td>
<td><strong>Learning Objectives/Outcomes:</strong> You will gain insight to your skills as a project manager. You will understand the role of a PMO</td>
<td></td>
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<tr>
<td><strong>Assessment Instrument:</strong> discussion participation on PMO’s</td>
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</tbody>
</table>

| Module 04: Identifying Stakeholders – Critical for Course Project | **Read:** PMBOK 10.1 |
| **Deliverable:** Define stakeholders for course project – one-on-one call | **Conference Call:** Identifying and meeting with stakeholders |
| **Deliverable:** Stakeholders Identified and Notified | **Learning Objectives/Outcomes:** You will be able to identify cross-functional stakeholders both generically as well as for your specific company/project |
| **Assessment Instrument:** homework assignment and Final Project definition | |

| Module 05: Forming the Project Team – Resource Planning | **Conference Call:** Who do we need and why? skills needed on the team |
| **Read:** PMBOK Chapter 9 (if not already completed) | **Deliverable:** Key resource types needed for course project |
| **Learning Objectives/Outcomes:** You will gain insights for gathering the right team members to assure success. (who and why) | **Assessment Instrument:** homework assignment |
### Forming the Project Team – Managing Diversity

**Conference Call:** different type of team members – who does your organization not value?

**Deliverable:** 3-5 team members for your project and why selected

**one-on-one call:** final project selection and expectations from your company

**Learning Objectives/Outcomes:** You will develop a greater appreciation for diversity on your team and how to identify success factors

**Assessment Instrument:** - homework assignment

### Week 4

#### Module 06a: planning a project - Define Project/Scope

**Read:** PMBOK 3.4-3.4.3 and 5.1,5.2

**Conference Call:** the difficulty of defining a project

**Learning Objectives/Outcomes:** you will be able to define the whole scope of a project with consideration of cross functional team partners

**Assessment Instrument:** class discussion participation – course project

### Week 5

#### Module 06c: Define and Sequence Activities within the project

**Read:** PMBOK 3.4.5, 6.1, 6.2

**Lecture:** grouping and planning disparate activities with team members

**Learning Objectives/Outcomes:** be able to provide cross functional sequence of events for a project

**Assessment Instrument:** class discussion participation

#### Module 06d: PERT charts and Schedule

**Read:** PMBOK 6.3, 6.4, 6.5

**Deliverable:** PERT chart assignment – timing and the critical path

**One-on-one call:** as scheduled to discuss PERT charts

**Learning Objectives/Outcomes:** You will create and interpret PERT charts as part of project planning

**Assessment Instrument:** Final class project and homework assignment

### Week 6

#### Module 7: Establishing the Gantt Chart and critical path management

**Read:** posted assignment

**Conference Call:** Best Practices – how do you establish the Gantt chart?

**Learning Objectives/Outcomes:** You will construct a Gantt chart with resource plan for a project

**Assessment Instrument:** homework assignment, final project assessment and Final Exam

#### Module 7b: The critical path – establishing the fastest route
<table>
<thead>
<tr>
<th>Conference Call:</th>
<th>Best Practices – does anyone care about the critical path at your place of work? If so, management ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Objectives/Outcomes:</td>
<td>You will be able to identify and communicate the critical path for any project</td>
</tr>
<tr>
<td>Assessment Instrument:</td>
<td>class participation, final project assessment and Final Exam</td>
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<tr>
<th>Week 7</th>
<th>Week07: Activities &amp; Assignments</th>
<th>Deadlines</th>
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<tbody>
<tr>
<td><strong>Module 7c:</strong> Crashing the critical path – where do we find time?</td>
<td>Read: posted assignment</td>
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<tr>
<td><strong>Learning Objectives/Outcomes:</strong></td>
<td>You will plan for project timing realities</td>
<td></td>
</tr>
<tr>
<td><strong>Assessment Instrument:</strong></td>
<td>- one on one call participation and project assessment</td>
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<thead>
<tr>
<th>Week 8</th>
<th>Week08: Activities &amp; Assignments</th>
<th>Deadlines</th>
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</thead>
<tbody>
<tr>
<td><strong>Module 8:</strong> Using Microsoft Project for your project plan (Residency Week)</td>
<td>Guest lecture – will need MS Project available</td>
<td></td>
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<tr>
<td><strong>Learning Objectives/Outcomes:</strong></td>
<td>You will be able to use MS Project for project planning</td>
<td></td>
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<tr>
<td><strong>Assessment Instrument:</strong></td>
<td>homework assignment and classroom work</td>
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<thead>
<tr>
<th>Week 9</th>
<th>Week09: Activities &amp; Assignments</th>
<th>Deadlines</th>
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<tbody>
<tr>
<td><strong>Module 9:</strong> Establishing Project Budgets</td>
<td>Read: PMBOK 3.4.11 and 7.1-3</td>
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<tr>
<td><strong>Conference Call:</strong></td>
<td>Project Budgeting tools/examples from your companies</td>
<td></td>
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<tr>
<td><strong>Assignment:</strong></td>
<td>Meet with your CFO...what does he expect for project budgets</td>
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<tr>
<td><strong>Learning Objectives/Outcomes:</strong></td>
<td>You will be able to plan the cross functional project budget</td>
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<tr>
<td><strong>Assessment Instrument:</strong></td>
<td>discussion participation</td>
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<thead>
<tr>
<th>Module 10:</th>
<th>Starting up your team – the team kickoff and rules of the road</th>
</tr>
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<tbody>
<tr>
<td><strong>Read:</strong></td>
<td>uploaded reading assignment</td>
</tr>
<tr>
<td><strong>Conference Call:</strong></td>
<td>How does your company start off a new team? Best Practices</td>
</tr>
<tr>
<td><strong>Learning Objectives/Outcomes:</strong></td>
<td>You will be able to start a new team within your company</td>
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<tr>
<td><strong>Assessment Instrument:</strong></td>
<td>discussion participation</td>
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<thead>
<tr>
<th>Module 10b:</th>
<th>Directing/Managing team execution – team meetings</th>
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<tbody>
<tr>
<td><strong>Conference Call:</strong></td>
<td>How do you manage a team meeting – Best Practices</td>
</tr>
<tr>
<td><strong>Lecture:</strong></td>
<td>Different types of team meetings. Using your time effectively</td>
</tr>
<tr>
<td><strong>Learning Objectives/Outcomes:</strong></td>
<td>You will manage an effective cross functional project team meeting</td>
</tr>
<tr>
<td><strong>Assessment Instrument:</strong></td>
<td>best practices discussion deliverables</td>
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<tr>
<td>Week 10</td>
<td>Week 10: Activities &amp; Assignments</td>
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<tr>
<td><strong>Module 11:</strong> How to deal with corporate reality – the virtual team</td>
<td><strong>Read:</strong> PMBOK 9.4</td>
</tr>
<tr>
<td><strong>Assignment:</strong> Best Practices report to team from your current manager</td>
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<tr>
<td><strong>Learning Objectives/Outcomes:</strong> You will be able to recognize international and Global environment of engineering teams</td>
<td><strong>Assessment Instrument:</strong> discussion participation</td>
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<thead>
<tr>
<th>Week 11</th>
<th>Week 11: Activities &amp; Assignments</th>
<th>Deadlines</th>
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</thead>
<tbody>
<tr>
<td><strong>Module 12:</strong> Managing scope in mid project – market changes and internal pressures</td>
<td><strong>Read:</strong> PMBOK 3.6.4 and 5.5,</td>
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<tr>
<td><strong>Conference Call:</strong> Best Practices from your company on scope management</td>
<td></td>
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<tr>
<td><strong>Learning Objectives/Outcomes:</strong> You will gather tools to be able to keep a disparate team focused</td>
<td><strong>Assessment Instrument:</strong> final project review assessment</td>
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<tr>
<th>Week 12</th>
<th>Week 12: Activities &amp; Assignments</th>
<th>Deadlines</th>
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</thead>
<tbody>
<tr>
<td><strong>Module 13:</strong> How to close a stage or a project – when are we done?</td>
<td><strong>Read:</strong> PMBOK 3.7</td>
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<tr>
<td><strong>Submit:</strong> document on how your company closes out projects</td>
<td></td>
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<tr>
<td><strong>Learning Objectives/Outcomes:</strong> You will be able to properly close a project or a sub project with management approval.</td>
<td><strong>Assessment Instrument:</strong> homework assignment and best practice discussion</td>
<td></td>
</tr>
<tr>
<td><strong>Module 14:</strong> Communicating to stakeholders – the fly by – you vs team members</td>
<td><strong>Read:</strong> PMBOK 10.1 to 10.5</td>
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</tr>
<tr>
<td><strong>Post:</strong> Example of stakeholder report out in your company - metrics</td>
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</tr>
<tr>
<td><strong>Discussion:</strong> example comparisons – what can you take back?</td>
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<tr>
<td><strong>Learning Objectives/Outcomes:</strong> You will present brief versions of the project update suitable for management</td>
<td><strong>Assessment Instrument:</strong> discussion and peer review from class</td>
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</tbody>
</table>

| **Module 15:** Communicating to the board or senior management | **Read:** uploaded reading assignment | |
| **Submit:** recent example of senior management presentations | | |
| **Discussion:** Best practices – who has the best presentation and what can be improved? | | |
| **Learning Objectives/Outcomes:** You will create an effective presentation to stakeholders | **Assessment Instrument:** presentation evaluations | |
| **Module 16:** Using a Cloud based Project Management tool | **Group discussion:** what tools are being used and why? | |
| **Learning Objectives/Outcomes:** You will demonstrate an understanding of newer cloud based management tools | **Assessment Instrument:** discussion participation | |
## Course Policies

### Attendance Policy:

Attendance and course participation will be measured by watching the video lectures, participation in discussion forums, submitting assignments, taking quizzes and exams. Students should be logging into the course to view videos and participate in the course 2-3 times per week. Students not participating in the course, will be notified by the instructor.

Note: Federal regulations require the university to confirm whether or not students began attendance in all courses if they are recipients of certain forms of financial aid (ie. 34 CFR 668.21, 34 CFR 674.16(f), 34 CFR 676.16(d), & 34 CFR 685.303(b)(3)). Thus, faculty may be required to verify attendance within Howdy for these students. Also, if a student receives a F, I, X, W, or U, faculty must report the last day of attendance. For distance education the attendance is measured by academic-related activity within Bb Learn (ie. submitting an assignment, taking an exam/quiz, completing an interactive tutorial/computer-assisted instruction, participating in an online discussion about the course, or initiating contact with the faculty member to inquire about the course). Logging into an online class without actively participating or seeking academic advising/counseling is not considered academic activity.

### Late Work Policy:

LATE WORK is not accepted except in the event of a university excused absence. This course relies on discussion, interaction, and group work among class members. Therefore it is essential that work be completed on schedule. At the beginning of every module, you should spend time planning. Read the learning modules in eCampus very carefully. Please do not wait until the last
day to do the work. Punctuality is especially important when assignments impact your classmates. If your schedule impacts others, notify them and me and make alternative arrangements.

If an unforeseen event(s) arises such as a university excused absence, you must follow the TAMU student rule regarding attendance to makeup these assignments. For more information on TAMU excused absences, please visit http://student-rules.tamu.edu/rule07. If you do not have a university excused absence and miss an assignment, you may see a deduction of a point or two in your overall your grade. If this is a rare occurrence and your work for this class it otherwise excellent, it should make no difference in your final grade for the course. It is only when work is frequently late and/or quality of the work is consistently below standard that your final grade will suffer. In those rare circumstances where an emergency takes you away from the course for an extended period of time, contact your instructor right away to make arrangements.

Course Copyright Statement:

The materials used within this course are copyrighted. These materials include, but are not limited to, the syllabi, quizzes, exams, lab problems, online handouts, course videos, etc. Because these materials are copyrights, you do not have the right to copy or distribute these materials, unless permission is expressly granted.

Incomplete Grade:

Grades of “INCOMPLETE” will be given only for certifiable medical reasons or in other extraordinary circumstances arranged in advance. If you are planning to be away from your usual location (travel, vacation, etc.) during this course, consider dropping the course or discuss your situation with me and we can see if you will be disadvantaged by your mobility or impacting others’ work.

Communication Expectations:

The best way to contact the instructor and graduate assistant for this course is via email (see contact information at the top of the syllabus). Students should expect a response from the instructor or graduate assistant no later than 48 hours after an email is sent or voicemail is left.

Course assignments, projects, and other assessments will be graded no later than 7 days after the due dates posted within the syllabus and eCampus calendar. If dates need to be adjusted based on unforeseen circumstances, an announcement will be sent from eCampus.

Netiquette Expectations:

Netiquette is network etiquette. Netiquette covers both common courtesy online and the informal when communication with other online. TAMU Instructional Technology Services provides some general netiquette rules that students and faculty are expected to follow within this course. For more information on netiquette, please visit http://its.tamu.edu/Distance_Education/Netiquette_Aggie_Honor_Code.php
Institutional Policies

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Academic Integrity Statement and Policy:
For many years Aggies have followed a Code of Honor, which is stated in this very simple verse:

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

The Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other.

For more information please visit, http://student-rules.tamu.edu/aggiecode and http://aggiehonor.tamu.edu/

Statement of Plagiarism:
All materials generated for this class (which may include but are not limited to syllabi and in-class materials) are copyrighted. You do not have the right to copy such materials unless the instructor expressly grants permission. As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writing, etc. which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Plagiarism is one of the worst academic violations, for the plagiarist destroys trust among others. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.”

Export Control Statement:
United States export control laws regulate the release of goods and technologies that affect U.S. national security or foreign policy interests. Distance education students and course content MUST comply with these U.S. export control laws. If TAMU indicates that you are attempting to access course content from an IP address associated with a country currently subject to economic and trade sanction, your TAMU NetID account will be terminated and you will be contacted by the TAMU Export Control Office and the Office of Identity Management. For additional visit, https://vpr.tamu.edu/resources/export-controls/resources.
Course Change Request

New Course Proposal

Date Submitted: 09/20/17 10:47 am
Viewing: 

| Last edit: 09/25/17 10:55 am |
| Changes proposed by: jsass |

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan Sass</td>
<td><a href="mailto:jsass@tamu.edu">jsass@tamu.edu</a></td>
<td>979-458-5083</td>
</tr>
<tr>
<td>Dr. Ben Zoghi</td>
<td><a href="mailto:zoghi@tamu.edu">zoghi@tamu.edu</a></td>
<td>979-676-3533</td>
</tr>
</tbody>
</table>

Course prefix: TCMT  
Course number: 622

Department: Eng Tech & Ind Distribution
College/School: College of Engineering

Academic Level: Graduate
Academic Level (alternate): Undergraduate

Effective term: 2018-2019

Complete Course Title: Value Chain Management
Abbreviated Course Title: VALUE CHAIN MANAGEMENT

Catalog course description:
Selected topics for the quantitative management an optimal operation of a supply-chain; emphasis on the interdependencies among supply-chain processes, integration of engineering, operational and financial metrics, supply-chain capability and asset management.

Prerequisites and Restrictions:
Admission to the Master of Engineering Technical Management program.

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced?: No

Crosslistings: No  
Crosslisted With:

Stacked: No  
Stacked with:

Semester: 3  
Credit Hour(s): 3  
Course Hour(s): (per week):
Contact Hour(s): 3  
Lecture: 3  
Lab: 0  
Other: 0  
Total: 3

Repeatable for credit?: No
Three-peat?: No

CIP/Fund Code: 1515010006

https://nextcatalog.tamu.edu/courseleaf/approve#
Default Grade Mode: Letter Grade (G)
Alternate Grade Modes: Satisfactory/Unsatisfactory
Method of instruction: Lecture
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education): Yes

Learning Outcomes:
Does not meet traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met.
This course will only be offered in a non-traditional format; therefore, it will not have traditional face-to-face learning outcomes to compare to.

Hours:
Meets traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met.
Students will have 15 weeks to complete the course. Each week, students will be given about 3 hours of activities seen in face-to-face offerings in the format of audio and video lectures, podcasts, videos, online discussions, and/or group work. Students will have about 90 hours of work outside of class time such as reading from assigned books/articles/case studies and completing assignments such as papers, quizzes, and course projects.

Will this course be taught as a distance education course?: Yes
I verify that I have reviewed the FAQ for Export Control Basics for Distance Education.: Yes
Is 100% of this course going to be taught in Texas?: Yes
Will classroom space be needed for this course?: No

This will be a required course or an elective course for the following programs:

Required (select program)
Elective (select program)

Course Syllabus

Syllabus:
Upload syllabus

Upload syllabus: TCMT_622_Value_Chain_Management-071117.docx

Letters of support or other documentation: No
Additional information
Reviewer Comments

Sandra Williams (sandra-williams) (07/19/17 5:43 pm): Made edits to form.
Sandra Williams (sandra-williams) (07/20/17 4:57 pm): Rollback: Please update: syllabus has wrong course prefix; prerequisites do not match form; shows instructions from a template; late work not accepted - what about university excused absences?; shows old ADA statement; header for pages shows "ENGR 000 Course Name - Term 2015."
Sandra Williams (sandra-williams) (09/05/17 8:31 am): Rollback: New questions were added to the form effective September 1 per new requirements. Please answer and resubmit. (Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)?)
Sandra Williams (sandra-williams) (09/11/17 3:54 pm): Rollback: Course form shows TCMT 622-Value Chain Management, however, uploaded syllabus is TCMT 633-Contract & Risk Management.
Sandra Williams (sandra-williams) (09/18/17 10:47 pm): Rollback: Syllabus shows METM 622 (course form is TCMT 622). It also lists old ADA statement (shows Cain Hall).
Sandra Williams (sandra-williams) (09/25/17 10:55 am): Update received.

Reported to state?

Add
METM 622: Value Chain Management  
Spring 2019

100% Online course through eCampus platform (http://ecampus.tamu.edu)

Instructor: Dr. Jorge Leon  
Telephone: (979) 847-4993  
Email: jleon@tamu.edu  
Location: 117-E Thompson Hall  
Hours: Mon & Wed – 9:00 AM to 11:00 AM

Course Description:
Selected topics for the quantitative management and optimal operation of a value-chain. Emphasis is given to the interdependencies among value-chain processes, integration of engineering, operational and financial metrics, supply-chain capability, and asset management.

Prerequisite: Admission into the METM program

Overall Course Learning Outcomes

Upon completion of this course, students will be able to:

a) Demonstrate knowledge of what is a value chain, its business functions and importance. (3, 5, 6, 7, 8)
b) Describe the impact of strategic network decisions on supply chain performance and solve simple network design problems (1, 3)
c) Explain and recognize the value of information and coordination in the supply chain (1, 3, 7, 8, 10)
d) Perform inventory analysis and produce inventory policies to achieve desired customer service levels (1, 3, 6, 7, 8, 9)
e) Explain KPI systems for supply chain performance integrating engineering, operations and financials (2, 3, 4, 5, 6, 8, 9)
f) Explain fundamental mechanisms for value chain integration (1, 3, 8)
g) Recognize the importance of supply contracts and describe the different types of contracts (3, 6, 7)
h) Recognize the importance of strategic supply chain alliances and describe mechanisms for strategic alliances (3, 6, 7)
i) Explain a framework for coordinated product and supply chain design (1, 3)
Getting Started
To get started within this course, you will need to:
  ● Review the syllabus in its entirety
  ● Login to the course website, eCampus (see directions below), to:
    o ensure that you have access and the correct plug-ins installed,
    o update your user profile,
    o spend some time becoming familiar with the course layout, and
    o complete the introductory forum.

Note: Additional details to complete these activities can be found within the eCampus.

Resource Materials & Course Technology
Required Textbook and Resource Materials:

Supplemental Textbook and Resource Materials:
  ● Supplemental notes and exercises will be provided online.

You can purchase these textbooks from the University Bookstore http://tamu.bncollege.com/. Notice: As a student at Texas A&M you are not under any obligation to purchase a textbook from a university affiliated bookstore. The same textbook may also be available from independent retailers, including online retailers.

eCampus:
This course will use the TAMU eCampus, powered by Blackboard Learn, as the virtual classroom. Within eCampus, you can find all course related content and assessments (including but not limited to course materials, content, videos, activities, assessments, etc.). The recommended browsers for eCampus access are Mozilla Firefox or Google Chrome (Internet Explorer is not recommended). For additional information on support browsers for eCampus, please visit http://tx.ag/eCampusBrowserSupport.

To login to eCampus:
  ● Go to http://ecampus.tamu.edu
  ● Click the Login button
  ● Use your TAMU NetID and password to login

Once logged into eCampus, you will see a list of all courses for which you are enrolled in for the semester. To navigate to this course, click on the name of the course. If you have any problems logging into the course, please see the technology support section below.

Technology Requirements & Recommendations:
Technology Requirements:
  ● Reliable and frequent access to a computer and to the high-speed Internet. If you do not have frequent and reliable access to a computer with Internet connection, please contact the instructor to discuss your situation and determine an appropriate solution.
  ● To attend virtual office hours, students will need to make sure they have setup Bb Collaborate to run on their computer(s) and mobile devices. Please visit http://blackboard.force.com/publickbarticleview?id=kA770000000CbIW to check your system requirements and test your connection.
    o It is required to have a microphone and webcam when using Bb Collaborate. While many student use a built in webcam, it is recommended to have a headset with a microphone, such as a smart phone headset, for the virtual office hours and group collaboration.
  ● Students will also need the following software/plug-ins for this course:
    o ADD any requirements for technology or software specific for the course.

Technology Recommendations:
  ● Google Hangouts can also be used to work collaboratively in a virtual environment for group projects. Students will need to make sure they have claimed a TAMU Google account. To claim and learn more about your account, please visit http://google.tamu.edu.
Course Support
In addition to contacting the instructor or graduate assistant for course content related questions, there are a variety of campus resources for course support.

Academic Services Support:
The Office of Graduate & Professional Studies (OGAPS) offers graduate student services and advocates for graduate education for Texas A&M students who are both on-campus and at a distance. For additional information regarding OGAPS, visit:
http://ogaps.tamu.edu/Home

Technology Support:
For technological issues related to eCampus and software, contact the TAMU Help Desk:

- Student eCampus Help Website, http://ecampus.tamu.edu/student-help.php
- TAMU IT Help Desk:
  - Website: http://hdc.tamu.edu/index.php (Online Chat is available)
  - Phone: (979) 845-8300
  - Email: helpdesk@tamu.edu
The TAMU Help Desk is open 24 hours a day 7 days a week. If your technical problems are unable to be resolved within 48 hours, please contact the instructor for additional assistance.

Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and address issues well in advance of deadlines.

Course Activities and Assessments
Your activities in this course will include:

- Online lectures explaining the different topics covered.
- Online exercises where you will use simulators, calculators and games to reinforce the concepts learned.
- Assigned readings to complement and reinforce the content delivered in the lectures.
- Online class interactions providing opportunities to work in groups.

Learning assessments include:

- Final Exam: a comprehensive exam at the end of the semester.
- Quizzes: Weekly quizzes assessing your learning of new material covered.
- Participation in class activities: will measure your diligence in completing assigned course activities.

   | Quizzes: 60%  | Final Exam: 15% | Participation: 25% |

Determination of Final Grades within the Course

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100.00%-90.00%</td>
<td>100.00-90.00</td>
</tr>
<tr>
<td>B</td>
<td>89.99%-80.00%</td>
<td>89.99-80.00</td>
</tr>
<tr>
<td>C</td>
<td>79.99%-70.00%</td>
<td>79.99-70.00</td>
</tr>
<tr>
<td>D</td>
<td>69.99%-60.00%</td>
<td>60.00-69.99</td>
</tr>
<tr>
<td>F</td>
<td>Less than 59.99%</td>
<td>Less than 59.99</td>
</tr>
</tbody>
</table>
Major assignment due dates and test dates should be included and not be changed without notification of all students in the course. If you need assistance with the course layout please contact the remote learning team at atmberger@tamu.edu or yakut@tamu.edu. Additional module / week / lecture objectives should be added to the course within this section or on the course website.

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Module 01: Introduction to value-chains</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read:</td>
<td>Chapter 1</td>
<td></td>
</tr>
</tbody>
</table>
| Concepts | - What is a value chain and what are main management challenges?  
|         | - Why value chain management?  
|         | - Key aspects in value chain management |           |
| Quiz #1 |                                        | Next week |

<table>
<thead>
<tr>
<th>Week 2</th>
<th>Module 02: The Value of Information – Lesson 2.1</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online group exercise: The Beer Game</td>
<td>- Describe and reproduce the Bullwhip effect</td>
<td></td>
</tr>
<tr>
<td>Quiz #2</td>
<td></td>
<td>Next week</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 3</th>
<th>Module 02: The Value of Information – Lesson 2.2</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read:</td>
<td>Chapter 5</td>
<td></td>
</tr>
</tbody>
</table>
| - What is the Bullwhip Effect and what causes it? 5.1, 5.2.2  
| - How to minimize the Bullwhip Effect. 5.2.3, 5.3, 5.4, 5.7, 5.9 |           |
| Quiz #3 |                                                | Next week |

<table>
<thead>
<tr>
<th>Week 4</th>
<th>Module 03: Inventory management Lesson 3.1</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read:</td>
<td>Chapter 2: Section 2.1</td>
<td></td>
</tr>
</tbody>
</table>
| - The economic and operational role of inventory  
| - Inventory management framework  
| - Inventory modeling concepts: Inventory costs and customer service level, reorder point, safety stock and order quantity  
| - Estimation of demand and lead time probability distribution parameters |           |
| Quiz #4 |                                                | Next week |

<table>
<thead>
<tr>
<th>Week 5</th>
<th>Module 03: Inventory management – Lesson 3.2</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read:</td>
<td>Chapter 2: Section 2.2</td>
<td></td>
</tr>
</tbody>
</table>
| - Continuous review inventory policy (when and how much to order)  
<p>| - Periodic review inventory policy |           |
| Quiz #5 |                                                |           |</p>
<table>
<thead>
<tr>
<th>Week 6</th>
<th>Week 06: Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module 03</strong>: Inventory management – Lesson 3.3</td>
<td>Read: 2.3, 2.4, 2.5, 2.6</td>
<td></td>
</tr>
<tr>
<td>- Extensions to supply chain inventory systems</td>
<td>- The Risk Pooling effect</td>
<td></td>
</tr>
<tr>
<td>- Centralized &amp; decentralized inventory systems</td>
<td>Quiz #6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 7</th>
<th>Week 07: Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module 04</strong>: Strategic Network Planning – Lesson 4.1</td>
<td>Read: Chapter 3: Sections 3.1, 3.2</td>
<td></td>
</tr>
<tr>
<td>- Network design decisions</td>
<td>- Relevant data and data manipulation</td>
<td></td>
</tr>
<tr>
<td>- Modeling methods</td>
<td>- Solution methods</td>
<td></td>
</tr>
<tr>
<td>- Application example: what plant should replenish each warehouse?</td>
<td>Quiz #7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 8</th>
<th>Week 08: Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module 04</strong>: Strategic Network Planning – Lesson 4.2</td>
<td>Read: Chapter 3: Sections 3.3</td>
<td></td>
</tr>
<tr>
<td>- Inventory positioning and logistics coordination</td>
<td>Online exercise: Inventory positioning simulator</td>
<td></td>
</tr>
<tr>
<td>Quiz #8</td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Week 9</th>
<th>Week 09: Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module 04</strong>: Strategic Network Planning – Lesson 4.3</td>
<td>Read: Chapter 3: Sections 3.4</td>
<td></td>
</tr>
<tr>
<td>- Strategic allocation of supply chain resources</td>
<td>- Application example: What plant should replenish each warehouse, and what warehouse should serve each region?</td>
<td></td>
</tr>
<tr>
<td>Quiz #9</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 10</th>
<th>Week 10: Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module 05</strong>: Supply Contracts – Lesson 5.1</td>
<td>Read: Chapter 4: 4.1, 4.2</td>
<td></td>
</tr>
<tr>
<td>- Strategic components</td>
<td>- Make-to-order supply contracts</td>
<td></td>
</tr>
<tr>
<td>Quiz #10</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 11</th>
<th>Week 11: Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module 05</strong>: Supply Contracts – Lesson 5.1</td>
<td>Read: Chapter 4: 4.3, 4.4, 4.5</td>
<td></td>
</tr>
<tr>
<td>- Make-to-stock supply contracts</td>
<td>- Contracts with asymmetric information</td>
<td></td>
</tr>
<tr>
<td>- Contracts for non-critical items</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Course Policies

Attendance Policy:
ADD your attendance policy for this course.

Attendance and course participation will be measured by watching the video lectures, participation in discussion forums, submitting assignments, taking quizzes and exams. Students should be logging into the course to view videos and participate in the course 2-3 times per week. Students not participating in the course, will be notified by the instructor.

Note: Federal regulations require the university to confirm whether or not students began attendance in all courses if they are recipients of certain forms of financial aid (i.e. 34 CFR 668.21, 34 CFR 674.16(f), 34 CFR 676.16(d), & 34 CFR 685.303(b)(3)). Thus, faculty may be required to verify attendance within Howdy for these students. Also, if a student receives a F, I, X, W, or U, faculty must report the last day of attendance. For distance education the attendance is measured by academic-related activity within Bb Learn (i.e. submitting an assignment, taking an exam/quiz, completing an interactive tutorial/computer-assisted instruction, participating in an online discussion about the course, or initiating contact with the faculty member to inquire about the course). Logging into an online class without actively participating or seeking academic advising/counseling is not considered academic activity.
Late Work Policy:

LATE WORK is not accepted except for university excused absences. This course relies on discussion, interaction, and group work among class members. Therefore it is essential that work be completed on schedule. At the beginning of every module, you should spend time planning. Read the learning modules very carefully. Punctuality is especially important when assignments impact your classmates. If your schedule impacts others, notify them and me and make alternative arrangements.

If an unforeseen event(s) arises such as a university excused absence, you must follow the TAMU student rule regarding attendance to makeup these assignments. For more information on TAMU excused absences, please visit http://student-rules.tamu.edu/rule07. If you do not have a university excused absence and miss an assignment, you may see a deduction of a point or two in your overall your grade. If this is a rare occurrence and your work for this class it otherwise excellent, it should make no difference in your final grade for the course. It is only when work is frequently late and/or quality of the work is consistently below standard that your final grade will suffer. In those rare circumstances where an emergency takes you away from the course for an extended period of time, contact your instructor right away to make arrangements.

Course Copyright Statement:

The materials used within this course are copyrighted. These materials include, but are not limited to, the syllabi, quizzes, exams, lab problems, online handouts, course videos, etc. Because these materials are copyrights, you do not have the right to copy or distribute these materials, unless permission is expressly granted.

Incomplete Grade:

Grades of “INCOMPLETE” will be given only for certifiable medical reasons or in other extraordinary circumstances arranged in advance. If you are planning to be away from your usual location (travel, vacation, etc.) during this course, consider dropping the course or discuss your situation with me and we can see if you will be disadvantaged by your mobility or impacting others’ work.

Communication Expectations:

The best way to contact the instructor and graduate assistant for this course is via email (see contact information at the top of the syllabus). Students should expect a response from the instructor or graduate assistant no later than 48 hours after an email is sent or voicemail is left.

Course assignments, projects, and other assessments will be graded no later than 7 days after the due dates posted within the syllabus and eCampus calendar. If dates need to be adjusted based on unforeseen circumstances, an announcement will be sent from eCampus.

Netiquette Expectations:

Netiquette is network etiquette. Netiquette covers both common courtesy online and the informal when communication with other online. TAMU Instructional Technology Services provides some general netiquette rules that students and faculty are expected to follow within this course. For more information on netiquette, please visit http://its.tamu.edu/Distance_Education/Netiquette_Aggie_Honor_Code.php
Institutional Policies

Americans with Disabilities Act (ADA) Policy Statement:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information visit http://disability.tamu.edu.

This course uses Blackboard Learn as its online platform. To know more about its accessibility standards please to their website. http://www.blackboard.com/Platforms/Learn/Resources/Accessibility.aspx.

If you find that course content or software are not accessible, please contact your course instructor or disability services so that appropriate accommodations to the learning environment can be made.

Academic Integrity Statement and Policy:
For many years Aggies have followed a Code of Honor, which is stated in this very simple verse:

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

The Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other.

For more information please visit, http://student-rules.tamu.edu/aggiecode and http://aggiehonor.tamu.edu/

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New Course Proposal

Viewing: TCMT 631: Capstone I

Courses Change Request

Date Submitted: 09/25/17 11:20 am
Last edit: 09/25/17 4:59 pm
Changes proposed by: jsass

Contact(s)

<table>
<thead>
<tr>
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<td>979-676-3533</td>
</tr>
</tbody>
</table>

Course prefix: TCMT
Course number: 631
Department: Eng Tech & Ind Distribution
College/School: College of Engineering
Academic Level: Graduate
Effective term: 2018-2019
Complete Course Title: Capstone I
Abbreviated Course Title: CAPSTONE I

Catalog course description:
Addresses managing individual or collaborative engineering programs in complex dynamic business environments; provides tools and techniques to execute projects, programs and product enhancement initiatives that yield desired business results; learn through deductive, inductive and abductive analytical methods how to document and manage engineering program activities.

Prerequisites and Restrictions:
Admission to the Master of Engineering Technical Management program.

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced? No
Crosslistings: No
Crosslisted With
Stacked: No
Stacked with

Semester: 3
Credit Hour(s): 3
Contact Hour(s): 3
Lecture: 3
Lab: 0
Other: 0
Total: 3

Repeatable for credit? No
Three-peat? No

In Workflow
1. ETID Department Head
2. Curricular Services Review
3. EN Committee Preparer GR
4. EN Committee Chair GR
5. EN College Dean GR
6. GC Preparer
7. GC Chair
8. Faculty Senate Preparer
9. Faculty Senate
10. Provost II
11. President
12. Curricular Services
13. Banner

Approval Path
1. 09/25/17 11:25 am
Reza Langari (rlangari): Approved for ETID Department Head
2. 09/25/17 5:00 pm
Sandra Williams (sandra.williams): Approved for Curricular Services Review
3. 09/27/17 4:57 pm
Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR
4. 10/23/17 3:17 pm
Prasad Enjeti (enjeti): Approved for EN Committee Chair GR
5. 11/13/17 1:14 pm
Prasad Enjeti (enjeti): Approved for EN College Dean GR
6. 11/22/17 8:53 am
LaRhesa Johnson (ljohnson): Approved for GC Preparer
7. 12/14/17 10:58 am
LaRhesa Johnson (ljohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve/
Learning Outcomes

Does not meet traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met.

This course will only be offered in a non-traditional format, therefore it will not have traditional face-to-face learning outcomes to compare to.

Hours

Meets traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met.

Students will meet on campus face-to-face for one full week (40 hours) to complete this class. In addition, they will have group assignments to complete in the evenings.

Will this course be taught as a distance education course?

Yes

I verify that I have reviewed the FAQ for Export Control Basics for Distance Education.

Yes

Is 100% of this course going to be taught in Texas?

Yes

Will classroom space be needed for this course?

No

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(MET-TCMT) Master of Engineering Technical Management in Technical Management</td>
</tr>
</tbody>
</table>

Course Syllabus

Syllabus: Upload syllabus

Upload syllabus: TCMT 631 - Capstone I - Thompson (1).docx

Letters of support or other documentation: No

Additional information:
Reviewer Comments

Sandra Williams (sandra-williams) (07/19/17 5:47 pm): Made edits to form.
Sandra Williams (sandra-williams) (07/20/17 4:58 pm): Rollback: Please update: syllabus title does not match form; what are the assignments?; late work not accepted - what about university excused absences?; shows old ADA statement.
Sandra Williams (sandra-williams) (09/25/17 4:59 pm): Update received.

Reported to state?

Add
TCMT 631: Capstone Project – I
August 2019
The Second-Year residency

Instructor: Dr. Steve Thompson
Telephone: 512-694-9772
Email: swthompson@aol.com
Location: Fermier Hall, Room 012

Course Description:

This course addresses managing individual or collaborative engineering activities and programs in complex dynamic business environments. The course provides professionals with tools and techniques to execute projects, programs, and product enhancement initiatives that yield desired business results. You will learn through deductive, inductive and abductive analytical and quantitative methods how to document and manage engineering program activities in complex business environments. This course combines lectures, in-class experiences, scenario discussions, reflections, partner exercises, and the practical application of learning beyond the classroom. We will work individually and in teams, use activities, discussions and self directed research.

Prerequisites:
Acceptance to Master of Engineering Technical Management (METM) Program

Overall Course Learning Outcomes
Upon completion of this course, students will be able to:

1. Define a high value engineering project
2. Develop a cogent problem statement including a case for change
3. Develop competitive product and process strategies consistent with the problem statement
4. Apply qualitative and quantitative methods to decision making and problem resolution.
5. Develop knowledge of control methods to anticipate failures in complex environments.
6. Demonstration of leadership skills to manage cross-functionally in a global business environment

Getting Started
To get started within this course, you will need to:

Review the syllabus in its entirety
Login to the course website, eCampus (see directions below), to:
- ensure that you have access and the correct plug-ins installed,
- update your user profile,
- spend some time becoming familiar with the course layout, and
- complete the introductory forum.

Resource Materials & Course Technology
Required Textbook and Resource Materials:
- Selected chapters and articles distributed either in class and/or on Blackboard class site

You can purchase these textbooks from independent retailers, or online retailers.

eCampus:
This course will use the TAMU eCampus, powered by Blackboard Learn, as the virtual classroom. Within eCampus, you can find all course related content and assessments (including but not limited to course materials, content, videos, activities, assessments, etc.). The recommended browsers for eCampus access are Mozilla Firefox or Google Chrome (Internet Explorer is not recommended). For additional information on support browsers for eCampus, please visit http://tx.ag/eCampusBrowserSupport. To login to eCampus:
- Go to http://ecampus.tamu.edu
- Click the Login button
- Use your TAMU NetID and password to login
Once logged into eCampus, you will see a list of all courses for which you are enrolled in for the semester. To navigate to this course, click on the name of the course. If you have any problems logging into the course, please see the technology support section below.

Technology Requirements & Recommendations:
Technology Requirements:
- Reliable and frequent access to a computer and to the high-speed Internet. If you do not have frequent and reliable access to a computer with Internet connection, please contact the instructor to discuss your situation and determine an appropriate solution.
- To attend virtual office hours, students will need to make sure they have setup Bb Collaborate to run on their computer(s) and mobile devices. Please visit http://blackboard.force.com/publickbarticleview?id=kA770000000CbiW to check your system requirements and test your connection.
- It is required to have a microphone and webcam when using Bb Collaborate. While many student use a built in webcam, it is recommended to have a headset with a microphone, such as a smart phone headset, for the virtual office hours and group collaboration.
Students will also need the following software/plug-ins for this course:

- **ADD any requirements for technology or software specific for the course.**

**Technology Recommendations:**
- Google Hangouts can also be used to work collaboratively in a virtual environment for group projects. Students will need to make sure they have claimed a TAMU Google account. To claim and learn more about your account, please visit [http://google.tamu.edu](http://google.tamu.edu).

---

**Course Support**

In addition to contacting the instructor or graduate assistant for course content related questions, there are a variety of campus resources for course support.

**Academic Services Support:**
The Office of Graduate & Professional Studies (OGAPS) offers graduate student services and advocates for graduate education for Texas A&M students who are both on-campus and at a distance. For additional information regarding OGAPS, visit: [http://ogaps.tamu.edu/Home](http://ogaps.tamu.edu/Home)

**Technology Support:**
For technological issues related to eCampus and software, contact the TAMU Help Desk:
- **Student eCampus Help Website,** [http://ecampus.tamu.edu/student-help.php](http://ecampus.tamu.edu/student-help.php)
- **TAMU IT Help Desk:**
  - Website: [http://hdc.tamu.edu/index.php](http://hdc.tamu.edu/index.php) (Online Chat is available)
  - Phone: (979) 845-8300
  - Email: helpdesk@tamu.edu

The TAMU Help Desk is open 24 hours a day 7 days a week. If your technical problems are unable to be resolved within 48 hours, please contact the instructor for additional assistance.

*Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and address issues well in advance of deadlines.*

**Course Activities and Assessments**

Using qualitative and quantitative analysis methods as a basis, this course examines concepts relevant to the effective engineering management of technical decisions and issue resolution to an organizational, product or process issue. In this course, students will learn and engage in a process of critique, selection and development of high value solutions to significant engineering issues. The methodologies of documenting the selection, scope definition and performance work structure of engineering problems are developed. A variety of methods, including , experiential and interactive activities, case studies, and other types of media are used. Students will be encouraged to reflect on their work related experiences throughout the course.

**Determination of Final Grades within the Course**

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100.00%-90.00%</td>
<td>Above 900 points</td>
</tr>
<tr>
<td>B</td>
<td>89.99%-80.00%</td>
<td>800 – 899 points</td>
</tr>
<tr>
<td>C</td>
<td>79.99%-70.00%</td>
<td>700 – 799 points</td>
</tr>
<tr>
<td>D</td>
<td>69.99%-60.00%</td>
<td>600 – 699 points</td>
</tr>
<tr>
<td>F</td>
<td>Less than 59.99%</td>
<td>Below 599 points</td>
</tr>
</tbody>
</table>
## 2019 Residency Week Activities

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday 8/12 Decisions</th>
<th>Tuesday 8/13 Systems</th>
<th>Wednesday 8/14 Data</th>
<th>Thursday 8/15 Methods</th>
<th>Friday 8/16 Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 – 10:00</td>
<td>Intro, Environment Expectations</td>
<td>Complex Systems &amp; Failure</td>
<td>Scientific Method</td>
<td>Six Sigma &amp; Big Data</td>
<td>Product and Process Audits Doc Control</td>
</tr>
<tr>
<td>10:00 – 12:00</td>
<td>Engineering Decision Making</td>
<td>Process Mapping &amp; Product Breakdown Structure</td>
<td>Variance &amp; Randomness</td>
<td>FMEA, 8Ds and similar methods</td>
<td>Consultants and ROI Exam</td>
</tr>
<tr>
<td>12:00 – 1:00</td>
<td>Lunch</td>
<td>Lunch –</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
</tr>
<tr>
<td>1:00 – 3:00</td>
<td>Reasoning and Strategic Thinking</td>
<td>Systems Analysis</td>
<td>Distributions and Sampling</td>
<td>Durability and Product Lifecycle</td>
<td>Project Management Methods &amp; Literature Review</td>
</tr>
<tr>
<td>3:00 – 5:00</td>
<td>Strategy &amp; Single Page Strategy</td>
<td>Systems Confounds &amp; Evidence</td>
<td>Tolerance including GD&amp;T</td>
<td>Leading in Diverse Teams</td>
<td>SPS 1st Pass Review</td>
</tr>
</tbody>
</table>

---

### Course Outline

#### Module 1

**Topics & Assignments**

- Introductions and work environments
- The engineering decision making environment
- Core elements of a problem and Single Page Strategy
- General methods
  - Deductive reasoning
  - Inductive reasoning
  - Abductive reasoning
- Complexity

**Deadlines**

**Watch:**

**Read:** Juran, Joseph M., De Feo Joseph A., Juran’s Quality Handbook, Sixth Edition Chapter 4-6

**Submit:** 8 slide Powerpoint Summary of Day 1

<table>
<thead>
<tr>
<th>Time</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday 8AM</td>
<td></td>
</tr>
</tbody>
</table>
Decision gestalt
- Complex systems
- Complicated systems
- Process mapping
- Product breakdown structure
- Recursion
- Hanoi tower
- Process Mapping
- Systems Mapping
- Evidence

Watch:

Read: Chevallier, Arnaud, Strategic Thinking in Complex Problem Solving
Chapter 1-3

Submit: 500 word summary of chapter 1-3 of Chevallier

Wednesday 8AM

Course Outline

Module 3

Topics & Assignments
- Scientific method
- Variance/Randomness
- Randomness/Simulation
- Probability/Sampling
- Competitive analysis

Watch:

Read: Montgomery, Douglas C., Runger, George C. Applied Statistics and
Probability for Engineers Chapter 8 & 11.

Submit: Answer sheet to take home questions

Thursday 8AM

Module 4

Topics & Assignments
- Industry Methods
- Ford 8D’s
- FMEA
- Form Fit and Function
- Audits/Consultants

Course Outline
<table>
<thead>
<tr>
<th>Topics &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management and Time</td>
<td>Friday 8AM</td>
</tr>
<tr>
<td>Big data and document control</td>
<td></td>
</tr>
<tr>
<td>Liability and project management</td>
<td></td>
</tr>
<tr>
<td>ROI estimating and risk management</td>
<td></td>
</tr>
<tr>
<td>Watch: TBD</td>
<td></td>
</tr>
<tr>
<td>Submit: Take Home Quiz</td>
<td></td>
</tr>
<tr>
<td>Module 5</td>
<td></td>
</tr>
<tr>
<td>Recap of take away assignment by group</td>
<td></td>
</tr>
<tr>
<td>1st pass of single page strategy</td>
<td></td>
</tr>
<tr>
<td>Team rework of proposal with emphasis on ROI</td>
<td></td>
</tr>
<tr>
<td>Team work of proposal acceptance FMEA</td>
<td></td>
</tr>
<tr>
<td>Reverse engineering</td>
<td></td>
</tr>
<tr>
<td>Single Page Strategy</td>
<td></td>
</tr>
<tr>
<td>Problem Statement</td>
<td></td>
</tr>
<tr>
<td>Exam</td>
<td></td>
</tr>
<tr>
<td>Flaws in the timeline</td>
<td></td>
</tr>
<tr>
<td>Relevant book chapters review</td>
<td></td>
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<tr>
<td>Progress through empowerment</td>
<td></td>
</tr>
<tr>
<td>Exam: In Class: multiple choice</td>
<td>1 hour</td>
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<tr>
<td>Read: Lecture Notes</td>
<td></td>
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<tr>
<td>Submit:</td>
<td>Friday 2PM</td>
</tr>
</tbody>
</table>
Course Policies

Attendance Policy:
Attendance and course participation will be measured by participation in discussion forums, submitting assignments, taking quizzes and exams.

Late Work Policy:
LATE WORK will not be accepted except in the event of a university-excused absence. This course relies on discussion, interaction, and group work among class members. Therefore it is essential that work be completed on schedule. At the beginning of every module, you should spend time planning. Read the learning modules very carefully. Punctuality is especially important when assignments impact your classmates. If your schedule impacts others, notify them and me and make alternative arrangements.

If an unforeseen event(s) arises such as a university-excused absence, you must follow the TAMU student rule regarding attendance to makeup these assignments. For more information on TAMU excused absences, please visit http://student-rules.tamu.edu/rule07. If you do not have a university excused absence and miss an assignment, you may see a deduction of a point or two in your overall your grade. If this is a rare occurrence and your work for this class is otherwise excellent, it should make no difference in your final grade for the course. It is only when work is frequently late and/or quality of the work is consistently below standard that your final grade will suffer. In those rare circumstances where an emergency takes you away from the course for an extended period of time, contact your instructor right away to make arrangements.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Power Point Summary of Day 1</td>
<td>100 Points</td>
</tr>
<tr>
<td>2. White Paper on Systems Thinking</td>
<td>100 Points</td>
</tr>
<tr>
<td>3. Answer sheet to take home questions</td>
<td>200 Points</td>
</tr>
<tr>
<td>4. Take home Quiz</td>
<td>100 points</td>
</tr>
<tr>
<td>5. Exam and Class Participation</td>
<td>300 Points</td>
</tr>
<tr>
<td>Total Points</td>
<td>1000 Points</td>
</tr>
</tbody>
</table>
**Incomplete Grade:**
Grades of “INCOMPLETE” will be given only for certifiable medical reasons or in other extraordinary circumstances arranged in advance. If you are planning to be away from your usual location (travel, vacation, etc.) during this course, consider dropping the course or discuss your situation with me and we can see if you will be disadvantaged by your mobility or impacting others’ work.

**Institutional Policies**

**Americans with Disabilities Act (ADA) Policy Statement:**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit [http://disability.tamu.edu](http://disability.tamu.edu).

**Academic Integrity Statement and Policy:**
For many years Aggies have followed a Code of Honor, which is stated in this very simple verse:

"An Aggie does not lie, cheat or steal, or tolerate those who do."

The Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other.

For more information please visit, [http://student-rules.tamu.edu/aggiecode](http://student-rules.tamu.edu/aggiecode) and [http://aggiehonor.tamu.edu/](http://aggiehonor.tamu.edu/)

**Statement of Plagiarism:**
All materials generated for this class (which may include but are not limited to syllabi and in-class materials) are copyrighted. You do not have the right to copy such materials unless the instructor expressly grants permission. As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writing, etc. which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Plagiarism is one of the worst academic violations, for the plagiarist destroys trust among others. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.”

**Export Control Statement:**
United States export control laws regulate the release of goods and technologies that affect U.S. national security or foreign policy interests. Distance education students and course content MUST comply with these U.S. export control laws. If TAMU indicates that you are attempting to access course content from an IP address associated with a country currently subject to economic and trade sanction, your TAMU NetID account will be terminated and you will be contacted by the TAMU Export Control Office and the Office of Identity Management. For additional visit, [https://vpr.tamu.edu/resources/export-controls/resources](https://vpr.tamu.edu/resources/export-controls/resources).
Explore the area of Emotional Intelligence (EQ), identify personal EQ competencies and areas for improvement, and build on these competencies and skills. Manage our emotions, anticipate and work with the emotions of others. We will work individually and in teams, use activities, discussion and reflection to attain our objectives.

We encourage you to be open to change and to cultivate your desire to improve. You can only change yourself—nobody else can change you and you can’t change anyone else! We want you to apply a rigorous process of acting→observing→reflecting→planning→acting… as you work you will build on your strengths and learn to compensate for your weaknesses. You will work together, support one another, and learn a process that should continue throughout your life. Course assignments will be designed to prompt students to actively participate in their learning through critical inquiry; by listening and contributing to class discussion; in reading broadly from research sources and writing original works.

Our work together will be done both during class sessions and between class sessions. Class time will include lectures, discussion, exercises, sharing, feedback, and group work. We will introduce ideas and perspectives and then begin to develop skills. You will participate in some group activities: a “team-building” exercise, a service project, and an in-class presentation.

This hands-on course will prepare you to use the skills of emotional intelligence in your career and life. This is NOT a "self-help" course. It is intended for those who realize there is always more to learn around important, complex topics and that emotional intelligence is as crucial in the workplace as the more traditional forms of intelligence that are emphasized in academic life. Many lectures will include guided practice in aspects of emotional intelligence such as stress management, communication skill building and enhancing positive emotion. These experiences are designed to enhance each participant's abilities to better deal with academic, career, and life issues. We welcome graduate students from all disciplines who want to cross the boundaries between psychology and neuropsychology, business and human values, and are open to exploring ways of thinking that emphasize honest reflection, openness to experience and self-awareness. Through a series of hands-on exercises, a range of assessments and lectures about aspects of emotional competence and success, participants can broaden their vision of success and what satisfies them.
Course Change Request

New Course Proposal

Date Submitted: 09/05/17 9:55 am

Viewing: TCMT 632 : Developing New Products

Last edit: 09/11/17 3:55 pm

Changes proposed by: jsass

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan Sass</td>
<td><a href="mailto:jsass@tamu.edu">jsass@tamu.edu</a></td>
<td>979-458-5083</td>
</tr>
<tr>
<td>Dr. Ben Zoghi</td>
<td><a href="mailto:zoghi@tamu.edu">zoghi@tamu.edu</a></td>
<td>979-676-3533</td>
</tr>
</tbody>
</table>

Course prefix  TCMT          Course number  632
Department     Eng Tech & Ind Distribution
College/School College of Engineering
Academic Level Graduate
Academic Level (alternate) Undergraduate
Effective term 2018-2019

Complete Course Title
Developing New Products

Abbreviated Course Title
DEVELOPING NEW PRODUCTS

Catalog course description
Provides a technical background and understanding into the expectations, interactions, dependencies, deliverables and key components necessary to position new product within industry and utilizing the New Product and Service Development process (NSPD); relevant for managers of innovation interested in exploring new products and services as an asset class and underpin market success; based around five key areas underpinning NSPD; introduction to real life examples and opportunities to utilize the entire NSPD process to develop a mock product.

Prerequisites and Restrictions
Admission to the Master of Engineering Technical Management program.

Concurrent Enrollment No
Should catalog prerequisites / concurrent enrollment be enforced? No

Crosslistings No Crosslisted With
Stacked No Stacked with

Semester 3 Credit Hour(s) Lecture: 3 Lab: 0 Other: 0 Total 3
Repeatable for credit? No

https://nextcatalog.tamu.edu/courseleaf/approve/#
<table>
<thead>
<tr>
<th>Three-peat?</th>
<th>No</th>
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<td>Letter Grade(G)</td>
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<tr>
<td>Alternate Grade Modes</td>
<td>Satisfactory/Unsatisfactory</td>
</tr>
<tr>
<td>Method of instruction</td>
<td>Lecture</td>
</tr>
<tr>
<td>Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Learning Outcomes**

Does not meet traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met.

This course will only be offered in a non-traditional format; therefore, it will not have traditional face-to-face learning outcomes to compare to.

**Hours**

Meets traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met.

Students will have 15 weeks to complete the course. Each week, students will be given about 3 hours of activities seen in face-to-face offerings in the format of audio and video lectures, podcasts, videos, online discussions, and/or group work. Students will have about 90 hours of work outside of class time such as reading from assigned books/articles/case studies and completing assignments such as papers, quizzes, and course projects.

**Will this course be taught as a distance education course?**

Yes

**I verify that I have reviewed the FAQ for Export Control Basics for Distance Education.**

Yes

**Is 100% of this course going to be taught in Texas?**

Yes

**Will classroom space be needed for this course?**

No

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Required (select program)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(MET-TCMT) Master of Engineering Technical Management in Technical Management</td>
</tr>
</tbody>
</table>

**Course Syllabus**

Syllabus: Upload syllabus

Upload syllabus: [TCMT 632- Developing New Products.docx](https://nextcatalog.tamu.edu/courseleaf/approve/#)
<table>
<thead>
<tr>
<th>Date and Time</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/19/17 5:51 pm</td>
<td>Sandra Williams (sandra-williams): Made edits to form.</td>
</tr>
<tr>
<td>07/20/17 4:58 pm</td>
<td>Sandra Williams (sandra-williams): Rollback: Please update: syllabus prerequisites missing - must match form; what are the assignments?; syllabus appears to be incomplete; late work not accepted - what about university excused absences?; shows old ADA statement; grading scale missing; what are the grade weights (projects, exams, etc.)?</td>
</tr>
<tr>
<td>09/05/17 8:31 am</td>
<td>Sandra Williams (sandra-williams): Rollback: New questions were added to the form effective September 1 per new requirements. Please answer and resubmit. (Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)?)</td>
</tr>
<tr>
<td>09/11/17 3:58 pm</td>
<td>Sandra Williams (sandra-williams): Update received.</td>
</tr>
</tbody>
</table>

**Letters of support or other documentation:** No

**Additional information:**

**Reported to state?**

Add
TCMT 632: Developing New Products
Spring First Year 2019

100% Online course through eCampus platform (http://ecampus.tamu.edu)

Instructor: Ronald L. Lerner
Telephone: (832) 314-6360
Email: rlerner@tamu.edu
Location: Online

Course Description:
This course is designed to provide a technical background and understanding into the expectations, interactions, dependencies, deliverables, processes, procedures, and key components necessary to position new products and services within industry and utilizing the New Product and Service Development (NPSD) process. The NPSD is a critical business processes through which successful innovations and proper implementations continues to underpin sustainable growth, especially in new and emerging markets. As such, this course is particularly relevant for managers of innovation who are interested in exploring new products and services as an asset class and hence underpin market success for the organization, and its ecosystem. Course design is based around five key areas underpinning NPSD as a driver of innovation and business growth. This course is comprised of an introduction to the NPSD process and 19 supportive modules, each building on the prior module to properly illustrate the entire NPSD concept. Students will be introduced to real life examples and have an opportunity to analyze the NPSD process to on a successful and failed product.

Prerequisites:
Admission to the METM Program

Overall Course Learning Outcomes:
Upon completion of this course, students will be able to:
1. Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
2. Identify, explain and evaluate the risks associated with new product and services development
3. List the current common methods of tracking a NPSD effort
4. Identify and explain the key dependencies and deliverables associated tracking a NPSD event.
5. Understand the cost impact of a poor design and design execution
6. Identify and list the key factors when determining whether a task, effort, or sub product should be outsourced
7. Describe the interrelationship between the product life cycle process (PLC) and the NPSD process
8. Explain the importance of market assessments, product/process specifications, and validation testing
9. Identify and describe situations and determining factors for using an Agile, traditional waterfall, or hybrid project management styles
10. Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect
Getting Started:
To get started with this course, you will need to:

- Review the syllabus, in its entirety
- Login to the course website, eCampus (See directions below), to:
  - Ensure that you have access and the correct plug-ins installed,
  - Update your user profile,
  - Spend some time becoming familiar with the course layout, and
  - complete the introductory forum

Resource Materials and Course Technology:

- Course material; Provided by instructor (2017)

You can purchase these textbooks from the University Bookstore, or independent retailer, or online retailer. In some cases they may be available for electronic access or viewing.

eCampus
The Course will use the TAMU eCampus, powered by Blackboard Learn, as the virtual classroom. Within eCampus, you can find all related content and assessments (including but not limited to course materials, content, videos, activities, assessments, etc.). The recommended browsers are Mozilla Firefox or Google Chrome (Internet Explorer is not recommended). For additional information on supported browsers for eCampus, please visit: http://tx.ag/eCampusBrowserSupport. To login to eCampus:

- Go to http://ecampus.tamu.edu
- Click the Login Button
- Use your TAMU NetID and password to Login

Once logged into eCampus, you will see a list of all courses for which you are enrolled in for the semester. To navigate to this course, click on the name of the course. If you have any problems logging into the course, please see the technology support section below.

Technology Requirements & Recommendations

Technology Requirements:

- Reliable and frequent access to a computer and to the high-speed internet. If you do not have frequent and reliable access to a computer with internet connection, please contact the instructor to discuss your situation and determine an appropriate solution.
- To attend virtual office hours, students will need to make sure they have setup Bb Collaborate to run on their computer(s) and mobile devices. Please visit http://blackboard.force.com/publickbarticleview?id=kA770000000CbiW to check your system requirements and test your connection.
  - It is required to have a microphone and webcam when using Bb Collaborative. While many students use a built in webcam, it is recommended to have a headset with a microphone, such as a smart phone headset, for the virtual office hours and group collaboration.
- Students will also need the following software/plug-ins for this course
  - Add any requirements for technology or software specific for this course
Goggle Hangouts can also be used to work collaboratively in a virtual environment for group projects. Students will need to make sure they have claimed a TAMU Google account. To claim and learn more about your account, please visit [http://google.tamu.edu](http://google.tamu.edu).

**Course Support:**

In addition to contacting the instructor or graduate assistant for course content related questions, there are a variety of campus resources for course support.

**Academic Services Support:**

The Office of Graduate and Professional Studies (OGAPS) offers graduate student services and advocates for graduate education for Texas A&M students who are both on-campus and at a distance. For additional information regarding OGAPS, visit: [http://ogaps.tamu.edu/home](http://ogaps.tamu.edu/home)

**Technology Support:**

For technological issues related to eCampus and software, contact the TAMU help Desk:

- TAMU IT Help Desk:
  - Website: [http://hdc.tamu.edu/index.php](http://hdc.tamu.edu/index.php) (Online chat is available)
  - Phone: (979) 845-8300
  - Email: helpdesk@tamu.edu

The TAMU Help Desk is open 24 hours a day 7 days a week. If your technical problems are unable to be resolved within 48 hours, please contact the instructor for additional assistance.

*Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and address issues well in advance of deadlines.*

**Course Activities and Assessments:**

This course provides the fundamental background needed to understand the New Product and Services Development (NPSD) process. Activities and assignments are organized to address key variables and attributes used in the NPSD process. Students will be presented with real case examples coupled with individual and group exercises to better grasp the relationship (dependencies) of all inputs to the NPSD process. These examples will be assigned individually and in groups and look at both successes and failures. Course assessment will be based on interactions, understanding of course and subject material (including but not limited to terminology, concepts, and processes), timely completion of assignments, and grasp of the NPSD process from a managers’ and contributors point of view. In particular, students will be required to:

- Identify and understand the key elements of the New Product and Services Development process (NPSD)
- Identify and describe the risks associated with new product development and technologies
- List the current common methods of tracking a NPSD effort
- Understand to cost impact of a poor design and design execution
- List the key decision factors for determining where a task, effort, or sub product should be outsourced
- Understand the product life cycle phases (PLC) and where NPSD fits into it
- Describe the difference and identify when to use an Agile, traditional waterfall, or hybrid project management styles
- Compare and contrast the key important factors in designing a quality product from a legal, moral, economical, and professional aspect
### Determination of Final Grades within the Course:

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**Module Synopsys:** Students are introduced to the central concepts and key elements of the NPSD process at a high level with individual elements being addressed in greater detail in subsequent weeks.

- **Read:** Personal and course Introduction material  
  1st Day

- **Complete:** Students shall individually and without collaboration complete a personal assessment on their current understanding of the NPSD process by identifying the phases or gates typically associated with any new product or service being developed (identify every NPSD phase you are aware showing relationships between each much like a flow chart or state diagram) **[wk 01/cl 01 ex 01]**  
  By middle of 1st week

- **Retain:** Students shall retain their initial understanding of the relative phases to be recalled at a later date

- **Read:** Chapters 1.24 from New Product Development: Design and Analysis (pages 11-14)

- **Complete:** To identify what value the author assigns as a multiplier for the true cost is for established companies per person per month. Students will identify 2 factors that contribute to why companies are below the average (cost per engineer/month), and list a minimum of 6 factors that drive this increased cost beyond the traditionally calculated amounts (number of engineers X salary X person hours). **[wk 01/cl 01 ex 02]**  
  By middle 1st week

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1“ margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-01b” and must include the date completed, students full name, Student ID, title of the course, and instructor.

- **Read:** Chapters 1.25 from New Product Development: Design and Analysis (pages 14-26)

- **Complete:** Students are to work independently and describe what the TTM curve would look like for a new pace maker being developed (utilizing new technologies) and that will have a 12 year design and testing period. Students will explain (under the condition identified) whether the "Market/Customer" and "Competitive" regions along the X-axis will be short or long, and why. Students will apply objective and subjective reasoning to help explain when the time to market is likely to occur (would product or service delivery fall within the market/customer expectation region or within the competitive regions), and what factors could significantly impact the duration of the "Competitive" or "To Long" regions of the chart. Utilizing the chart on page 17, (Figure 1-3) students shall identify which category, categories, or quadrant this product falls within. **[wk 01/cl 01 ex 03]**  
  By middle 1st week

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1“ margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise
shall be titled “TCMT632-01c” and must include the date completed, students full name, Student ID, title of the course, and instructor.

**Key Assessment Topics Covered:**
- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify and explain the key dependencies and deliverables associated tracking a NPSD event
- Explain the importance of market assessments, product/process specifications, and validation testing
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect

### TCMT632-02 NPSD Process, Overview of Phases, PLC, Company Road Maps

**Module Synopsys:** Students are presented with the common phases of the NPSD process in greater detail; this includes assessment and relationship between the various phases and the entire Product Life Cycle

- **Read:** Review the Business Initiative Diagram provided [Diagram 01]  
  1st week

- **Complete:** Students are to work independently, download and examine in detail the business initiative diagram. This document will be utilized later in the course and are the basis from which we will look into greater detail at the NPSD process. Students shall identify a minimum of two (2) differences between the NPSD and PLC, and a minimum of two (2) differences between the PLC and company business plan. [wk 01/cl 02 ex 04]

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-01d” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 01/cl 02 ex 04]

- **Read:** Review the Product Life Cycle Diagram provided [Diagram 02]  
  By end of 1st week

- **Complete:** Students are to work independently, download and examine in detail the PLC phases illustrated in the referenced diagram. This document is for informational purposes only and not intended as exam material. [wk 01/cl 02 ex 05]

- **Retain:** Students shall retain this information for future use. This diagram illustrates the primary differences between the NPSD process, the PLC, and the business Roadmap/ portfolio.

- **Read:** Review the NPD Interdependencies Diagram provided [Diagram 03]  
  By end of 1st week

- **Complete:** Students are to download and examine in detail the referenced diagram / illustration. This diagram reflects the interdependencies of various phases of the NPDS process. This interdependency diagram will be utilized throughout this course. Students shall be able to identify a minimum of ten (10) interacting groups / organizations that can have a significant impact on any NPS program. [wk 01/cl 02 ex 06]

- **Retain:** Student should retain this diagram and examine how it is relevant in their own businesses

**Key Assessment Topics Covered:**
- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify and explain the key dependencies and deliverables associated tracking a NPSD event
- Explain the importance of market assessments, product/process specifications, and validation testing
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect

Continued (to Week 2)
## TCMT632-02 NPSD Process, Overview of Phases, PLC, Company Road Maps – (Continued from Week 1)

**Module Synopsys:** Students are introduced to additional detail on the various NPSD phases. The importance of NPSD phase ordering, processes, and procedures are central to this module and all modules going forward.

- **Read:** Review the NPD Process Diagram provided [Diagram 04] By middle of week 2
- **Complete:** Students are to download and examine in detail the referenced diagram / illustration. This diagram reflects a typical NPD process from conception through release to manufacturing (RTM). This diagram identifies many of the deliverables, dependencies, constraints, and expectations by phase. Throughout this course we will refer to topics identified within this diagram. Students shall be capable of identifying a minimum of three (3) constraints, (3) dependencies and (1) key deliverable from each stage (phase). [wk 02/cl 03 ex 07]
- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-02a” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 02/cl 03 ex 07]. By middle of week 2
- **Read:** Review the NPD Flow Diagram provided [Diagram 05] By middle of week 2
- **Complete:** Students are to download and examine in detail the referenced flow diagram / illustration. This diagram reflects a typical NPD flow from conception through release to manufacturing (RTM). This diagram identifies many of the deliverables, dependencies, constraints, and expectations by phase. Throughout this course we will refer to topics identified within this diagram. Students shall be familiar with the overall flow process. Students shall identify a minimum of 10 contributors to the physical design process and provide a breakdown of involvement for each [wk 02/cl 03 ex 08]
- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-02b” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 02/cl 03 ex 08]. By middle of week 2

## TCMT632-03 Resource Selection, Insourcing, Outsourcing, Off-Shoring, Deliverables & Dependencies

**Module Synopsys:** This module introduces students to the importance of resource selection, insourcing, off-shoring, and outsourcing. Students will continue to examine the importance of deliverables and dependencies of for resources within the NPD process.

- **Read:** Read the sub-module text on resource types and selection By middle 2nd week
- **Complete:** Students shall identify the 5 key factors to a successful technical manager and explain why resource selection is one of the most important. Students shall list the 5 different types of resources identified and the primary benefits or concerns for each type of resource By end of 2nd week
- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-02c” and must include the date completed, By end of 2nd week
Key Assessment Topics Covered:

- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- List the current common methods of tracking a NPSD effort
- Identify and explain the key dependencies and deliverables associated tracking a NPSD event
- Describe the interrelationship between the product life cycle process (PLC) and the NPSD process
- Explain the importance of market assessments, product/process specifications, and validation testing
- Identify and describe situations and determining factors for using an Agile, traditional waterfall, or hybrid project management styles
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect

[Note *: Course week is defined as Monday through Friday]

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<td>[Note *: Course week is defined as Monday through Friday]</td>
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**Module Synopsys:** This module continues to build on the background of elements required to successfully execute a new product development cycle by looking at upfront work and failed efforts and the impact of failed designs.

- **Read:** The sub-module text on failed projects and project overruns By middle 3rd week
- **Read:** The material on Most Common Causes of Project Failures as compile by the International Project Leadership Academy [Ref 01 wk 03 /cl 05] By middle 3rd week
- **Complete:** Students shall review the hand out on common causes of project and program failures. Students using the hypothetical new product development of a mechanical pencil shall select one common failure mechanism from each category (from the hand out) and provide a corresponding result for the hypothetical new design. As an example, under ESTIMATION is listed “Those who will actually perform the work are excluded from the estimating process”, a proper response could be: ESTIMATION: Project feasibility teams failed to research the end product use resulting in a product that did not comprehend the need for a pocket clip. By middle 3rd week
- **Submit:** Students will provide the required information in a written format, each page to be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-03a” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 03/cl 05 ex 10] By middle 3rd week
- **Read:** Read the sub-module text on DFM, DFS, FEED, Simulation and Modeling By middle 3rd week
- **Complete:** Students shall review the written material provided. Students shall be responsible for understanding and applying the concepts of DFM and DFS to the New Product Development Process. Students will be responsible for understanding where and how to apply the concepts of simulation and modeling within the NPD process. [wk 03/cl 06 ex 11] By middle 3rd week

TCMT632-05 Understanding the Cost of Poor Designs In the Product Life Cycle (PLC)

**Module Synopsys:** This module provides a case example of the true cost of a cost over run attributed to resolving of a bug at various stages of the product life cycle.
Read: Students are to review in the NASA paper on cost escalation throughout the product life cycle. Students shall familiarize themself with the three (3) methods discussed and understand the difference between each (Bottom Up, Total-Cost, Top Down Hypothetical). (Publication 01) By end of 3rd week

Complete: Students shall also identify which of the three methods is the most realistic and identify why the authors believe one of the three is most accurate. Students shall provide the estimated cost for the Requirements, Design, Build, Test, and Operation phases assuming X = 1 person-hour and the associated cost for a person-hour is $45.00 USD, $100.00 USD, $70.00 USD, and $55.00 USD respectively) utilizing the preferred method identified in published paper. By end of 3rd week

Submit: Students will provide the required information in a written format, each page shall be single spaced and with 1" margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-03b” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 03/cl 06 ex 12] By end of 3rd week

Key Assessment Topics Covered:
- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify, explain and evaluate the risks associated with new product and services development
- Describe the interrelationship between the product life cycle process (PLC) and the NPSD process
- Explain the importance of market assessments, product/process specifications, and validation testing
- Identify and describe situations and determining factors for using an Agile, traditional waterfall, or hybrid project management styles
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect

[Note *: Course week is defined as Monday through Friday]

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<td><strong>Module Synopsis:</strong> Students are provided with the fundamental concerns and efforts required of every NPSD initiative; they are introduced to the concept of a global product or service and the design requirements and limitations of each</td>
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<tr>
<td>➢ Read: Read introductory text on NPD risk and risk mitigation</td>
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<td>➢ Read: Download and review the diagram on the NPD Risk Mitigation Process [Diagram 06], and the diagrams on risk assessment and management tools [Diagrams 15 and 16]</td>
<td>By middle of 4th week</td>
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<tr>
<td>➢ Complete: Students are responsible for identifying the nine (9) stages of NPD risk mitigation in order. Students shall compile a logical yet subjective reasoning for the ordering identified for each stage of NPD risk mitigation.</td>
<td>By middle of 4th week</td>
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<td>➢ Submit: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-04a” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 04/cl 07 ex 13]</td>
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<tr>
<td>➢ Read: Read introductory text on the NPD risk mitigation detail stages</td>
<td>1st half of 4th week</td>
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<tr>
<td>➢ Read: Download and review the NPD Risk Mitigation Flow Chart diagram [Diagram 07]</td>
<td>By middle of 4th week</td>
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<tr>
<td>➢ Complete: Students are responsible for identifying a minimum of two key elements for each phase / stage of the risk mitigation initiative.</td>
<td>By middle of 4th week</td>
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</tbody>
</table>
### Submit:
Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-04b” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 04/cl 07 ex 14]  
By middle of 4\textsuperscript{th} week

### Read:
- Students are responsible for reading the short introduction to redundancy.  
  2\textsuperscript{nd} half of 4\textsuperscript{th} week
- Students are to download and review the diagram on redundancy [Diagram 08] and retain it for use later in the course and career.  
  By end of 4\textsuperscript{th} week
- Students shall identify differences between each type of redundancy listed in Diagram 08. Students shall also associate the following applications to a particular redundancy type (Data Center server, Hospital surgical power, car spare tire)  
  By end of 4\textsuperscript{th} week
- Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-04c” and must include the date completed, students full name, Student ID, title of the course, and instructor [wk 04/cl 08 ex 15]  
  By end of 4\textsuperscript{th} week

### Complete:
- Students shall understand the relationship between safety and quality within the design process. Students shall contemplate a hypothetical mechanical pencil design and think about both safety and 2 quality related issues.  
  By end of 4\textsuperscript{th} week
- Students shall summarize the relationship between safety and quality within the design process and explain if one can exist without the other and why (or why not). Thinking about out hypothetical mechanical pencil design, students are to identify a minimum of 3 safety related and 2 quality related concerns. Students shall upload the assignment to eCampus or Blackboard (Bd) within the relevant folder. Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-04d” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 04/cl 08 ex 16]  
  By end of 4\textsuperscript{th} week

### Key Assessment Topics Covered:
- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify, explain and evaluate the risks associated with new product and services development
- List the current common methods of tracking a NPSD effort
- Identify and explain the key dependencies and deliverables associated tracking a NPSD event
- Explain the importance of market assessments, product/process specifications, and validation testing
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect
Module Synopsis: *Students are introduced to the importance of documentation in the NPD process, the types of documentation that can be encountered or required, and the responsible parties for each.*

<table>
<thead>
<tr>
<th>Week 05</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
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</thead>
<tbody>
<tr>
<td>TCMT632-08 Documentation, Cost Accountability, Cost Reductions</td>
<td><strong>Read</strong>: Students are responsible for reading the introduction material on Documentation, Cost Accountability, and Cost Reductions.</td>
<td>By beginning of 5th week</td>
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<td><strong>Retain</strong>: Students shall download and review the diagrams for overall and general NPD documentation [Diagrams 09 and 10], Students shall familiarized themselves with the documentation, owners, and contributors across a standard organization. This material should be retained and reused by the student throughout this course and there career. [wk 05 cl 09 ex 17]</td>
<td>By beginning of 5th week</td>
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<td><strong>Read</strong>: Students are responsible for reading the introduction material on NPD engineering documentation.</td>
<td>By middle of 5th week</td>
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<td></td>
<td><strong>Complete</strong>: Students shall download and review the engineering related documents diagram [Diagram 11], be responsible for identifying the contributors, and documents. This exercise is design to better illustrate the amount of documents the engineering department owns or participates in the development of. Students are to retain this information for use throughout this course and there career [wk 05 cl 09 ex 18]</td>
<td>By middle of 5th week</td>
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<td><strong>Read</strong>: Students are responsible for reading the continued introduction material on NPD engineering documentation.</td>
<td>By middle of 5th week</td>
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<td></td>
<td><strong>Complete</strong>: Students shall download and review the remaining diagrams illustrating additional NPD document types [Diagrams 12, 13, and 14] and familiarize themself with the relevant documents and appropriate owning organizations. This assignment is not turned in. The purpose of this exercise is to further illustrate the document types and impact to each organization. Students are to retain this information for use throughout this course and there career [wk 05 cl 09 ex 19]</td>
<td>By middle of 5th week</td>
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<td><strong>Read</strong>: Students are responsible for reviewing the brief introduction on detailed documentation.</td>
<td>By end of 5th week</td>
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<td><strong>Retain</strong>: Students shall download and thoroughly review the compiled paper titled &quot;NPD Project Documentation Description&quot;. Students shall familiarize themselves with all documents listed and associated acronyms as they related to Diagrams 09-14. Students are also provided with a NPD Project Documentation Checklist which should also be downloaded and retained for use in this course and for future use in the student’s career. [wk 05 cl 10 ex 20]</td>
<td>By end of 5th week</td>
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<td><strong>Read</strong>: Students are responsible for reviewing the NPD Project Documentation as is applies to a new project defined as a mechanical pencil</td>
<td>By end of 5th week</td>
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<td><strong>Complete</strong>: Students shall submit in writing a detailed listing of documents, specifications, and requirements would be required to properly develop a new designed mechanical pencil. Students should pull names from the NPD Project Documentation Description list. [wk 05 cl 10 ex 21]</td>
<td>By end of 5th week</td>
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<td><strong>Submit</strong>: Students will provide the required information in a written format, each page shall be single spaced and with 1&quot; margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-05a” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 05 cl 10 ex 21]</td>
<td>By end of 5th week</td>
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</table>

**Key Assessment Topics Covered:**
- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify, explain and evaluate the risks associated with new product and services development
- Identify and explain the key dependencies and deliverables associated tracking a NPSD event
- Identify and list the key factors when determining whether a task, effort, or sub product should be outsourced
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect

### Week 06 Activities & Assignments

<table>
<thead>
<tr>
<th>TCMT632-08</th>
<th>Documentation, Cost Accountability, Cost Reductions</th>
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<tbody>
<tr>
<td>TCMT632-07</td>
<td>Vendor, Component &amp; Part Selection, Control and Traceability</td>
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</tbody>
</table>

#### Module Synopsys: Students are introduced to the importance of documentation in the NPD process, the types of documentation that can be encountered or required, and the responsible parties for each.

- **Read:** Students are responsible for reading the introduction material on cost accounting
  - By middle of 6th week
- **Complete:** Students shall complete the exercise on cost estimation of adding an additional resource. Students will be responsible for assessing the situation given the provided material and shall provide in writing a subjective and quantifiable analysis to support or reject the option of adding a resource to meet schedule. Students shall identify utilizing the supplied spreadsheet to calculate (first approximation) the ERMT, ETAC, and NMF given the information provided. [wk 06 cl 11 ex 22]
  - By middle of 6th week
- **Submit:** Students shall compose a short (1-2 paragraphs) summary analysis of whether the “Add” a resource selected in this exercise was the correct selection or if the “Change” or “Leave” options would have been a better selection and why. Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-06a” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 06 cl 11 ex 22]
  - By end of 6th week

- **Read:** Students shall read the information provided for this section
  - By end of 6th week
- **Complete:** Students shall complete the exercise on cost reduction of a new product or service. Students will be responsible for identifying and understanding the factors to consider when looking to incorporate cost reductions up front in the new product or service design. [wk 06 cl 12 ex 23]
  - By end of 6th week
- **Submit:** Students shall provide in writing a minimum of one possible cost reduction effort that could considered when designing a mechanical pencil. In a minimum of one paragraph, students shall provide both justification and the potential risk for their recommended cost reduction initiative and whether the benefit out ways the risk. Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-06b” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 06 cl 12 ex 23]
  - By end of 6th week

#### Key Assessment Topics Covered:
- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify, explain and evaluate the risks associated with new product and services development

TCMT 632 Rev. 18 - Ronald L. Lerner 2017
Identify and explain the key dependencies and deliverables associated tracking a NPSD event

Identify and list the key factors when determining whether a task, effort, or sub product should be outsourced

Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect

TCMT632-07 Vendor, Component & Part Selection, Control and Traceability

- **Read:** Students shall read the information provided for this section. By end of 6th week

- **Complete:** Students shall download and review in detail the diagram on Vendor Selection Process [Diagram 18]. Students shall also review the introduction information provided in this section on vendor selection. Students shall complete the exercise on vendor selection. Students will be responsible for identifying and understanding the factors to consider when selecting a suitable vendor. [wk 06 cl 12 ex 24] By end of 6th week

- **Submit:** Students shall provide in writing a minimum 12 factors to consider when selecting a suitable vendor and a detailed explanation of which factor would be considered most important when designing a mechanical pencil. Students shall provide in writing the definition of a single sourced part and provide an example of when utilizing a single source part would and would not be recommended. Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-06c” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 06 cl 12 ex 24] By end of 6th week

- **Read:** Students shall review in detail the material provided on part and component selection. By end of 6th week

- **Complete:** Students shall complete the exercise on component and part selection. Students will be responsible for identifying the critical factors to consider when selecting a suitable component or part [wk 06 cl 12 ex 25] By end of 6th week

- **Submit:** Students shall provide in writing a minimum 5 of the critical areas to consider then selecting or approving a part or component for a new product being designed. Utilizing the same mechanical pencil project used previously, students shall explain in a minimum of one paragraph each why serviceability and Black-Market parts are important considerations. Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-06d” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 06 cl 12 ex 25] By end of 6th week

- **Read:** Students shall read the information and case examples provided on part control and traceability. By end of 6th week

- **Complete:** Students will be responsible for the information provided and for comprehending the importance of part traceability and part control. [wk 06 cl 12 ex 26] By end of 6th week

- **Retain:** Students should retain this information in any manner that they can readily use it in this course or in their professional careers. [wk 06 cl 12 ex 26] By end of 6th week

**Week 07**

<table>
<thead>
<tr>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
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<tr>
<td>Read:</td>
<td>By end of 6th week</td>
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<td>Complete:</td>
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<td>Submit:</td>
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<td>Read:</td>
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<td>Complete:</td>
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<td>Retain:</td>
<td>By end of 6th week</td>
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[Note *]: Course week is defined as Monday through Friday
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<tr>
<th>TCMT632-09 Technology, Limitations, Liabilities, Intellectual Property</th>
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<tbody>
<tr>
<td><strong>Module Synopsys</strong>: This module examines the importance of technology in new designs, its limitations, and legal aspects of a technical manager when working on NPD.</td>
</tr>
<tr>
<td>➢ <strong>Read</strong>: Students shall be review the referenced material on the use of new technology, its limitations, and liabilities.</td>
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<tr>
<td>➢ <strong>Complete</strong>: Students will be responsible for the information provided and for comprehending the importance of new technologies, causes of design failures utilizing new technologies, and new product design liabilities. Students shall download and review Diagram 19 to better understand the importance of Sigma levels on quality.</td>
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<td>➢ <strong>Submit</strong>: Students shall provide in writing a minimum of one paragraph identifying a minimum of 5 historical reasons why the use of new technology in a new designs fails. In a separate paragraph students shall select from the liability mitigation guidelines one guideline and explain in detail as how the selected guideline would apply to the new design of a mechanical pencil. In a separate paragraph each, students shall provide an example for a short cut and a quality liability as it would apply to the new design of a mechanical pencil. Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-07a” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 07 cl 13 ex 27]</td>
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<tr>
<td>➢ <strong>Read</strong>: Students shall be review the referenced material pertaining to the responsibilities of a design manager, types of patents, liability groupings, Intellectual Property, and IP classifications.</td>
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<td>➢ <strong>Complete</strong>: Students will be responsible for the information provided and for comprehending the responsibilities of a design manager. Students shall also understand and be capable of identifying and distinguishing between the different types of patents and design liabilities as well and understand the role and importance of intellectual property in the design process. Students shall download and review the diagram on IP categories [Diagram 20]</td>
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<td>➢ <strong>Submit</strong>: Students shall submit in writing a minimum of one paragraph defining and describing at least three of the responsibilities of a technical design manager. Students shall also submit a minimum of one paragraph identifying the types of patents currently available through the USPO and label which two are most commonly associated with new product or service designs. After a thorough review of the section on product liability and intellectual property students will list the four liability groupings as identified in the section material provided. Students shall also provide in writing the identified amount of US revenue estimated to be lost that is attributed to loss intellectual property. Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-07b” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 07 cl 13 ex 28]</td>
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<th>TCMT632-10 Changes, Roadmaps, Product Portfolios</th>
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<tr>
<td><strong>Module Synopsys</strong>: This module examines the impact of changes on the NPD process. It also looks at the benefits of designing for a roadmap and the different between roadmaps and product portfolios.</td>
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</table>
- **Read:** Students shall be review the referenced material compiled on changes and the source of changes to the NPD process. **By middle of 7th week**

- **Complete:** Students shall review the ECR/ECO/ECN **Diagram 21** and be capable of recalling in order the process steps as presented. Students shall also review **Diagram 22** and be familiar with a typical breakdown of efforts within the NPD process. Students will be responsible for identifying what process should controls change requests and under what organization this process is managed. Students shall also identify which NPD phase is more likely to require a greater engineering effort. **By middle of 7th week**

- **Submit:** Students shall download and review both **Diagram 21** (and be capable of recalling the details of the ECR process and related steps) & **Diagram 22** (and be capable of recalling the typical engineering percentage assigned for technology programs based on past experience). Students shall submit in writing a minimum of one paragraph identifying which NPD phase would require more total engineering effort for change requesting a mechanical difference between the design feasibility and design freeze phases and explain in detail why the selection was chosen. Students shall identify in writing in a subsequent paragraph the leading indicator of time used within the NPD process. [wk 07 cl 14 ex 29]. Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-07c” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 07 cl 14 ex 29] **By middle of 7th week**

- **Read:** Students shall review the referenced material compiled on product portfolios and product roadmaps. Students shall download and review **Diagram 23** on product portfolios and be capable of applying the concept to other product fields when requested. Students shall also download and review **Diagram 24** on product roadmaps and recognize the importance of products roadmaps on company growth. **By middle of 7th week**

- **Complete:** Students shall be capable of recognizing the concept of a product portfolio as it applies to other markets and products at a later date. Students shall be capable of recognizing the concept of a product roadmap as it applies to other markets, products, or companies at a later date. Students shall also be capable of evaluating a product portfolio and product roadmap and explain if these two concepts can be the same if requested at a later date. [wk 07 cl 14 ex 30] **By end of 7th week**

- **Retain:** Students should retain this information in any manner that they can readily use it in this course or in their professional careers. [wk 07 cl 14 ex 30] **By end of 7th week**

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TCMT632-12 Lessons Learned, Best Practices, Feedback, Continuous Improvements, Quality, Lean Six Sigma

**Module Synopsis:** This module examines the importance of a quality design relative to cost and schedule and provides basic principles to aid a technical NPD manager

- **Read:** Students shall review the referenced material regarding 7 basic principles for a quality design. Students shall review the detailed differences of various Sigma levels of quality as identified in **Table 26**. Students shall be capable of assessing various levels of quality and determine reasonable rates and provide support for the level selected. Students shall review the material presented for the example regarding transistor selection. All students shall review **Diagrams 25** which illustrates many of the quality domains a NPD initiative will cover. **Table 26** is again referenced to enforce the need for quality in a new product design. Students are to review in detail **Diagram 27**. **By middle of 7th week**
which illustrates the cost of good and bad quality relative to the areas of impact.

- **Complete:** Students shall complete the exercises on quality, quality levels, and cost of quality when dealing with new product designs. Students will be responsible for understanding in sufficient detail the cost of good and poor quality, the impact of failures, quality domains, and the general concept of Six Sigma as it applies to quality.

- **Submit:** Students shall provide a logical and well-constructed reason why service quality is a quality domain and listed under the Engineering Design responsibility based on Diagram 25. Students shall identify and justify in writing (minimum 1 paragraph) in a separate paragraph (Based on Table 26) which 6 Sigma level would be appropriate for a medical pacemaker manufacture to achieve. With respect to Diagram 27, students shall provide in writing two examples for each vertical category (Inside Related Cost of Failure, Outside Related Cost of Failure, & Control Costs, Preventive Costs) with a brief explanation of why the example chosen belong in the categories selected. Students shall provide in a separate paragraph what the expected product quality first pass failure percentage rate is estimated to be when 350 of the same parts are used in the same product with a 99.95% good quality rating. Students shall within in the same paragraph identify which 6-Sigma level this equates to. [wk 07 cl 14 ex 31]

Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-07d” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 07 cl 14 ex 31]

- **Read:** Students shall review the referenced material compiled on best practices, and continuous improvements. Students shall review Diagram 28 on typical best practices associated with new product design and development. Students shall review Diagram 29 and be familiar with the concepts of continuous improvement and have it can be applied to the NPD process and the impact obtained.

- **Complete:** Students shall complete the exercises on best practices and continuous improvements. Students will be responsible for understanding in sufficient detail the types of best practices, the impact of best practices, on the design process, and the application and justification for continuous improvements in a new product design or redesign.

- **Submit:** After a thorough review of Diagram 28, students shall identify whether the set of best practices over all is a static or fluid process along with a detailed 1-2 paragraph on why the “Alternative Solution Analysis” best practice may or may not change over time. Students shall also compose in 1-2 paragraphs why Competitive Evaluations belongs as a best practice under the New Product Development category instead of the Product Planning category. Students shall review Diagram 29 and compose a 1 -2 paragraph describing in their own terms the benefits and potential pitfalls to the concept of continuous improvement. Students shall provide in a single paragraph a component that has benefited from the concepts; economy of scale or volume purchasing relative to a calculator. Students shall identify and describe in sufficient detail the impact to the product (calculator) if economy of scale or volume purchasing was not designed in and applied initially (or on subsequent redesigns). Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New
Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-07e” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 07 cl 14 ex 32]

**Key Assessment Topics Covered:**
- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify, explain and evaluate the risks associated with new product and services development
- Understand the cost impact of a poor design and design execution
- Describe the interrelationship between the product life cycle process (PLC) and the NPSD process
- Explain the importance of market assessments, product/process specifications, and validation testing
- Identify and describe situations and determining factors for using an Agile, traditional waterfall, or hybrid project management styles
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect

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| Note *: Course week is defined as Monday through Friday |
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<tr>
<td><strong>TCMT632-11</strong> Design Principles and Practices</td>
<td><strong>Module Synopsys</strong>: Students are introduced to design principles and practices that are typically common to a variety of products and services with focus on the technical management of the design.</td>
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<tr>
<td><strong>Read</strong>: Students shall read chapter 6 on execution from the relevant text book (pages 198-219) and review the referenced material compiled on design concept, feasibility, and definition stages of the design phase. Students shall review Diagrams 01 – 05 regarding the product life cycle, new product development process, and the NPD process flow chart. Students shall review the product feasibility chart; Diagram 17, and Diagram 30 for the concept, feasibility, and definition steps.</td>
<td>1st half of 8th week</td>
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<td><strong>Complete</strong>: Students shall review the concept, feasibility, and definition steps from Diagram 30 and shall be capable of identifying the members of the typical assessment and evaluation teams for each of the three first stages. Student shall also of identifying the primary purpose of each step as well as the order of each step in the design cycle. Students shall be responsible for compiling in a minimum of 1 paragraph a logically deduced reason what ROI stands for and why it is a key consideration when considering product feasibility. In a separate paragraph students shall identify the 4 criteria that the concept or idea phase must answer before proceeding onward to the next step. Students shall also compose in a minimum of 1 additional paragraph identifying the key document from the concept, feasibility, and definition stages of the design cycle and what the document is designed or intended to accomplish or cover.</td>
<td>By middle of 8th week</td>
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[wk 08 cl 15 ex 33]
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<tr>
<th>Task</th>
<th>Instructions</th>
<th>Deadline</th>
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<tr>
<td><strong>Submit</strong></td>
<td>Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-08a” and must include the date completed, students full name, Student ID, title of the course, and instructor.</td>
<td>By middle of 8th week</td>
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<tr>
<td><strong>Read</strong></td>
<td>Students shall read chapter 3 (pages 82 – 131) from the referenced textbook “New Product Development; Design and Analysis” by Ronald Kmetovicz. Students acquaint themselves with the authors recommended product or service definition tool and the different types of product visions discussed. Students shall be capable of identifying and recalling the author’s product vision definitions and shall review the TTM calculations for hardware projects and be capable of applying it in a hypothetical situation.</td>
<td>1st half of 8th week</td>
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<tr>
<td><strong>Complete</strong></td>
<td>Students shall identify a minimum of 5 different concepts or visions from the reading and in 1-2 paragraphs identify or provide an example for each. Students shall utilize the hardware TTM formula to calculate in a separate paragraph the results expected for a project timeframe (in years) given the following variables: the number of engineers assigned is 7, the number of unique components is 3,000, the efficiency (components per day) is rated at 1.0 and the number of working days per year is 250. In a separate paragraph students shall assess an alternate TTM calculation where the following variables: the number of engineers assigned is 5, the number of unique components is 3,000, the efficiency (components per day) is rated at 1.4 and the number of working days per year is 250. In this second assessment students shall determine if the duration is the same, more or less, and which condition is most preferable from a performance and cost benefit.</td>
<td>By middle of 8th week</td>
</tr>
<tr>
<td><strong>Submit</strong></td>
<td>Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-08b” and must include the date completed, students full name, Student ID, title of the course, and instructor.</td>
<td>By middle of 8th week</td>
</tr>
<tr>
<td><strong>Read</strong></td>
<td>Students shall read chapter 3 (pages 82 – 131) from the referenced textbook “New Product Development; Design and Analysis” by Ronald Kmetovicz. Students shall review the TTM calculations for software projects and be capable of applying it in a hypothetical situation.</td>
<td>1st half of 8th week</td>
</tr>
<tr>
<td><strong>Complete</strong></td>
<td>Students shall utilize the software TTM formula to calculate in a separate paragraph the results expected for a project timeframe (in years) given the following variables: the number of engineers assigned is 10, the number of lines of code is 100,000, the efficiency (code lines per day) is rated at 25 and the number of working days per year is 250.</td>
<td>By middle of 8th week</td>
</tr>
<tr>
<td><strong>Submit</strong></td>
<td>Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-08c” and must include the date completed, students full name, Student ID, title of the course, and instructor.</td>
<td>By middle of 8th week</td>
</tr>
<tr>
<td><strong>Read</strong></td>
<td>Students shall thoroughly understand the design concept/idea phase. Students shall read the referenced material; familiarize themselves with Diagram 30, specifically the pre-design checklist section, and Diagram 34 and be capable of recalling.</td>
<td>1st half of 8th week</td>
</tr>
</tbody>
</table>
and applying the information obtained to a hypothetical product to be developed.

- **Complete:** Students shall identify three important initiatives that the NPD manager is responsible for during this portion of the design cycle and in a separate paragraph identify the impact to a product or service under development should this step be omitted or circumvented in the design process. In an additional paragraph students shall also identify three pre-design phase mandatory documents that a NPD manager must have in order for the product or service to be designed successfully and explain why each is deemed mandatory.

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-08d” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 08 cl 15 ex 36]

**Key Assessment Topics Covered:**
- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify, explain and evaluate the risks associated with new product and services development
- List the current common methods of tracking a NPSD effort
- Identify and explain the key dependencies and deliverables associated tracking a NPSD event.
- Understand the cost impact of a poor design and design execution

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**Note:** Course week is defined as Monday through Friday

<table>
<thead>
<tr>
<th>Week 08 Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT632-11 Design Principles and Practices –Con’t</td>
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<tr>
<td><strong>Module Synopsys:</strong> Students are introduced to design principles and practices that are typically common to a variety of products and services with focus on the technical management of the design.</td>
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</tr>
<tr>
<td><strong>Read:</strong> Students shall read the referenced notes provided on the formal design phase of the design cycle process. Students shall review Diagrams 35 and 36 in detail and be capable of recalling the relevant information from Diagrams 04, 05, and be versed on the typical requirements for the formal physical design phase from Diagram 30.</td>
<td>2nd half of week</td>
</tr>
<tr>
<td><strong>Complete:</strong> Students shall identify in a single paragraph the key steps listed from Diagram 35 that should always occur prior to the actual design start and explain why completion of these steps is important to the success of every project from a NPD managers perspective. In a separate paragraph of the same document students shall describe the recommended executive level of communication described and explain why communication can be the cause for continued new product design failures.</td>
<td>By end of 8th week</td>
</tr>
<tr>
<td><strong>Submit:</strong> Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-08e” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 08 cl 15 ex 37]</td>
<td>By end of 8th week</td>
</tr>
</tbody>
</table>
- **Read:** Students shall read the chapters on plan analysis (chapter 5) and execution (chapter 6) from the relevant text book (pages 162-219), New Product Development – Design and Analysis
  - **2nd half of 8th week**

- **Complete:** In 1-2 paragraphs, students shall describe the general concept of a KEMET chart as is applies to the NPD initiative. In an additional paragraph within the same paper students shall list the three functions a KEMET chart serves to a NPD manager. Students shall provide in a separate paragraph 4 examples that the author lists (from the text book) for problems identified and shall elaborate by providing a detailed example from a hypothetical NPD design initiative for a car stereo. **[wk 08 cl 15 ex 3]**
  - **By end of 8th week**

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1" margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-08f” and must include the date completed, students full name, Student ID, title of the course, and instructor. **[wk 08 cl 15 ex 3]**
  - **By end of 8th week**

- **Read:** Students shall review Diagram 35 in detail and be capable of understanding the entire formal physical design process as illustrated step by step. Students shall review Diagram 30, specifically the design and post design checkpoint questions.
  - **2nd half of 8th week**

- **Complete:** Students shall identify in 1-2 paragraphs the key gates and sub-stages identified in Diagram 35 and provide supportive reasoning why each step listed is critical to the successful management of a new product design effort. Students shall select 3 questions from the design and post design checklist and provide sound reasoning why the selected questions are relevant to the formal design stage of the design cycle. **[wk 08 cl 15 ex 3]**
  - **By end of 8th week**

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1" margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-08g” and must include the date completed, students full name, Student ID, title of the course, and instructor. **[wk 08 cl 15 ex 3]**
  - **By end of 8th week**

- **Read:** Students shall review the relevant section for the design freeze stage from Diagram 31 in detail and be capable of elaborating on the dependencies, deliverables and participants. Students shall review Diagram 35 and understand the path recommended for a NPD design should it fail the design freeze review.
  - **2nd half of 8th week**

- **Complete:** Students shall identify in 1-2 paragraphs the primary inputs, outputs, and purpose for the design freeze phase. Students shall identify in a separate paragraph the recommended path, procedure, and party responsible for facilitating the resolution for the areas of non-compliance that resulted in the failed review. **[wk 08 cl 15 ex 40]**
  - **By end of 8th week**

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1" margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-08h” and must include the date completed, students full name, Student ID, title of the course, and instructor. **[wk 08 cl 15 ex 40]**
  - **By end of 8th week**

- **Read:** Students shall review the relevant section for the design verification and validation stage from Diagram 37 in detail and be capable of elaborating on the key elements of this stage.
  - **2nd half of 8th week**
Complete: Students shall identify in 1-2 paragraphs a minimum of 4 of the major responsibilities identified for a new product design manager during the verification and validation stage. Students shall identify in a separate paragraph where in the design validation and verification stage where formal software testing (using the flow illustrated) would occur and the NPD design manager’s responsibility should software integration validation fail.

[wk 08 cl 15 ex 41]

By end of 8th week

Submit: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-08)” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 08 cl 15 ex 41]

By end of 8th week

Key Assessment Topics Covered:
- List the current common methods of tracking a NPSD effort
- Identify and explain the key dependencies and deliverables associated tracking a NPSD event. Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect

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Week 09

NPD – Concepts and Ideas (Practical Application)

Module Synopsis: Students will apply key concepts introduced in previous modules and be required to apply the basic concepts and principles as a new product design manager for a hypothetical project. This module deals specifically with the product concept and idea stage of the design cycle.

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<tr>
<th>Week 09</th>
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<tbody>
<tr>
<td>TCMT632-13</td>
<td>NPD – Concepts and Ideas (Practical Application)</td>
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<tr>
<td>Read: Students shall read the introductory section that sets up the remaining 7 modules</td>
<td>Beginning of 9th week</td>
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<tr>
<td>Complete: Students shall identify in 1-2 paragraphs from the information provided what steps have been correctly and incorrectly taken, and what the proper process, procedure, and documentation should be to handle this initiative by the NPD design manager. Additionally students should identify what dependencies or inputs a NPD design manager should expect at a minimum to accept the effort. [wk 09 cl 17 ex 42]</td>
<td>By middle of 9th week</td>
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<tr>
<td>Submit: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-09a” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 09 cl 17 ex 42]</td>
<td>By middle of 9th week</td>
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<tr>
<td>Read: Students shall review the relevant information for the concept and idea stage and be capable of formulating a response from a design manager’s perspective.</td>
<td>Beginning of 9th week</td>
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<tr>
<td>Complete: Students shall identify in 1-2 paragraphs from the information previously provided what documents should be required or expected prior to starting the concept or idea analysis, justification for your selection, and</td>
<td>By middle of 9th week</td>
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</tbody>
</table>
what three elements are considered required for every concept or idea to be considered. [wk 09 cl 17 ex 43]

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-09b” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 09 cl 17 ex 43]  
  By middle of 9th week

- **Read:** Students shall recall the previously presented information for the concept and idea stage and apply the general concepts to the hypothetical mechanical pencil program.  
  By middle of 9th week

- **Complete:** Students shall identify in 1-2 paragraphs answers to the fundamental questions every new product concept or idea proposal must address. In a separate paragraph within the same document, students shall assess the impact of a proposal for a new mechanical pencil design from a NPD design manager’s perspective for the impact to the program when no market analysis or cost guidelines are presented. In a separate paragraph students shall the key take away from the concept and ide stage. [wk 09 cl 18 ex 44]  
  By end of 9th week

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-09c” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 09 cl 18 ex 44]  
  By end of 9th week

- **Read:** Students shall recall the previously presented information for the concept and idea stage and apply the general concepts to the hypothetical mechanical pencil program.  
  By middle of 9th week

- **Complete:** Students shall identify in 1-2 paragraphs how the mechanical pencil project could be properly vetted from a NPD design manager’s perspective and provide examples for such a program. Students shall also explain how a NPD design manager could determine if the mechanical pencil concept or idea would be in the best interest of the company and whether such an idea (or concept) for a new product needs to align to the company’s roadmap. [wk 09 cl 18 ex 45]  
  By end of 9th week

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-09d” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 09 cl 18 ex 45]  
  By end of 9th week

**Key Assessment Topics Covered:**
- Identify, explain and evaluate the risks associated with new product and services development
- Understand the cost impact of a poor design and design execution
- Explain the importance of market assessments, product/process specifications, and validation testing
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect
**Module Synopsys:** Students will apply key concepts introduced in previous modules and be required to apply the basic concepts and principles as a new product design manager for a hypothetical project. This module deals specifically with the product feasibility stage of the design cycle.

<table>
<thead>
<tr>
<th>Week 10</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
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<tbody>
<tr>
<td>TCMT632-14 NPD - Product Feasibility Analysis (Practical Application)</td>
<td><strong>Read:</strong> Students shall recall the previously presented information for the feasibility stage of the design cycle and apply the general concepts to the hypothetical mechanical pencil program.</td>
<td>1st half of 10th week</td>
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<td></td>
<td><strong>Complete:</strong> Students shall identify define in sufficient detail within in 1-2 paragraphs the purpose of the design feasibility stage from the NPD design manager’s perspective. Students shall include a minimum of three points a design manager would use to assess a new product concept or idea. In 1-2 additional paragraphs, students shall provide in sufficient detail an explanation and interpretation for the concept of positive or negative opportunity cost and how it would relate to the hypothetical mechanical pencil design concept or idea. [wk 10 cl 19 ex 46]</td>
<td>By middle of 10th week</td>
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<tr>
<td></td>
<td><strong>Submit:</strong> Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-10a” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 10 cl 19 ex 46]</td>
<td>By middle of 10th week</td>
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<tr>
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<td><strong>Read:</strong> Students shall recall the previously presented information for the feasibility stage of the design cycle and apply the general concepts to the hypothetical mechanical pencil program</td>
<td>1st half of 10th week</td>
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<td></td>
<td><strong>Complete:</strong> Students shall identify the three criteria categories associated with a new product concept or idea feasibility study by the NPD design manager and the feasibility team. Students shall apply the product feasibility concept analysis categories and questions to the hypothetical mechanical pencil concept and in a separate paragraph each provide a detailed response to the questions posited. The answers provided shall be in sufficient detail to each of the questions and contain relevant responses from a NPD design manager’s perspective for the hypothetical mechanical pencil concept. [wk 10 cl 19 ex 47]</td>
<td>By middle of 10th week</td>
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<td><strong>Submit:</strong> Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-10b” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 10 cl 19 ex 47]</td>
<td>By middle of 10th week</td>
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</table>
➢ **Read**: Students shall recall the previously presented information for the feasibility stage of the design cycle and apply the general concepts and tools identified to the hypothetical mechanical pencil program.  

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<thead>
<tr>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
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<tbody>
<tr>
<td><strong>Complete</strong>: Students shall define the acronym SWOT and provide in sufficient detail the meaning for each of the four elements of a SWOT analysis. Additionally students shall provide a minimum of 1 paragraph for each of the four elements of the SWOT analysis with a theoretical but realistic response from a NPD design manager’s perspective.</td>
<td>By end of 10th week</td>
</tr>
<tr>
<td><strong>Submit</strong>: Students will provide the required information in a written format, each page shall be single spaced and with 1&quot; margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-10c” and must include the date completed, students full name, Student ID, title of the course, and instructor.</td>
<td>By end of 10th week</td>
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</table>

➢ **Read**: Students shall recall the previously presented information for the feasibility stage of the design cycle and apply the general concepts and tools identified to the hypothetical mechanical pencil program.  

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<tr>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
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<tr>
<td><strong>Complete</strong>: Students shall identify and describe the recommended NPD design manager’s tool presented in prior presentations. Students shall define the horizontal and vertical categories of this tool and provide justification for using such a tool. Student shall define in a separate paragraph the definition for a feasibility study and provided and list several criteria used to determine whether the feasibility study will be successful.</td>
<td>By end of 10th week</td>
</tr>
<tr>
<td><strong>Submit</strong>: Students will provide the required information in a written format, each page shall be single spaced and with 1&quot; margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-10d” and must include the date completed, students full name, Student ID, title of the course, and instructor.</td>
<td>By end of 10th week</td>
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</table>

**Key Assessment Topics Covered:**
- Identify, explain and evaluate the risks associated with new product and services development
- Understand the cost impact of a poor design and design execution
- Explain the importance of market assessments, product/process specifications, and validation testing
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect

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**Module Synopsys**: Students will apply key concepts introduced in previous modules and be required to apply the basic concepts and principles as a new product design manager for a hypothetical project. This module deals specifically with the product definition stage of the design cycle.

➢ **Read**: Students shall recall the previously presented information for a new product design definition stage of the design cycle and apply the general concepts and tools identified to the hypothetical mechanical pencil program.  

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<thead>
<tr>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
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<tbody>
<tr>
<td><strong>Read</strong>: Students shall recall the previously presented information for the feasibility stage of the design cycle and apply the general concepts and tools identified to the hypothetical mechanical pencil program.</td>
<td>1st half of 11th week</td>
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<tr>
<td>Task</td>
<td>Description</td>
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<tr>
<td><strong>Complete:</strong></td>
<td>Students shall describe in detail the definition and description for the definition phase of the design cycle. Students shall also identify what the major effort identified is for this step and provide an comprehensive explanation as to why such major efforts occur during this phase as opposed to the concept or feasibility phase.</td>
</tr>
<tr>
<td><strong>Submit:</strong></td>
<td>Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-11a” and must include the date completed, students full name, Student ID, title of the course, and instructor.</td>
</tr>
<tr>
<td><strong>Read:</strong></td>
<td>Students shall recall the previously presented information for a new product design definition stage of the design cycle and apply the general concepts and tools identified to the hypothetical mechanical pencil program. Additionally students shall read Chapter 3 from the referenced textbook: New Product Development – Design and Analysis (Pages 82 – 110) on design synthesis and product definition.</td>
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<tr>
<td><strong>Complete:</strong></td>
<td>Students shall provide a written definition and description for ‘Product Definition Synthesis’ as presented in the referenced text book and why it is important to consider using this technique during the NPD design stage. Students shall list all segments of the product definition synthesis and provide in a separate paragraph a description for each segment.</td>
</tr>
<tr>
<td><strong>Submit:</strong></td>
<td>Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-11b” and must include the date completed, students full name, Student ID, title of the course, and instructor.</td>
</tr>
<tr>
<td><strong>Read:</strong></td>
<td>Students shall read Chapter 3 from the referenced textbook: New Product Development – Design and Analysis (Pages 82 – 110) on design synthesis and product definition.</td>
</tr>
<tr>
<td><strong>Complete:</strong></td>
<td>Students shall identify and describe the recommended product definition tool from the text book and describe how it is organized and used. Students shall select one item from each vertical block of the product column and provide a NPD design managers response for the hypothetical new mechanical pencil design.</td>
</tr>
<tr>
<td><strong>Submit:</strong></td>
<td>Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-11c” and must include the date completed, students full name, Student ID, title of the course, and instructor.</td>
</tr>
<tr>
<td><strong>Read:</strong></td>
<td>Students shall recall the previously presented information for a new product design definition stage of the design cycle and apply the general concepts and tools identified to the hypothetical mechanical pencil program. Students shall also read Chapter 3 from the referenced textbook: New Product Development – Design and Analysis (Pages 82 – 110) on design synthesis and product definition.</td>
</tr>
<tr>
<td><strong>Complete:</strong></td>
<td>Students shall identify and describe a minimum of 4 documents considered essential for every new product design and expected to be completed prior to the end of this stage of the design cycle. Students shall</td>
</tr>
</tbody>
</table>
utilize the hardware TTM formula to calculate in a separate paragraph the results expected time frame in months for the new mechanical pencil product design given the following variables: Number of engineers assigned is 4, Number of unique components is 18, Efficiency (components per day) is rated at 0.8 and the number of working days per year is 250. In a separate paragraph students shall assess an alternate TTM calculation where the following variables: Number of engineers assigned is 5, Number of unique components is 18, Efficiency (components per day) is rated at 0.7 and the number of working days per year is 250 and advise which has a higher base cost as well as which option if the optimum choice if the flexibility metric established is aligned with [Diagram 16].

Submit: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-11d” and must include the date completed, students full name, Student ID, title of the course, and instructor.

By end of 11th week

Key Assessment Topics Covered:
- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify, explain and evaluate the risks associated with new product and services development
- Understand the cost impact of a poor design and design execution
- Identify and list the key factors when determining whether a task, effort, or sub product should be outsourced
- Explain the importance of market assessments, product/process specifications, & validation testing
- Identify and describe situations and determining factors for using an Agile, traditional waterfall, or hybrid project management styles
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect

[Note *: Course week is defined as Monday through Friday]

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</thead>
<tbody>
<tr>
<td>TCMT632-16</td>
<td>NPD - Product Design Phase and global Product Development (Practical Application)</td>
<td></td>
</tr>
<tr>
<td><strong>Module Synopsis:</strong> Students will review the key concepts introduced in previous modules regarding the stages leading up to the pre-design and design stages of the design cycle. Students will recall concepts and techniques and be required to apply them as a new product design manager for a hypothetical project. This module deals specifically with the product pre-design and design stages of the design cycle and covers some background leading up to these critical stages.</td>
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<tr>
<td><strong>Read:</strong> Students shall read the introductory material for this module and familiarize themselves with the pre-design stage of the design cycle.</td>
<td>1st half of 12th week</td>
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<tr>
<td><strong>Read:</strong> Students shall review Diagrams 04, 05, 30, 34 with regards to the pre-design stage and stages leading up to the predesign stage. Students shall be capable of recalling key dependencies and deliverables for these stages of the design cycle necessary to move forward onto the formal design stage and complete the NPD design initiative successfully.</td>
<td>1st half of 12th week</td>
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<tr>
<td><strong>Complete:</strong> Students shall list by name the previous stages (from the NPD design cycle) in the order of occurrence and provide a written synopsis of</td>
<td>By middle of 12th week</td>
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</tbody>
</table>
each previous stage citing the general purpose and expectation for each as well as the providing a minimum of two dependencies and deliverables for each previous stage (with regards to the NPD mechanical pencil design initiative). [wk 12 cl 23 ex 54]

- **Submit**: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-12a” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 12 cl 23 ex 54]

<table>
<thead>
<tr>
<th>Activity</th>
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<tbody>
<tr>
<td>Submit:</td>
<td>By middle of 12th week</td>
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<tr>
<td>Read:</td>
<td>1st half of 12th week</td>
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<td>Read:</td>
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<td>Complete:</td>
<td>By middle of 12th week</td>
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<td>Submit:</td>
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<tr>
<td>Complete:</td>
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- **Submit**: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-12b” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 12 cl 23 ex 55]

<table>
<thead>
<tr>
<th>Activity</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submit:</td>
<td>By middle of 12th week</td>
</tr>
<tr>
<td>Read:</td>
<td>1st half of 12th week</td>
</tr>
<tr>
<td>Read:</td>
<td>1st half of 12th week</td>
</tr>
<tr>
<td>Complete:</td>
<td>By middle of 12th week</td>
</tr>
</tbody>
</table>

- **Submit**: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-12c” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 12 cl 23 ex 56]

<table>
<thead>
<tr>
<th>Activity</th>
<th>Due Date</th>
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<tbody>
<tr>
<td>Submit:</td>
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<td>1st half of 12th week</td>
</tr>
<tr>
<td>Complete:</td>
<td>By middle of 12th week</td>
</tr>
</tbody>
</table>
- **Submit**: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-12e” and must include the date completed, students full name, Student ID, title of the course, and instructor.  
  [wk 12 cl 23 ex 56]

- **Read**: Students shall read the introductory material for this module and familiarize themselves with the pre-design stage of the design cycle.

- **Read**: Students shall review Diagrams 06, 07, and 34 with regards to the pre-design stage of the design cycle. Students shall be capable of evaluating risk for the hypothetical mechanical design pencil project.

- **Complete**: Students shall identify three potential risks associated with the hypothetical mechanical pencil design effort. Referring to Diagram 07, students will provide from a NPD design manager’s perspective and with respect to the mechanical pencil design project a description of the dependencies, risk, risk impact, and risk prioritization for each as if they were being reported by the NPD manager to corporate management. Regarding Diagram 07, students shall explain why risk prioritization is a key management effort during this stage of the design cycle and the potential impact if the risks identified are not properly prioritized. All information and responses provided shall include sufficient detail.  
  [wk 12 cl 24 ex 57]

- **Submit**: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-12d” and must include the date completed, students full name, Student ID, title of the course, and instructor.  
  [wk 12 cl 24 ex 57]

- **Read**: Students shall review Diagram 34 with regards to the pre-design stage of the design cycle. Students shall evaluate the individual steps and associate each individual gate identified and how it would apply to the hypothetical mechanical design pencil project.

- **Complete**: Students shall identify and select from Diagram 34 the three most important gates between and the formal start and the specification development steps. Students shall provide a detailed elaborate on each step/gate selected why it is the most important, and the required output for each step/gate and the participants expected to participate in a release process for the individual step/gate.  
  [wk 12 cl 24 ex 58]

- **Submit**: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-12e” and must include the date completed, students full name, Student ID, title of the course, and instructor.  
  [wk 12 cl 24 ex 58]

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**Key Assessment Topics Covered:**

- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify and explain the key dependencies and deliverables associated tracking a NPSD event
- Describe the interrelationship between the product life cycle process (PLC) and the NPSD process
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect
**Week 13**

**Module Synopsys:** Students will review the key concepts introduced in previous modules regarding the stages leading up to the pre-design and design stages of the design cycle. Students will recall concepts and techniques and be required to apply them as a new product design manager for a hypothetical project. This module deals specifically with the product pre-design and design stages of the design cycle and covers some background leading up to these critical stages.

### Activities & Assignments

<table>
<thead>
<tr>
<th>Activity</th>
<th>Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Read:</strong></td>
<td>Students shall read the introductory material for this module and familiarize themselves with the pre-design stage of the design cycle.</td>
<td>1st half of 13th week</td>
</tr>
<tr>
<td><strong>Read:</strong></td>
<td>Students shall review Diagrams 30, and 34 with regards to the pre-design stage of the design cycle. Students shall be responsible for recalling efforts and documents to be completed during this important step of the design phase for the hypothetical mechanical design pencil project.</td>
<td>1st half of 13th week</td>
</tr>
<tr>
<td><strong>Complete:</strong></td>
<td>Students shall first compare and contrast the difference between the pre-design and design steps of the design cycle, identifying the primary differences in efforts from the NPD design manager and design team. Students shall identify a minimum of five specifications that would apply to the mechanical pencil design project and that would be developed and completed during this step of the pre-design process. In a separate paragraph students shall provide justification why specification development is separated from the formal design efforts regardless of product or service complexity. In a separate paragraph students shall identify the three remaining steps after completing the formal specification development effort and provide sufficient reasoning as to why it is necessary to include these steps and gates before starting the formal physical design effort.</td>
<td>By middle of 13th week</td>
</tr>
<tr>
<td><strong>Submit:</strong></td>
<td>Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-13a” and must include the date completed, students full name, Student ID, title of the course, and instructor.</td>
<td>By middle of 13th week</td>
</tr>
<tr>
<td><strong>Read:</strong></td>
<td>Students shall read the introductory material for this module and familiarize themselves with the formal design stage of the design cycle.</td>
<td>1st half of 13th week</td>
</tr>
<tr>
<td><strong>Read:</strong></td>
<td>Students shall review Diagrams 30, and 35 with regards to the formal design stage of the design cycle. Students shall be responsible for recalling efforts and documents to be utilized during this important stage of the design cycle and apply it to the hypothetical mechanical design pencil project.</td>
<td>1st half of 13th week</td>
</tr>
<tr>
<td><strong>Complete:</strong></td>
<td>Students shall explain why Diagram 35 includes a formal review for roles and responsibilities, schedule, metrics, and risk mitigation prior to the physical formal design start and the manager’s responsibility to each of these efforts. In a separate paragraph students shall identify what resources would be assigned for three different engineering design roles within the formal design initiative of the hypothetical mechanical pencil design project.</td>
<td>By middle of 13th week</td>
</tr>
<tr>
<td><strong>Submit:</strong></td>
<td>Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise</td>
<td>By middle of 13th week</td>
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</tbody>
</table>
shall be titled “TCMT632-13b” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 13 cl 25 ex 60]

- **Read**: Students shall read the introductory material for this module and familiarize themselves with the formal design stage of the design cycle.
  - By middle of 13th week

- **Read**: Students shall refer to Diagrams 30, 32, and 35 with regards to the formal design stage of the design cycle. Students shall be responsible for identifying key processes and NPD design manager initiatives during this important step of the design cycle for the hypothetical mechanical design pencil project.
  - By middle of 13th week

- **Complete**: Students shall select from the listing of most common causes of product failure (Diagram 32) a minimum of two design failure causes identified. Students shall relate and apply to each selected identified root cause to the hypothetical mechanical design pencil project and provide a problem statement and method of handling the problem as a technical NPD design manager. [wk 13 cl 26 ex 61]
  - By end of 13th week

- **Submit**: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-13c” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 13 cl 26 ex 61]
  - By end of 13th week

- **Read**: Students shall read the introductory material for this module and familiarize themselves with the formal design stage of the design cycle.
  - By middle of 13th week

- **Read**: Students shall refer to Diagrams 04, 30, and 35 with regards to the formal design stage of the design cycle. Students shall be responsible for identifying key initiatives, dependencies, deliverables, and documentation associated with this phase of the design cycle as it would apply to the hypothetical mechanical design pencil project.
  - By middle of 13th week

- **Complete**: In a separate paragraph students recall and explain the actions involved in a mechanical pencil formal design cycle. In a separate paragraph students shall identify a minimum of two key actions and a one key deliverables from the formal physical design stage of the design cycle and prior to the “Continued Design Effort” cycle in terms of the mechanical pencil design project. Students shall organize their responses as if they were the NPD design manager and in preparation of the sequential steps. [wk 13 cl 26 ex 62]
  - By end of 13th week

- **Submit**: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-13d” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 13 cl 26 ex 62]
  - By end of 13th week

- **Read**: Students shall read the introductory material for this module and familiarize themselves with the formal design stage of the design cycle.
  - By middle of 13th week

- **Read**: Students shall refer to Diagrams 04, and 35 with regards to the formal design stage of the design cycle. Students shall be responsible for identifying the key stages from the back end of the formal design cycle and be capable of identifying the minimum set of document associated with this phase of the design cycle as it would apply to the hypothetical mechanical design pencil project.
  - By middle of 13th week
**Module Synopsis:** Students will review the NPD design freeze stage and review the key elements and purposes of this stage. Students will be asked to apply the basic concepts and principles as a new product design manager for a hypothetical project. This module deals specifically with the product freeze stage of the design cycle.

- **Read:** Students shall read the introductory material for this module and familiarize themselves with the design freeze stage of the design cycle.  
  - 1st of 14th week

- **Read:** Students shall review Diagrams 04, and 35 with regards to the design freeze stage (design finish to design freeze). Students shall be capable of recalling the key initiatives of this stage including dependencies and deliverables.  
  - 1st half of 14th week

- **Complete:** Students shall identify in 1-2 paragraphs the primary inputs, outputs, and purpose for the design freeze phase to a NPD design manager. In a separate paragraph students shall take a position for or against the statement that “No further changes are allowed after the Design Freeze checkpoint” and defend the decision. In a separate paragraph students shall identify with respect to the NPD design of the mechanical pencil two of the key dependencies and assess the impact to the program if the dependencies are not approved.  
  - By middle of 14th week

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-13a” and must include the date completed, students full name, Student ID, title of the course, and instructor.  
  - By end of 13th week

- **Read:** Students shall read the introductory material for this module and familiarize themselves with the design freeze stage of the design cycle.  
  - 1st of 14th week

- **Read:** Students shall review Diagram 37 with regards to the design prototyping stage of the design cycle. Students shall be capable of applying reasonable logic to explain the purpose of the inputs to the prototype completion stage.  
  - 1st half of 14th week

- **Complete:** Students shall select three different inputs to the Prototype Assembly Complete step identified in Diagram 37 and in 1-2 paragraphs explain the individual purpose of each team selected at this stage of the process relative to the NPD new pencil design initiative.  
  - By middle of 14th week
Submit: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be dated “TCMT632-14b” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 14 cl 27 ex 65]

By middle of 14th week

TCMT632-18 NPD - Design Prototyping, Validation, Verification, Integration Phase (Practical Application)

Module Synopsys: Students will review the NPD prototyping and integration stages of the design cycle. The exercises associated with this module are intended to reinforce important concepts and principals identified. This module deals specifically with the product prototyping, integration, and validation stages of the design cycle.

Read: Students shall read the introductory material for this module and familiarize themselves with the design prototyping, validation, and verification stage of the design cycle.

By middle of 14th week

Read: Students shall review Diagram 37 with regards to the design prototype integration stage of the design cycle. Students shall be capable of assessing this stage of the design validation cycle for the hypothetical mechanical pencil project.

By middle of 14th week

Complete: Students shall propose a single potential problem that may be associated with the NPD design of the mechanical pencil as it traverses through the process illustrated in Diagram 37. Students shall elaborate on the proposed course of action based on the identified flow diagram and explain actions and potential outcomes from a NPD design manager’s perspective. [wk 14 cl 28 ex 66]

By end of 14th week

Submit: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-14c” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 14 cl 28 ex 66]

By end of 14th week

Read: Students shall read the introductory material for this module and familiarize themselves with the design prototyping, validation, and verification stage of the design cycle.

By middle of 14th week

Read: Students shall review Diagram 37 with regards to the design verification stage of the design cycle. Students shall be capable of assessing this stage of the design validation cycle for the hypothetical mechanical pencil project. Students shall propose a course of action based on the verification and validation team identifying an assembly problem with the new mechanical pencil design. The manufacturing team has identified that the pocket clip doesn’t properly adhere to the pencil body and falls off under certain conditions.

By middle of 14th week

Complete: Students shall propose a course of action based on the process illustrated in Diagram 37. Students shall elaborate on the proposed course of action, individuals to be involved and the details on how a NPD design manager would properly handle this situation. [wk 14 cl 28 ex 67]

By end of 14th week

Submit: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-14d” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 14 cl 28 ex 67]

By end of 14th week
- **Read**: Students shall read the introductory material for this module and familiarize themselves with the design prototyping, validation, and verification stage of the design cycle. 
  
- **Read**: Students shall review **Diagram 37** with regards to the verification through the release to manufacturing stage of the design cycle. Students shall be responsible for fully understanding the NPD design manager’s responsibility under various conditions defined and be able to apply the correct procedures to the hypothetical mechanical pencil project. Students shall propose a course of action based on the condition stipulated, and shall recommend a level of participation from the NPD design manager. The manufacturing and assembly team has brought to your attention during the final analysis of product and supporting collateral that the operating instructions for loading new lead (graphite) into the pencil was a copy job from the previous version mechanical pencil and not applicable for the new design. 
  
- **Complete**: Students shall propose a course of action based on the process illustrated in **Diagram 37**. In a minimum of 1-2 paragraphs, students shall elaborate on the proposed course of action, individuals to be involved and the details on how a NPD design manager would properly handle this situation. **[wk 14 cl 28 ex 68]**
  
- **Submit**: Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “**TCMT632-14e**” and must include the date completed, students full name, Student ID, title of the course, and instructor. **[wk 14 cl 28 ex 68]**

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**Key Assessment Topics Covered:**

- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify and explain the key dependencies and deliverables associated tracking a NPSD event
- Describe the interrelationship between the product life cycle process (PLC) and the NPSD process
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect

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**Week 15 | Activities & Assignments | Deadlines**

| TCMT632-19 | NPD - RTM, Manufacturing, Commercialization |  
| **Module Synopsis**: In this module, students are re-introduced to the NPD design cycle and specifically the release to manufacturing, manufacturing, and commercialization phases as they pertain to the new product development design manager. |  

- **Read**: Students shall read the introductory material for this module and familiarize themselves with the design release to manufacturing and commercialization stages of the design cycle.  
  
- **Read**: Students shall review **Diagrams 04 and 38** for the steps illustrated between the RTM verification complete gate and manufacturing start step. In a typical new product development flow it is the NPD design manager that is responsible for conducting the formal hand off or formal release to
During this key step, a core complement of team members should be assembled from the various design, sales, marketing, finance, operations, procurement, manufacturing, test, logistics, packaging, and quality organizations to conduct a final review. The XYZ Pencil Corporation internal documentation team has compiled the full manufacturing package and prepared it for the NPD design manager formal hand-off. They have advised you that the product readiness document (PRL) has not been officially signed off but it is included in the package for the hand-off meeting.

### Complete
Students shall identify a minimum of 3 documents necessary to conduct a formal release to manufacturing review for the mechanical pencil product (not including management approval forms). In a separate paragraph students shall deduce from the illustration in Diagram 38 and infer what specific documents would be required in the formal hand-off or release of the mechanical pencil project to manufacturing. [wk 15 cl 29 ex 69]

### Submit
Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-15a” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 15 cl 29 ex 69]

### Read
Students shall review Diagram 31, 38 and 39 with regards to the manufacturing stage of the design cycle. Students shall be responsible for understanding the expectations of the NPD design manager in the post RTM stage up to the manufacturing integration stage. The manufacturing process has completed and moved into the integration phase where all parts were first inspected by the quality team. The quality team found during their inspection that the molded or formed parts were mechanically correct however during the detailed inspection they identified that the molded outer body contained an internal knit line initially resulting by an internal mold hot runner (channel in the mold that molten material enters the cavity). This condition resulted in excess material being deposited internal to the body cavity.

### Complete
Students shall develop and propose a course of action for the NPD manager to take upon being notified of the mechanical molded body flaw. In a separate paragraph students shall list the expectations of the NPD design manager during the manufacturing stage and up to the integration step of the design cycle based on Diagrams 31, 38, and 39. [wk 15 cl 29 ex 70]

### Submit
Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-15b” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 15 cl 29 ex 70]

### Read
Students shall read the introductory material for this module and familiarize themselves with the design release to manufacturing and commercialization stages of the design cycle.

### Read
Students shall review Diagram 31, 38 and 39 with regards to the integration, test, and packaging steps of the final RTM Commercialization
phase of the design cycle. Students shall be responsible for understanding and applying the NPD defined manager responsibilities to given situations as required.

- **Complete:** Students shall identify (using Diagrams 31 and 38) and describe a minimum of two responsibilities the NPD design manager takes on during the integration through packaging steps of the RTM commercialization stage. Given the mechanical pencil project students shall propose two documents that could be included in the individual gift box for which the design manager would have ultimate responsibility for creating. [wk 15 cl 30 ex 71]

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-15c” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 15 cl 30 ex 71]

- **Read:** Students shall read the introductory material for this module and familiarize themselves with the design release to manufacturing and commercialization stages of the design cycle.

- **Read:** Students shall review Diagram 38 with regards to the entire RTM through commercialization stage of the design cycle. Students shall be responsible for fully comprehending the NPD design manager’s responsibilities for the steps identified in Diagram 38 between the start of quality and through the end of the NPD design cycle. Students shall apply the concepts and responsibilities identified in this module as they would apply to the hypothetical mechanical pencil project.

- **Complete:** In a separate paragraph students shall declare whether the NPD design managers’ efforts are completed at the end of the quality inspection step. In a separate paragraph each student shall identify from the material provided a minimum of three key initiatives a NPD design manager should perform and justify why it is important to perform these initiatives. [wk 15 cl 30 ex 72]

- **Submit:** Students will provide the required information in a written format, each page shall be single spaced and with 1” margins. The font type shall be Arial, Courier, Helvetica, or Times New Roman and 10 Point (Pt). This exercise shall be titled “TCMT632-15d” and must include the date completed, students full name, Student ID, title of the course, and instructor. [wk 15 cl 30 ex 72]

**Key Assessment Topics Covered:**
- Identify and be capable of applying all key elements of the New Product and Service Development (NPSD) process
- Identify, explain and evaluate the risks associated with new product and services development
- List the current common methods of tracking a NPSD effort
- Identify and explain the key dependencies and deliverables associated tracking a NPSD event
- Understand the cost impact of a poor design and design execution
- Describe the interrelationship between the product life cycle process (PLC) and the NPSD process
- Explain the importance of market assessments, product/process specifications, and validation testing
- Identify and describe situations and determining factors for using an Agile, traditional waterfall, or hybrid project management styles
- Compare and contrast the key important factors in designing a quality product or service from a legal, moral, economical, and professional aspect
Course Policies:

Attendance Policy:
Attendance and participation will be measured by participation in discussions forums, timely completion of readings and required material, submitting of assignments, and successful completion of any exams.

Late Work Policy:
LATE WORK is not accepted except in the event of a university excused absence. This course relies on discussion, interaction, and group work among class members. Therefore it is essential that work be completed on schedule. At the beginning of every module, you should spend time planning. Read the learning modules very carefully. Punctuality is especially important when assignments impact your classmates. If your schedule impacts others, notify them and me and make alternative arrangements.

If an unforeseen event(s) arises such as a university excused absence, you must follow the TAMU student rule regarding attendance to makeup these assignments. For more information on TAMU excused absences, please visit http://student-rules.tamu.edu/rule07. If you do not have a university excused absence and miss an assignment, you may see a deduction of a point or two in your overall grade. If this is a rare occurrence and your work for this class it otherwise excellent, it should make no difference in your final grade for the course. It is only when work is frequently late and/or quality of the work is consistently below standard that your final grade will suffer. In those rare circumstances where an emergency takes you away from the course for an extended period of time, contact your instructor right away to make arrangements.

Incomplete Grade:
Grades of "INCOMPLETE" will be given only for certifiable medical reasons or in other extraordinary circumstances arranged in advance. If you are planning to be away from your usual location (travel, vacation, etc.) during this course, consider dropping the course or discuss your situation with me and we can see if you will be disadvantaged by your mobility or impacting others' work.

Institutional Policies:
Americans with Disabilities Act (ADA) Policy Statement:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning "environment that provides for reasonable accommodation of their disabilities. If you believe you have
a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu.

**Academic Integrity Statement and Policy:**
For many years Aggies have followed a Code of Honor, which is stated in this very simple verse:

"An Aggie does not lie, cheat or steal, or tolerate those who do."

Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other.

For more information please visit, http://student-rules.tamu.edu/aggiecode and http://aggiehonor.tamu.edu/

**Statement of Plagiarism:**
All materials generated for this class (which may include but are not limited to syllabi and in-class materials) are copyrighted. You do not have the right to copy such materials unless the instructor expressly grants permission. As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writing, etc. which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Plagiarism is one of the worst academic violations, for the plagiarist destroys trust among others. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section "Scholastic dishonesty."

**Export Control Statement:**
United States export control laws regulate the release of goods and technologies that affect U.S. national security or foreign policy interests. Distance education students and course content MUST comply with these U.S. export control laws. If TAMU indicates that you are attempting to access course content from an IP address associated with a country currently subject to economic and sanction, your TAMU NetID account will be terminated and you will be contacted by the TAMU Export Control Office and the Office of Identity Management. For additional information visit: https://vpr.tamu.edu/resources/export-controls/resources .
Course Change Request

New Course Proposal

Date Submitted: 09/28/17 12:15 pm
Viewing: TCMT 633 : Contract and Risk Management
Last edit: 09/28/17 4:35 pm
Changes proposed by: jsass

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan Sass</td>
<td><a href="mailto:jsass@tamu.edu">jsass@tamu.edu</a></td>
<td>979-458-5083</td>
</tr>
<tr>
<td>Dr. Ben Zoghi</td>
<td><a href="mailto:zoghi@tamu.edu">zoghi@tamu.edu</a></td>
<td>979-676-3533</td>
</tr>
</tbody>
</table>

Course prefix: TCMT
Course number: 633
Department: Eng Tech & Ind Distribution
College/School: College of Engineering
Academic Level: Graduate
Academic Level (alternate): Undergraduate
Effective term: 2018-2019

Complete Course Title: Contract and Risk Management
Abbreviated Course Title: CONTRACT AND RISK MANAGEMENT

Catalog course description:
Basic legal issues and terms commonly encountered by engineering businesses of all sizes; greater overall understanding of the company itself and allow technical professionals to more knowledgeably, efficiently and effectively lead their business; overview of relevant legal aspects of managing an engineering company with emphasis on contracts and intellectual property management; understanding of contract terms and clauses; identification and mitigation of areas of potential legal liability through contract negotiation; how to manage and commercialize intellectual property.

Prerequisites and Restrictions:
Admission to the Master of Engineering Technical Management program.

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced? No

Crosslistings: No
Crosslisted With: No

Stacked: No
Stacked with: No

Semester: 3
Credit Hour(s): 3
Lecture: 3
Lab: 0
Other: 0
Total: 3

Repeatable for credit? No
Three-peat? No

CIP/Fund Code 1515010006

Default Grade Mode Letter Grade (G)

Alternate Grade Modes Satisfactory/Unsatisfactory

Method of instruction Lecture

Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) Yes

Learning Outcomes Does not meet traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met. This course will only be offered in a non-traditional format; therefore, it will not have traditional face-to-face learning outcomes to compare to.

Hours Meets traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met. Students will have 15 weeks to complete the course. Each week, students will be given about 3 hours of activities seen in face-to-face offerings in the format of audio and video lectures, podcasts, videos, online discussions, and/or group work. Students will have about 90 hours of work outside of class time such as reading from assigned books/articles/case studies and completing assignments such as papers, quizzes, and course projects.

Will this course be taught as a distance education course? Yes

I verify that I have reviewed the FAQ for Export Control Basics for Distance Education. Yes

Is 100% of this course going to be taught in Texas? Yes

Will classroom space be needed for this course? No

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Required (select program)</th>
<th>Program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(MET-TCMT) Master of Engineering Technical Management in Technical Management</td>
</tr>
</tbody>
</table>

Elective (select program)

Course Syllabus

Syllabus: Upload syllabus

Upload syllabus [TCMT 633 Contract & Risk Management v2.docx]
TCMT 633: Contract & Risk Management
Fall 20XX

100% Online course through the eCampus platform (http://ecampus.tamu.edu)

Instructor: Taylor Hanks, JD
Telephone: (979) 862-9168
Email: thanks@tamu.edu
Location: 7607 Eastmark Drive
         Office 146
         College Station, TX 77840
Office Hours: 8:30am—5:30pm CT
Virtual Office: TBD

Course Description
Technical managers need not be fluent in legalese or able to quote case law from memory – that is what lawyers are for. However, a firm grasp on legal issues commonly encountered by engineering companies of all sizes can provide a greater overall understanding of the business itself and allow technical professionals to more knowledgeably, efficiently, and effectively lead their companies. This course provides an overview of relevant legal aspects of managing an engineering company, with an emphasis on contracts, risk management, and intellectual property. Through this course you will gain an understanding of important contract terms and clauses; how to identify and mitigate areas of potential legal liability; and how to manage and commercialize intellectual property.

Prerequisites
Enrollment in METM program

Overall Course Learning Outcomes
Upon completion of this course, students will be able to:

1. Evaluate the pros and cons of the various business organization forms
2. Recognize areas of potential legal liability
3. Understand commonly-used contract terms and clauses and their effect on business agreements
4. Knowledgeably and effectively negotiate business contracts
5. Identify the various forms of intellectual property
6. Develop an IP commercialization strategy
7. Manage confidential information
8. Effectively communicate with legal counsel regarding the legal topics presented
Getting Started

To get started within this course, you will need to:
  ● Review the syllabus in its entirety
  ● Login to the course website, eCampus (see directions below), to:
    o ensure that you have access and that the correct plug-ins are installed;
    o update your user profile;
    o get familiar with the course layout; and
    o complete your “Profile” in the “Breaking the Ice” forum.

Note: Additional details to complete these activities can be found within the eCampus course website

Resource Materials & Course Technology

Required Textbook and Resource Materials (needed for the course):
  ● Engineering and Construction Law & Contracts, First Edition by Janet K. Yates
  ● Selected material distributed through eCampus class site

Supplemental Materials (optional):
  ● Give and Take: Why Helping Others Drives Our Success by Adam Grant
    o Excerpts will be distributed through eCampus

You can purchase these textbooks from the University Bookstore http://tamu.bncollege.com/. Notice: As a student at Texas A&M you are not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from independent retailers, including online retailers. Supplemental or optional materials can enhance your course mastery by providing you with extra information and resources, but they are not required.

eCampus:

This course will use TAMU eCampus, powered by Blackboard Learn, as the virtual classroom. Within eCampus, you can find all course-related content and assessments (including but not limited to course materials, content, videos, activities, assessments, etc.). The recommended browsers for eCampus access are Mozilla Firefox or Google Chrome (Internet Explorer is not recommended). For additional information on support browsers for eCampus, please visit http://tx.ag/eCampusBrowserSupport.

To log in to eCampus:
  ● Go to http://ecampus.tamu.edu
  ● Click the Login button
  ● Use your TAMU NetID and password to log in

Once logged into eCampus, you will see a list of all courses for which you are enrolled in for the semester. To navigate to this course, click on the name of the course. If you have any problems logging into the course, please see the technology support section below.

Within eCampus, the course menu is located on the left. The syllabus and course introductory materials can be found within the “Getting Started” section of the course menu. The course content is presented within modules and can be accessed by clicking on the names of the modules within the menu. Course due dates are posted within the calendar. If you have any questions about navigating the eCampus course website, please contact me.

Technology Requirements & Recommendations:

Technology Requirements:
  ● Reliable and frequent access to a computer and high-speed Internet. If you do not have frequent and reliable access to a computer with Internet connection, please contact the instructor to discuss your situation and determine an appropriate solution.
  ● To attend virtual office hours, students will need to make sure they have setup Bb Collaborate to run on their computer(s) and mobile devices. Please visit http://blackboard.force.com/publickarticleview?id=kA770000000CblW to check your system requirements and test your connection.
    o A microphone and webcam are required when using Bb Collaborate. While many students use a built in webcam, it is recommended to have a headset with a microphone, such as a smartphone headset, for the virtual office hours and group collaboration.

Technology Recommendations:
  ● Google Hangouts may also be used to work collaboratively in a virtual environment for group projects. Students will need to make sure they have claimed a TAMU Google account. To claim and learn more about your account, please visit http://google.tamu.edu.
Course Support

In addition to contacting the instructor or graduate assistant for course content related questions, there are a variety of campus resources for course support.

Academic Services Support:
The Office of Graduate & Professional Studies (OGAPS) offers graduate student services and advocates for graduate education on behalf of Texas A&M students who are on-campus and at a distance. For additional information regarding OGAPS, visit: http://ogaps.tamu.edu/Home

Technology Support:
For technological issues related to eCampus and software, contact the following:

- Student eCampus Help Website, http://ecampus.tamu.edu/student-help.php
- TAMU IT Help Desk:
  - Website: http://hdc.tamu.edu/index.php (Online Chat is available)
  - Phone: (979) 845-8300
  - Email: helpdesk@tamu.edu
- For Library Reserves:
  - Phone: (979) 458-2197
  - Email: p-melgoza@tamu.edu

The TAMU IT Help Desk is open 24 hours a day, 7 days a week. If your technical problems are unable to be resolved within 48 hours, please contact the instructor for additional assistance.

Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and that you address issues well in advance of deadlines.

Course Activities and Assessments

<table>
<thead>
<tr>
<th>Activity Category</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Discussions</td>
<td>10%</td>
</tr>
<tr>
<td>Module Assessments</td>
<td>30%</td>
</tr>
<tr>
<td>Mid-Term Exam</td>
<td>30%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
</tbody>
</table>

Online Discussions
Periodically, discussion topics related to the course, current events, and the intersection of the two will be posted to the eCampus Discussion Board. A portion of each student’s overall grade will be based on their level and quality of interaction during these discussions.

Module Assessments
Each Module will include 1-to-3 graded Assessments. Module Assessments will include short answer questions, essays, case study analyses, class discussions, and the like. (NOTE: Online class discussions specifically designated as a Module Assessment will be graded as a Module Assessment, not as an Online Discussion.)

Mid-Term Exam
Exam covering material from Modules 1-6. The exam will consist of multiple choice, short answer, and essay questions.

Final Exam
Exam covering material from Modules 7-13. The exam will consist of multiple choice, short answer, and essay questions.

Determination of Final Grades within the Course

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Total Points</th>
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<tbody>
<tr>
<td>A</td>
<td>90.00 – 100%</td>
<td>900 points or more</td>
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</table>
# Course Outline

<table>
<thead>
<tr>
<th>Modules and Activities</th>
<th>Module Dates</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to the law and legal principles that will be used throughout the course, including sources of law, jurisdiction, and important legal terminology. Students will also learn how to “read like a lawyer” in order to understand legal opinions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Read:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Engineering and Construction Law &amp; Contracts, Chapters 1 &amp; 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Material posted to eCampus course site</td>
<td></td>
<td></td>
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<tr>
<td><strong>Watch:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module 1 Lecture Videos</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Assessment(s):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Module 1 Short Answer Question</td>
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<tr>
<td>Overview of Partnerships, LLCs, Corporations, and other business structures, with a focus on the liability implications of each organizational form. The rights of and duties owed by individuals within the company – as well as the duties owed by and to agents and independent contractors outside the company – will be discussed.</td>
<td></td>
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<tr>
<td><strong>Read:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Engineering and Construction Law &amp; Contracts, Chapters 8 &amp; 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Material posted to eCampus course site</td>
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<td></td>
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<tr>
<td><strong>Watch:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module 2 Lecture Videos</td>
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<td></td>
</tr>
<tr>
<td><strong>Assessment(s):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Module 2 Short Answer Question</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Module 2 Case Study Analysis</td>
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</tr>
<tr>
<td>Forms of tort liability commonly-encountered by businesses will be discussed, with a focus on Products Liability and Vicarious Liability. Duties imposed by contracts – and the extent of liability for breach of those duties – will also be presented.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Read:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Engineering and Construction Law &amp; Contracts, Chapter 9</td>
<td></td>
<td></td>
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<tr>
<td>● Material posted to eCampus course site</td>
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<tr>
<td><strong>Watch:</strong></td>
<td></td>
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</tbody>
</table>
# Module 4. Business Law: Administrative and Regulatory Law; Consumer Protection Statutes

Introduction to the body of law imposed on businesses by state and federal administrative agencies. U.S. Environmental Protection Agency regulations (and their state-level counterparts) and Consumer Protection laws will be the main points of focus.

**Read:**
- *Engineering and Construction Law & Contracts*, Chapters 4 & 5
- Material posted to eCampus course site

**Watch:** Module 4 Lecture Videos

**Assessment(s):**
- Module 4 Essay

**Due:** Sun, [Month-Day] by 11:59 pm

---

# Module 5. Contracts: Formation of a Contract; Common Types of Contracts

What is a contract? The essential contract elements—offer, acceptance, and consideration—will be presented through case law, as will the Statute of Frauds and the chief forms of remedies for breach of contract. Various types of contracts a business manager may employ will also be examined.

**Read:**
- *Engineering and Construction Law & Contracts*, Chapter 12
- Material posted to eCampus course site

**Watch:** Module 5 Lecture Videos

**Assessment(s):**
- Module 5 Short Answer Question
- Module 5 Case Study Analysis

**Due:** Sun, [Month-Day] by 11:59 pm

---


Primer to sale of goods contracts governed by Article 2 of the Uniform Commercial Code. Contrasts between the formation of common law and U.C.C. contracts will be highlighted, as will the special remedies provided by the U.C.C.

**Read:**
- *Engineering and Construction Law & Contracts*, Chapter 13
- Material posted to eCampus course site

**Watch:** Module 6 Lecture Videos

**Assessment(s):**
- Module 6 Case Study Analysis 1
- Module 6 Case Study Analysis 2

**Due:** Sun, [Month-Day] by 11:59 pm

---

**MID-TERM EXAM**

**Due:** [Date] by [Date] 11:59 pm
### Module 7. Contracts: Common Clauses — Termination, Choice of Law, Dispute Resolution, Warranties, Payment Terms
The purposes of termination, choice of law, dispute resolution, and payment term clauses in business contracts will be presented. Examples of favorable and unfavorable versions of the clauses will also be studied.

**Read:**
- *Engineering and Construction Law & Contracts*, Chapters 14 & 18
- Material posted to eCampus course site

**Watch:** Module 7 Lecture Videos

**Assessment(s):**
- Module 7 Short Answer Question

### Module 8. Contracts: Common Clauses — Announcement, Assignment, Insurance, Indemnification, Liquidated Damages, and Relationship of the Parties
An examination of terms outlining the contracting parties’ rights and duties to one another, including terms affecting the parties’ financial exposure under the contract.

**Read:**
- *Engineering and Construction Law & Contracts*, Chapter 19
- Material posted to eCampus course site

**Watch:** Module 8 Lecture Videos

**Assessment(s):**
- Module 8 Case Study Analysis

The elements of protectable trade secrets and patents, as well as the rights afforded by these types of intellectual property, will be detailed through case law.

**Read:**
- Material posted to eCampus course site

**Watch:** Module 9 Lecture Videos

**Assessment(s):**
- Module 9 Case Study Analysis 1
- Module 9 Case Study Analysis 2
- Module 9 Short Answer Question

### Module 10. Intellectual Property: Copyrights, Trademarks, and Software
Discussion of the rights of copyright and trademark holders, and the importance of these intellectual property rights to engineering. Additionally, attention will be given to cases from the U.S. Supreme Court and the Ninth Circuit concerning the ability to protect software under the existing intellectual property laws.

**Read:**
- Material posted to eCampus course site

**Watch:** Module 10 Lecture Videos
<table>
<thead>
<tr>
<th>Assessment(s):</th>
<th>Sun, [Month-Day] by 11:59 pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Module 10 Essay</td>
<td></td>
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</tbody>
</table>

Introduction to the U.S. Patent and Trademark Office and the protection it can provide, along with a conversation of the tools and strategies available to effectively monetize a company’s intellectual property.

**Monday, [Month-Day] – Sunday, [Month-Day]**

<table>
<thead>
<tr>
<th>Read:</th>
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<tbody>
<tr>
<td>● Material posted to eCampus course site</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Watch:</th>
<th>Module 11 Lecture Videos</th>
</tr>
</thead>
</table>

**Assessment(s):**

| ● Module 11 Short Answer Question | Sun, [Month-Day] by 11:59 pm |
| ● Module 11 Case Study Analysis |                             |

<table>
<thead>
<tr>
<th>Module 12. Intellectual Property: License Agreements</th>
</tr>
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<tbody>
<tr>
<td>In-depth look at the various types of IP licensing agreements and their accompanying licensing terms.</td>
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</table>

**Monday, [Month-Day] – Sunday, [Month-Day]**

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<tr>
<th>Read:</th>
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<tbody>
<tr>
<td>● Material posted to eCampus course site</td>
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<table>
<thead>
<tr>
<th>Watch:</th>
<th>Module 12 Lecture Videos</th>
</tr>
</thead>
</table>

**Assessment(s):**

| ● Module 12 Case Study Analysis 1 | Sun, [Month-Day] by 11:59 pm |
| ● Module 12 Case Study Analysis 2 |                             |
| ● Module 12 Case Study Analysis 3 |                             |

<table>
<thead>
<tr>
<th>Module 13. Contract Negotiation Methods and Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods, hints, tips, and techniques associated with contract negotiations will be presented and discussed amongst the class.</td>
</tr>
</tbody>
</table>

**Monday, [Month-Day] – Sunday, [Month-Day]**

<table>
<thead>
<tr>
<th>Read:</th>
<th>Give and Take: Why Helping Others Drives Our Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Excerpts will be posted to eCampus course site</td>
<td></td>
</tr>
<tr>
<td>● Material posted to eCampus course site</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Watch:</th>
<th>Module 13 Lecture Videos</th>
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**Assessment(s):**

<table>
<thead>
<tr>
<th>● Module 13 Class Discussion Post and Response</th>
<th>Sun, [Month-Day] by 11:59 pm</th>
</tr>
</thead>
</table>

**FINAL EXAM**

<table>
<thead>
<tr>
<th>[Date]</th>
<th>[Date] by 11:59 pm</th>
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</table>
Course Policies

Attendance Policy:
Attendance and course participation will be measured by watching the video lectures, participation in discussion forums, submitting assignments, taking quizzes and exams. Students should be logging into the course to view videos and participate in the course 2-3 times per week. Students not participating in the course will be notified by the instructor.

Late Work Policy:
LATE WORK is not accepted except for university excused absences. This course relies on discussion, interaction, and group work among class members. Therefore it is essential that work be completed on schedule. At the beginning of every module, you should spend time planning. Read the learning modules very carefully. Punctuality is especially important when assignments impact your classmates. If your schedule impacts others, notify them and me and make alternative arrangements.

If an unforeseen event(s) arises such as a university excused absence, you must follow the TAMU student rule regarding attendance to makeup these assignments. For more information on TAMU excused absences, please visit http://student-rules.tamu.edu/rule07. If you do not have a university excused absence and miss an assignment, you may see a deduction of a point or two in your overall grade. If this is a rare occurrence and your work for this class is otherwise excellent, it should make no difference in your final grade for the course. It is only when work is frequently late and/or quality of the work is consistently below standard that your final grade will suffer. In those rare circumstances where an emergency takes you away from the course for an extended period of time, contact your instructor right away to make arrangements.

Course Copyright Statement:
The materials distributed within this course are subject to copyright. These materials include, but are not limited to, the syllabus, quizzes, exams, assessments, online handouts, and course videos. Unless permission is explicitly granted, students do not have the right to copy or distribute these materials.

Incomplete Grade:
Grades of "INCOMPLETE" will be given only for certifiable medical reasons or in other extraordinary circumstances arranged in advance. If you are planning to be away from your usual location (due to travel, vacation, etc.) during this course, consider dropping the course or discuss your situation with me and we will determine whether you will be disadvantaged by your mobility or if you will negatively impact others’ work.

Communication Expectations:
The best way to contact the instructor and graduate assistant for this course is via email (see contact information at the top of the syllabus). Students should expect a response from the instructor or graduate assistant no later than 48 hours after an email is sent or voicemail is left.

Course assignments, projects, and other assessments will be graded no later than 7 days after the due dates posted within the syllabus and eCampus calendar. If dates need to be adjusted based on unforeseen circumstances, an announcement will be sent from eCampus.

Netiquette Expectations:
TAMU Instructional Technology Services provides general netiquette rules that students and faculty are expected to follow in this course. For more information, please visit http://its.tamu.edu/Distance-Education/Aggie-Honor-Code-Netiquette.
Institutional Policies

Americans with Disabilities Act (ADA) Policy Statement:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information visit http://disability.tamu.edu.

This course uses Blackboard Learn as its online platform. To know more about its accessibility standards please to their website. http://www.blackboard.com/Platforms/Learn/Resources/Accessibility.aspx.

If you find that course content or software are not accessible, please contact your course instructor or disability services so that appropriate accommodations to the learning environment can be made.

Academic Integrity Statement and Policy:
For many years Aggies have followed a Code of Honor, which is stated in this very simple verse:

________________________________________
“An Aggie does not lie, cheat or steal, or tolerate those who do.”
________________________________________

The Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other. For more information, please visit http://aggiehonor.tamu.edu/

Student Rules:
Each student has the responsibility to be fully acquainted with and to comply with the Texas A&M University Student Rules. More specific rules, information and procedures may be found in various publications pertaining to each particular service or department. For more information, please visit http://student-rules.tamu.edu/

Statement of Plagiarism:
All materials generated by the instructor for this class (which may include but are not limited to syllabi and in-class materials) are copyrighted. You do not have the right to copy such materials unless the instructor expressly grants permission. As commonly defined, plagiarism consists of passing off as one’s own ideas, words, writing, etc. which belong to another. Plagiarism is one of the most serious academic violations, for the plagiarist destroys trust among others. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.”

Export Control Statement:
United States export control laws regulate the release of goods and technologies that affect U.S. national security or foreign policy interests. Distance education students and course content MUST comply with these U.S. export control laws. If TAMU indicates that you are attempting to access course content from an IP address associated with a country currently subject to economic and trade sanction, your TAMU NetID account will be terminated and you will be contacted by the TAMU Export Control Office and the Office of Identity Management. For additional information visit, https://vpr.tamu.edu/resources/export-controls/resources.
## Course Change Request

### New Course Proposal

**Date Submitted:** 09/25/17 11:21 am  
**Viewing:** TCMT 641 : Capstone II  
**Last edit:** 09/25/17 5:00 pm  
**Changes proposed by:** jsass  
**Faculty Senate Number**

### Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan Sass</td>
<td><a href="mailto:jsass@tamu.edu">jsass@tamu.edu</a></td>
<td>979-458-5083</td>
</tr>
<tr>
<td>Dr. Ben Zoghi</td>
<td><a href="mailto:zoghi@tamu.edu">zoghi@tamu.edu</a></td>
<td>979-676-3533</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course prefix</th>
<th>TCMT</th>
<th>Course number</th>
<th>641</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Eng Tech &amp; Ind Distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College/School</td>
<td>College of Engineering</td>
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</tr>
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<td>Academic Level</td>
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<td></td>
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<td>Academic Level</td>
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<td></td>
</tr>
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<td>Effective term</td>
<td>2018-2019</td>
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</tr>
<tr>
<td>Complete Course Title</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Abbreviated Course Title</td>
<td>CAPSTONE II</td>
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**Catalog course description**

Research project for firm or the Global Supply Chain Laboratory under the guidance of the instructor, other faculty and researchers in the lab; development of a problem statement, proposal, mid-term update, final report, and presentation for management.

**Prerequisites and Restrictions**

Admission to the Master of Engineering Technical Management program.

**Concurrent Enrollment** No

**Should catalog prerequisites / concurrent enrollment be enforced?** No

**Crosslistings** No  
**Crosslisted With**

**Stacked** No  
**Stacked with**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credit Hour(s)</th>
<th>Lecture (per week):</th>
<th>Lab:</th>
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<th>Total</th>
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</tr>
</tbody>
</table>

**Repeatable for credit?** No

**Three-peat?** No

**CIP/Fund Code** 1515010006

### Approval Path

1. 09/25/17 11:25 am  
   Reza Langari (rlangari):  
   Approved for ETID Department Head
2. 09/25/17 5:01 pm  
   Sandra Williams (sandra-williams):  
   Approved for Curricular Services Review
3. 09/27/17 4:57 pm  
   Jennifer Veracruz (jveracruz):  
   Approved for EN Committee Preparer GR
4. 10/23/17 3:17 pm  
   Prasad Enjeti (enjeti):  
   Approved for EN Committee Chair GR
5. 11/13/17 1:14 pm  
   Prasad Enjeti (enjeti):  
   Approved for EN College Dean GR
6. 11/22/17 8:53 am  
   LaRhesa Johnson (ljohnson):  
   Approved for GC Preparer
7. 12/14/17 10:59 am  
   LaRhesa Johnson (ljohnson):  
   Approved for GC Chair
Default Grade Mode: Letter Grade
Alternate Grade Modes: Satisfactory/Unsatisfactory
Method of instruction: Lecture
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) Yes

Learning Outcomes
Does not meet traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met.
This course will only be offered in a non-traditional format; therefore, it will not have traditional face-to-face learning outcomes to compare to.

Hours
Does not meet traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met.
This course is project-based. Students will still have videos, articles, and lecture materials to cover, but they will also spend a lot of time researching, creating, and presenting their final project.

Will this course be taught as a distance education course? Yes
I verify that I have reviewed the FAQ for Export Control Basics for Distance Education. Yes
Is 100% of this course going to be taught in Texas? Yes
Will classroom space be needed for this course? No

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Program(s)</th>
</tr>
</thead>
</table>

### Course Syllabus

Syllabus: Upload syllabus
Upload syllabus: TCMT 641 - Capstone II - Thompson.docx

Letters of support or other documentation: No
Additional information:

Reviewer Comments: Sandra Williams (sandra-williams) (07/19/17 5:57 pm): Made edits to form;
Sandra Williams (sandra-williams) (07/20/17 4:59 pm): Rollback: Please update: syllabus title does not match
form; prerequisites do not match form; syllabus appears to be incomplete; late work not accepted - what about university excused absences?; shows old ADA statement; header for additional pages show incorrect information; is this a traditional 15 week course - if not, what are the weeks/contact hours?


Sandra Williams (sandra-williams) (09/25/17 5:01 pm): Update received.

Reported to state?

Add
Instructor: Dr. Steve Thompson  
Telephone: 512-694-9772  
Email: swthompson@tamu.edu  
Location: Fermier Hall, Room 012

Course Description:

In this course, the student will define, elucidate, conduct and conclude a research project for a business entity of their choice under the guidance of the instructor with additional guidance/advise from other METM faculty. The student will select a project that can have significant positive impact on the firm’s business or research programs, initiatives, persistent problem areas or operational activities. The student will select a research topic, develop a problem statement, a single page strategy, a proposal, mid-term update, final report, and provide an oral and visual presentation and written final report for the instructor and other METM faculty which will include performance evidence of the proposed results. The research project must meet the needs of the appropriate business entity with potential outcomes having positive business performance results.

Prerequisites:
Admission to the METM program

Overall Course Learning Outcomes

Upon completion of this course, the student will be able to:

1. Demonstrate the systematic thought processes used in project selection/rejection and assessment of current industry nominal to best practices in similar circumstances.
2. Apply advanced research and problem solving methodologies appropriate to a highly skilled technical manager in industry.
3. Conceive, define, document, and secure agreement on a problem statement and research proposal from real-world business challenges in their company. Define ROI components for said proposal.
4. Identify, describe and implement the key steps in a large scale project proposal preparation including problem identification, literature review, analysis methodology, data collection plan, expected findings (business case), as well as delivering a written final project paper and oral presentation based on the research to Faculty, and Peers.

Getting Started
To get started within this course, you will need to:

- Review the syllabus in its entirety
- Login to the course website, eCampus (see directions below), to:
  - ensure that you have access and the correct plug-ins installed,
  - update your user profile,
  - spend some time becoming familiar with the course layout, and
  - complete the introductory forum.

Resource Materials & Course Technology
Required Textbook and Resource Materials:
All prior METM course materials, discussions and exercises may be used/referenced as source material as appropriate.

eCampus:
This course will use the TAMU eCampus, powered by Blackboard Learn, as the virtual classroom. Within eCampus, you can find all course related content and assessments (including but not limited to course materials, content, videos, activities, assessments, etc.). The recommended browsers for eCampus access are Mozilla Firefox or Google Chrome (Internet Explorer is not recommended). For additional information on support browsers for eCampus, please visit http://tx.ag/eCampusBrowserSupport. To login to eCampus:

- Go to http://ecampus.tamu.edu
- Click the Login button
- Use your TAMU NetID and password to login

Once logged into eCampus, you will see a list of all courses for which you are enrolled in for the semester. To navigate to this course, click on the name of the course. If you have any problems logging into the course, please see the technology support section below.

Technology Requirements & Recommendations:
Technology Requirements:

- Reliable and frequent access to a computer and to the high-speed Internet. If you do not have frequent and reliable access to a computer with Internet connection, please contact the instructor to discuss your situation and determine an appropriate solution.
- To attend virtual office hours, students will need to make sure they have setup Bb Collaborate to run on their computer(s) and mobile devices. Please visit http://blackboard.force.com/publickbarticleview?id=kA770000000CbIW to check your system requirements and test your connection.
  - It is required to have a microphone and webcam when using Bb Collaborate. While many student use a built in webcam, it is recommended to have a headset with a microphone, such as a smart phone headset, for the virtual office hours and group collaboration.
- Students will also need the following software/plug-ins for this course:
  - ADD any requirements for technology or software specific for the course.

Technology Recommendations:

- Google Hangouts can also be used to work collaboratively in a virtual environment for group projects. Students will need to make sure they have claimed a TAMU Google account. To claim and learn more about your account, please visit http://google.tamu.edu.

Course Support
In addition to contacting the instructor or graduate assistant for course content related questions, there are a variety of campus resources for course support.
Academic Services Support:
The Office of Graduate & Professional Studies (OGAPS) offers graduate student services and advocates for graduate education for Texas A&M students who are both on-campus and at a distance. For additional information regarding OGAPS, visit: [http://ogaps.tamu.edu/Home](http://ogaps.tamu.edu/Home)

Technology Support:
For technological issues related to eCampus and software, contact the TAMU Help Desk:

- TAMU IT Help Desk:
  - Website: [http://hdc.tamu.edu/index.php](http://hdc.tamu.edu/index.php) (Online Chat is available)
  - Phone: (979) 845-8300
  - Email: helpdesk@tamu.edu

The TAMU Help Desk is open 24 hours a day 7 days a week. If your technical problems are unable to be resolved within 48 hours, please contact the instructor for additional assistance.

*Technology issues are generally not an excuse for missing a course requirement/deadline – make sure your computer is configured correctly and address issues well in advance of deadlines. In the event of extensive travel or business schedule conflicts, contact the instructor for alternatives.*

Course Activities and Assessments

1. Problem Statement, Single Page Strategy and initial Management Meeting 200 Points
2. Proposal 200 Points
3. Mid Term Management Meeting 100 Points
4. Final Management Presentation 200 Points
5. Final Project Paper 300 Points

Total 1000 Points

Determination of Final Grades within the Course

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<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100.00%-90.00%</td>
<td>Above 900 points</td>
</tr>
<tr>
<td>B</td>
<td>89.99%-80.00%</td>
<td>800 – 899 points</td>
</tr>
<tr>
<td>C</td>
<td>79.99%-70.00%</td>
<td>700 – 799 points</td>
</tr>
<tr>
<td>D</td>
<td>69.99%-60.00%</td>
<td>600 – 699 points</td>
</tr>
<tr>
<td>F</td>
<td>Less than 59.99%</td>
<td>Below 599 points</td>
</tr>
</tbody>
</table>

Important Note: Due dates will be enforced to guarantee effective project execution. Students will be allowed a total of 2 weeks clemency for the entire course. Once that time is used up, any late submissions will be assessed a 5% per day penalty. Due dates are on defined day at 8:00 AM Central Time.

Problem Statement
The problem statement in about 250 words (maximum) must briefly describe the problem background, objective, proposed outcome of the study, and impact on the sponsors business results. It provides an overview of the Capstone project and is sometimes referred as the statement of purpose.

This is an important first step in the overall program. Based on the information gathered from the sponsors, the problem statement acts a guide which can be referred to time and again to conduct your research in the best possible direction so as to achieve the set objectives and targets. The problem statement can be broadened at a later stage based on the observed trends and results. Please keep in mind that the purpose of the problem statement prepares you to be an expert on your chosen topic of research. It has to be clear and succinct.

Single Page Strategy
A single page strategy linked to the problem statement will be defined as per TCMT 631 and will serve as the on-going guideline and control document throughout the course of the program. Revisions to the project, deliverables, timeline, ROI, or manpower will be
reflected in this revision controlled document. Monthly updates are expected with text changes highlighted red and outdates struck through. Evidence of significant scope change (creep or compression) will be subject to discussion and approval.

The Proposal
The proposal should consist of the following components:

*Introduction*
The introduction is your problem statement along with any further explanatory material that helps the reader understand what your project is about and why you feel it is important.

*Literature Review or Background Research*
The literature review is an explanation of findings from other researchers and authors on your topic. Each paper or book should be described in your own words. You describe what they did and found and why it is relevant to your project. The purpose of the literature review is to demonstrate you did your homework and have established some expertise on the topic. The literature review also helps the reader to understand the background on related solutions from other experts. The papers must be properly cited and included in your bibliography. Quality and depth of resources vary but it is hard to imagine a nine-month project with less than 10 references that are described in the literature review. You will read many papers that are not ultimately used in your project. If you do not use them, do not include them in your literature review or bibliography.

*Methodology & Timeline*
The methodology section explains how you intend to execute your project. It should include a description of the mathematical analysis, surveys, process mapping, or other methods you plan to use. Data sources, support from colleagues or external experts, and other needed resources should be explained in detail. What will be engaged, to what level, to achieve what purpose?
Smal examples demonstrating how you will conduct the research should be included at this point so the reader understands what you intend to do. Results from a small sample group for a survey, an example process map, or some analysis off some preliminary data. This section should also include your project timeline laid out in a GANT or other project management style.

*Return on Investment*
This section should address how you will determine the ROI for your project. You describe what variables and processes will be impacted and how to connect them to items in the income statement and balance sheet.

*Bibliography*
All relevant sources.

The Project Report
The final report should consist of the following components:

*Executive Summary*
A succinct 2 page (Times New Roman, 10 font) synopsis of your findings. It should focus on what you found and any foundation needed for those findings from your literature review. The Executive Summary should be an inclusive document including the initial case for change, recommendations for fan-out or extendibility and what the return on investment will be for the firm.

*Introduction*
From your proposal with any edits.

*Literature Review or Background Research*
From your proposal with any edits.

*Project Description*
This section describes your project. What you did and why it was selected. You should describe your analysis, findings for different scenarios, challenges you faced, methods used. Most of your methodology section from your proposal may be used but expanded to include relevant data and findings.

*Recommendations*
This section is your recommendations for the firm based on your findings. Each recommendation should be explained in detail to include implementation strategies as well as ROI impact.
**Return on Investment**

This section will now demonstrate the ROI for your recommendations. A product/project lifecycle methodology for expressing R may be used and should include labor, materials, assets, and other cost/return variables.

**Schedule**

<table>
<thead>
<tr>
<th>Month</th>
<th>Task</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td><strong>Problem Statement &amp; Management Meeting</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Submit</strong>: Problem Statement</td>
<td>3rd Monday</td>
</tr>
<tr>
<td>October</td>
<td><strong>Submit</strong>: Literature Review</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Submit</strong>: Project Methodology and Timeline</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Submit</strong>: Single Page Strategy</td>
<td></td>
</tr>
<tr>
<td>November</td>
<td><strong>Research Proposal</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Submit</strong>: ROI and Final Rough Draft</td>
<td>3rd Monday</td>
</tr>
<tr>
<td>December</td>
<td><strong>Research Proposal</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Submit</strong>: Research Proposal Final Draft</td>
<td>3rd Monday</td>
</tr>
<tr>
<td>January</td>
<td><strong>Data Collection &amp; Alternative Solutions</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Do</strong>: Mid Term Management Meeting</td>
<td>3rd Monday</td>
</tr>
<tr>
<td></td>
<td>More instructions will be given later.</td>
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<tr>
<td>March</td>
<td><strong>Selected Solution &amp; ROI Argument</strong></td>
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</tr>
<tr>
<td></td>
<td><strong>Submit</strong>: Final Project Report-Rough Draft.</td>
<td>4th Monday</td>
</tr>
<tr>
<td>April</td>
<td><strong>Final Presentation</strong></td>
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<td></td>
<td><strong>Do</strong>: Steering Committee Final Presentation</td>
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<tr>
<td></td>
<td><strong>Submit</strong>: Final Paper</td>
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</tr>
<tr>
<td>May</td>
<td><strong>Final Presentation to Faculty, and Peers</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Do</strong>: Final Presentation on day before Graduation</td>
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</table>
Course Policies

Late Work Policy:
LATE WORK is not accepted except in the event of a university excused absence or pre-arrangement with the instructor. This course relies on discussion, interaction, and group work among class members. Therefore it is essential that work be completed on schedule. At the beginning of every module, you should spend time planning. Read the learning modules very carefully. Punctuality is especially important when assignments impact your classmates. If your schedule impacts others, notify them and me and make alternative arrangements.

If an unforeseen event(s) arises such as a university excused absence, you must follow the TAMU student rule regarding attendance to makeup these assignments. For more information on TAMU excused absences, please visit http://student-rules.tamu.edu/rule07. If you do not have a university excused absence and miss an assignment, you may see a deduction of a point or two in your overall your grade. If this is a rare occurrence and your work for this class it otherwise excellent, it should make no difference in your final grade for the course. It is only when work is frequently late and/or quality of the work is consistently below standard that your final grade will suffer. In those rare circumstances where an emergency takes you away from the course for an extended period of time, contact your instructor right away to make arrangements.

Incomplete Grade:
Grades of “INCOMPLETE” will be given only for certifiable medical reasons or in other extraordinary circumstances arranged in advance. If you are planning to be away from your usual location (travel, vacation, etc.) during this course, consider dropping the course or discuss your situation with me and we can see if you will be disadvantaged by your mobility or impacting others’ work.

Institutional Policies

Americans with Disabilities Act (ADA) Policy Statement:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Academic Integrity Statement and Policy:
For many years Aggies have followed a Code of Honor, which is stated in this very simple verse:

"An Aggie does not lie, cheat or steal, or tolerate those who do."

The Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other.

For more information please visit, http://student-rules.tamu.edu/aggiecode and http://aggiehonor.tamu.edu

Statement of Plagiarism:
All materials generated for this class (which may include but are not limited to syllabi and in-class materials) are copyrighted. You do not have the right to copy such materials unless the instructor expressly grants permission. As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writing, etc. which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Plagiarism is one of the worst academic violations, for the plagiarist destroys trust among others. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.”

Export Control Statement:
United States export control laws regulate the release of goods and technologies that affect U.S. national security or foreign policy interests. Distance education students and course content MUST comply with these U.S. export control laws. If TAMU indicates that you are attempting to access course content from an IP address associated with a country currently subject to economic and trade
sanction, your TAMU NetID account will be terminated and you will be contacted by the TAMU Export Control Office and the Office of Identity Management. For additional visit, https://vpr.tamu.edu/resources/export-controls/resources.

Explore the area of Emotional Intelligence (EQ), identify personal EQ competencies and areas for improvement, and build on these competencies and skills. Manage our emotions, anticipate and work with the emotions of others. We will work individually and in teams, use activities, discussion and reflection to attain our objectives.

We encourage you to be open to change and to cultivate your desire to improve. You can only change yourself--nobody else can change you and you can’t change anyone else! We want you to apply a rigorous process of acting→observing→reflecting→planning→acting… as you work you will build on your strengths and learn to compensate for your weaknesses. You will work together, support one another, and learn a process that should continue throughout your life. Course assignments will be designed to prompt students to actively participate in their learning through critical inquiry; by listening and contributing to class discussion; in reading broadly from research sources and writing original works.

Our work together will be done both during class sessions and between class sessions. Class time will include lectures, discussion, exercises, sharing, feedback, and group work. We will introduce ideas and perspectives and then begin to develop skills. You will participate in some group activities: a “team-building” exercise, a service project, and an in-class presentation.

This hands-on course will prepare you to use the skills of emotional intelligence in your career and life. This is NOT a "self-help" course. It is intended for those who realize there is always more to learn around important, complex topics and that emotional intelligence is as crucial in the workplace as the more traditional forms of intelligence that are emphasized in academic life. Many lectures will include guided practice in aspects of emotional intelligence such as stress management, communication skill building and enhancing positive emotion. These experiences are designed to enhance each participant’s abilities to better deal with academic, career, and life issues. We welcome graduate students from all disciplines who want to cross the boundaries between psychology and neuropsychology, business and human values, and are open to exploring ways of thinking that emphasize honest reflection, openness to experience and self-awareness. Through a series of hands-on exercises, a range of assessments and lectures about aspects of emotional competence and success, participants can broaden their vision of success and what satisfies them.
Course Change Request

New Course Proposal

Date Submitted: 09/28/17 3:41 pm

Viewing: TCMT 642 : Managing Technical Teams

Last edit: 10/03/17 9:21 am
Changes proposed by: jsass

Faculty Senate Number

<table>
<thead>
<tr>
<th>Contact(s)</th>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jordan Sass</td>
<td><a href="mailto:jsass@tamu.edu">jsass@tamu.edu</a></td>
<td>979-458-5083</td>
</tr>
</tbody>
</table>

Course prefix | TCMT 42 Course number | 642
Department | Eng Tech & Ind Distribution
College/School | College of Engineering
Academic Level | Graduate
Academic Level (alternate) | Undergraduate
Effective term | 2018-2019
Complete Course Title | Managing Technical Teams
Abbreviated Course Title | MANAGING TECHNICAL TEAMS

Catalog course description
Offers background, tools and basic understanding into the skills, traits, expectations and interactions of a manager or leader of a technical or professional team; compilation of tacit knowledge; focuses on eight key elements central and fundamental to successful technical leadership and management; introduction to a series of case examples or scenarios and appropriate readings and discussions to support concepts.

Prerequisites and Restrictions
Admission to the Master of Engineering Technical Management program.

Concurrent Enrollment | No
Should catalog prerequisites / concurrent enrollment be enforced? | No
Crosslistings | No
Crosslisted With
Stacked | No
Stacked with

Semester | 3
Credit Hour(s) | 3 (per week):
Contact Hour(s): | 3
Lecture: | Total
Lab: | 0
Other: | 0
Repeatable for credit? | No
Three-peat? | No
CIP/Fund Code | 1515010006

In Workflow
1. ETID Department Head
2. Curricular Services Review
3. EN Committee Preparer GR
4. EN Committee Chair GR
5. EN College Dean GR
6. GC Preparer
7. GC Chair
8. Faculty Senate Preparer
9. Faculty Senate
10. Provost II
11. President
12. Curricular Services
13. Banner

Approval Path
1. 10/02/17 8:09 pm
Reza Langari (rlangari): Approved for ETID Department Head
2. 10/03/17 9:22 am
Sandra Williams (sandra-williams): Approved for Curricular Services Review
3. 10/24/17 4:36 pm
Jennifer Veracruz (jveracruz): Approved for EN Committee Preparer GR
4. 11/13/17 1:10 pm
Prasad Enjeti (enjeti): Approved for EN Committee Chair GR
5. 11/13/17 1:14 pm
Prasad Enjeti (enjeti): Approved for EN College Dean GR
6. 11/22/17 8:53 am
LaRhesa Johnson (lrjohnson): Approved for GC Preparer
7. 12/14/17 10:59 am
LaRhesa Johnson (lrjohnson): Approved for GC Chair
Default Grade Mode: Letter Grade (G)
Alternate Grade Modes: Satisfactory/Unsatisfactory
Method of instruction: Lecture
Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education) Yes

Learning Outcomes:
Does not meet traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met.
This course will only be offered in a non-traditional format; therefore, it will not have traditional face-to-face learning outcomes to compare to.

Hours:
Meets traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met.
Students will have 15 weeks to complete the course. Each week, students will be given about 3 hours of activities seen in face-to-face offerings in the format of audio and video lectures, podcasts, videos, online discussions, and/or group work. Students will have about 90 hours of work outside of class time such as reading from assigned books/articles/case studies and completing assignments such as papers, quizzes, and course projects.

Will this course be taught as a distance education course? Yes
I verify that I have reviewed the FAQ for Export Control Basics for Distance Education. Yes
Is 100% of this course going to be taught in Texas? Yes
Will classroom space be needed for this course? No

This will be a required course or an elective course for the following programs:

<table>
<thead>
<tr>
<th>Program(s)</th>
<th>Semester(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(MET-TCMT) Master of Engineering Technical Management in Technical Management</td>
<td>Fall, Spring, Summer</td>
</tr>
</tbody>
</table>

---

**Course Syllabus**

Syllabus: Upload syllabus
Upload syllabus: [TCMT 642 - Managing Technical Teams.docx](https://nextcatalog.tamu.edu/courseleaf/approve#)

Letters of support or other documentation: No
Additional information

Reviewer Comments
Sandra Williams (sandra-williams) (07/19/17 6:08 pm): Made edits to form.
Sandra Williams (sandra-williams) (07/20/17 5:00 pm): Rollback: Please update: syllabus appears to be incomplete; missing course description and prerequisites; missing absence/late work/make-up policy; missing link to student rule 7; missing ADA statement; footer for additional pages show incorrect information.
Sandra Williams (sandra-williams) (10/03/17 9:22 am): Update received.

Reported to state?
Add
TCMT 642: Managing Technical Teams
Spring 2019

100% Online course through eCampus platform (http://ecampus.tamu.edu)

Instructor: Ronald L. Lerner
Telephone: (832) 314-6360
Email: rlerner@tamu.edu
Location: Location to be added here

Course Description:
This course is designed to offer a background, tools, and a basic understanding into the skills, traits, expectations, and interactions a manager or leader of a technical or professional team requires to be successful. Managing professional technical teams demands additional skillsets not normally associated, obtained or acquired from a traditional academic program such as a MBA. This course and the information presented is a compilation of tacit knowledge gained from decades of application, academic learning, and respected popular readings. Proper team management is imperative to any program, project, team, group, or company growth. This course is appropriate for all technical managers or leaders or those looking to move into a technical leadership role. This curriculum is designed and based around 8 key elements that are central and fundamental to successful technical leadership and management. This course is comprised of an introduction to each core element of a successful technical leader. Students will be introduced to a series of case examples or scenarios and appropriate readings along with individual and group discussions to further support these concepts.

Prerequisites:
First year residency within the METM Program

Overall Course Learning Objectives:
Upon completion of this course, students will be able to:

1. List the key components that define a successful technical manager
2. Compare and explain the interrelationship between the key technical leader elements
3. Identify, define, and explain the key technical leader terminology
4. Assess the impact of poor communication in the workplace
5. List the key decision factors for determining which communication channel should be used
6. Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
7. Identify and explain the importance components used to select and build a successful team
8. Identify and explain the legal, moral, and ethical impact a technical leader must consider when performing assigned duties
Getting Started:
To get started with this course, you will need to:
- Review the syllabus, in its entirety
- Login to the course website, eCampus (See directions below), to:
  - Ensure that you have access and the correct plug-ins installed,
  - Update your user profile,
  - Spend some time becoming familiar with the course layout, and complete the introductory forum

Resource Materials and Course Technology:

You can purchase these textbooks from the University Bookstore, or independent retailer, or online retailer. In some cases they may be available for electronic access or viewing.

eCampus
The Course will use the TAMU eCampus, powered by Blackboard Learn, as the virtual classroom. Within eCampus, you can find all related content and assessments (including but not limited to course materials, content, videos, activities, assessments, etc.). The recommended browsers are Mozilla Firefox or Google Chrome (Internet Explorer is not recommended). For additional information on supported browsers for eCampus, please visit: http://tx.ag/eCampusBrowserSupport. To login to eCampus:
- Go to http://ecampus.tamu.edu
- Click the Login Button
- Use your TAMU NetID and password to Login

Once logged into eCampus, you will see a list of all courses for which you are enrolled in for the semester. To navigate to this course, click on the name of the course. If you have any problems logging into the course, please see the technology support section below.

Technology Requirements & Recommendations
Technology Requirements:
- Reliable and frequent access to a computer and to the high-speed internet. If you do not have frequent and reliable access to a computer with internet connection, please contact the instructor to discuss your situation and determine an appropriate solution.
- To attend virtual office hours, students will need to make sure they have setup Bb Collaborate to run on their computer(s) and mobile devices. Please visit http://blackboard.force.com/publickbarticleview?id=kA770000000CblW to check your system requirements and test your connection.
  - It is required to have a microphone and webcam when using Bb Collaborative. While many students use a built in webcam, it is recommended to have a headset with a microphone, such as a smart phone headset, for the virtual office hours and group collaboration.
- Students will also need the following software/plug-ins for this course
  - Add any requirements for technology or software specific for this course

Technology Recommendations:
- Goggle Hangouts can also be used to work collaboratively in a virtual environment for group projects. Students will need to make sure they have claimed a TAMU Google account. To claim and learn more about your account, please visit [http://google.tamu.edu](http://google.tamu.edu).

**Course Support:**
In addition to contacting the instructor or graduate assistant for course content related questions, there are a variety of campus resources for course support.

**Academic Services Support:**
The Office of Graduate and Professional Studies (OGAPS) offers graduate student services and advocates for graduate education for Texas A&M students who are both on-campus and at a distance. For additional information regarding OGAPS, visit: [http://ogaps.tamu.edu/home](http://ogaps.tamu.edu/home)

**Technology Support:**
For technological issues related to eCampus and software, contact the TAMU help Desk:
- TAMU IT Help Desk:
  - Website: [http://hdc.tamu.edu/index.php](http://hdc.tamu.edu/index.php) (Online chat is available)
  - Phone: (979) 845-8300
  - Email: helpdesk@tamu.edu
The TAMU Help Desk is open 24 hours a day 7 days a week. If your technical problems are unable to be resolved within 48 hours, please contact the instructor for additional assistance.

*Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and address issues well in advance of deadlines.*

**Course Activities and Assessments:**
This course provides the fundamental background needed to properly manage a professional or technical team. Activities and assignments are designed and organized to address key components that make up a successful leader in today's professional and technical environment. Students will be presented with case scenarios coupled with individual and group exercises to better grasp the components of a professional and technical leader. These case examples and scenarios will be assigned as individual or as group tasks, each intended to exemplify or better illustrate one or many of the key technical leaders attributes. Course assessment will be based on interactions, understanding of course and subject material (including but not limited to terminology, concepts, and processes), timely completion of assignments, and grasp of the supplied material. In particular, students will be required to:
- Identify and understand the key elements of a professional and technical manager
- Describe in significant detail the interrelationship between the key elements of a successful leader
- Define the key components used to select, build, and retain a successful team
- Define and describe the role of a technical leader or manager within any organization
- Understand the different skills needed to manage company resources versus outsources resources
- Identify and describe different communication channels and when they should be used
- Describe a technical leaders responsibility regarding legal, moral, ethical, and professional expectations and limitations
- Define in sufficient detail key terms of a technical and professional leader
- Describe in sufficient detail the impact of poor communication
- Understand the dynamics of a technical team and how to manage different type of individuals
Determination of Final Grades within the Course:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100.00%-90.00%</td>
<td>Above 1260 Points</td>
</tr>
<tr>
<td>B</td>
<td>89.99%-80.00%</td>
<td>1259 – 1120 Points</td>
</tr>
<tr>
<td>C</td>
<td>79.99%-70.00%</td>
<td>1119 – 980 Points</td>
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<tr>
<td>D</td>
<td>69.99%-60.00%</td>
<td>979 – 840 Points</td>
</tr>
<tr>
<td>F</td>
<td>Less than 59.99%</td>
<td>Below – 839 Points</td>
</tr>
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</table>

Assignments

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-01: Key elements of a successful leader / manager, Introduction / Group teaming</td>
<td>50 Points</td>
</tr>
<tr>
<td>TCMT644-02: Selecting, staffing, resource allocation, &amp; retaining technical team members</td>
<td>50 Points</td>
</tr>
<tr>
<td>TCMT644-03: Leadership, Management, Documentation and day-to-day operations</td>
<td>50 Points</td>
</tr>
<tr>
<td>TCMT644-04: Managing and Leading as a Mediator</td>
<td>100 Points</td>
</tr>
<tr>
<td>TCMT644-05: Managing and Leading as a Facilitator</td>
<td>100 Points</td>
</tr>
<tr>
<td>TCMT644-06: Managing and Leading as a Communicator</td>
<td>150 Points</td>
</tr>
<tr>
<td>TCMT644-07: Managing and Leading Responsibly and with Accountability</td>
<td>50 Points</td>
</tr>
<tr>
<td>TCMT644-08: Managing and Leading as a Career Coach</td>
<td>100 Points</td>
</tr>
<tr>
<td>TCMT644-09: Managing and Leading as a Motivator / Teaming Exercises</td>
<td>100 Points</td>
</tr>
<tr>
<td>TCMT644-10: Managing and Leading as a Liaison</td>
<td>50 Points</td>
</tr>
<tr>
<td>TCMT644-11: Managing and Leading as a Cultural Ambassador</td>
<td>50 Points</td>
</tr>
<tr>
<td>TCMT644-12: Managing and Leading as a Change Champion</td>
<td>50 Points</td>
</tr>
<tr>
<td>TCMT644-13: Dealing with Problem Employees</td>
<td>100 Points</td>
</tr>
<tr>
<td>TCMT644-14: Liabilities, the Law, and How it Applies to You as a Leader</td>
<td>50 Points</td>
</tr>
<tr>
<td>TCMT644-15: Handling internal and external proprietary and intellectual property</td>
<td>50 Points</td>
</tr>
<tr>
<td>TCMT644-16: Managing cultural diversity, biases and Geographically Isolated Teams</td>
<td>50 Points</td>
</tr>
<tr>
<td>TCMT644-17: Financial responsibilities of a Leader and Manager</td>
<td>50 Points</td>
</tr>
<tr>
<td>TCMT644-18: Technical Writing for a Non-Technical or Mixed Audience</td>
<td>100 Points</td>
</tr>
<tr>
<td>TCMT644-19: Summary Review – A holistic view of Leadership and Technical Management</td>
<td>100 Points</td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td><strong>1400 Points</strong></td>
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## Course Outline: [Note *: Course week is defined as Monday through Friday]

<table>
<thead>
<tr>
<th>Week 01</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TCMT644-01</strong></td>
<td><strong>Module: Key elements of a successful professional leader / manager, Introduction to Team Leading</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Module Synopsis:</strong> Student introduction to the central concepts and underlying key elements of a successful technical leader and manager to be addressed in greater detail in subsequent weeks.</td>
<td></td>
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</tr>
<tr>
<td>➢ Read: Introduction</td>
<td></td>
<td>1st Day*</td>
</tr>
<tr>
<td>➢ Read: Chpt. XX, pages xxx-xxx -The Essentials of Technical Communication</td>
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<tr>
<td>➢ Collaborate: Group collaborative discussion on the need for new products</td>
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<tr>
<td>➢ Submit: Individual subjective views on the key elements of a good manager</td>
<td>Middle of 1st week*</td>
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</tr>
<tr>
<td>➢ Read: Teaming Exercise</td>
<td>Middle of 1st week*</td>
<td></td>
</tr>
<tr>
<td>➢ Collaborate: Group collaborative, in groups of 3-4 conduct the teaming exercise</td>
<td>Middle of 1st week*</td>
<td></td>
</tr>
<tr>
<td>➢ Submit: Individual subjective views on the key elements of a good manager</td>
<td>End of 1st week*</td>
<td></td>
</tr>
</tbody>
</table>

**Key Assessment Topics Covered:**
- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- Assess the impact of poor communication in the workplace
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
- Identify and explain the importance components used to select and build a successful team
- Identify and explain the legal, moral, and ethical impact a technical leader must consider when performing assigned duties

| **TCMT644-02** | **Module: Selecting, staffing, resource allocation, & retaining technical team members** | |
| **Module Synopsis:** Student introduction to the importance of staffing criteria, resource allocation and utilization, individual and team growth, individual and team retention, and the concept of a manager as a friend versus supervisor. | | |
| ➢ Read: Presented material on team selection, | | 1st week* |
| ➢ Read: Chpt. XX, pages xxx-xxx -Managing Engineers & Technical Employees | | 1st week* |
| ➢ Submit: individual exercise | By end of 1st week* |

**Key Assessment Topics Covered:**
- List the key components that define a successful technical manager
- Identify, define, and explain the key technical leader terminology
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
- Identify and explain the importance components used to select and build a successful team
- Identify and explain the legal, moral, and ethical impact a technical leader must consider when performing assigned duties
### Week 02
#### TCMT644-03 Module: Leadership, Management, Documentation and Day-To-Day Operations

**Module Synopsis:** Student introduction to the importance of staffing criteria, resource allocation and utilization, individual and team growth, individual and team retention, and the concept of a manager as a friend versus supervisor.

- **Read:** Chpt. XX, pages xxx-xxx - *The Essentials of Technical Communication*  
  *Deadlines: 1st day 2nd week*
- **Collaborate:** Group collaborative discussion of presented material from modules 01-03  
  *Deadlines: 2nd week*
- **Submit:** Individual assessment of material, key elements identified [QUIZ]  
  *Deadlines: By end of 2nd week*

**Key Assessment Topics Covered:**
- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- List the key decision factors for determining which communication channel should be used
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
- Identify and explain the legal, moral, and ethical impact a technical leader must consider when performing assigned duties

### Week 03
#### TCMT644-04 Module: Managing and Leading as a Mediator

**Module Synopsis:** Student introduction to the concept and importance of technical leader as a mediator. Guidelines and techniques on how to deal with individual and team dynamics and conflict that may occur during day-to-day activities.

- **Read:** Chpt. XX, pages xxx-xxx - *Managing Engineers & Technical Employees*  
  *Deadlines: 1st half of 3rd week*
- **Read:** Handout material from instructor on Mediator  
  *Deadlines: 1st half of 3rd week*
- **Submit:** Self-Assessment  
  *Deadlines: During 3rd week*
- **Read:** Case Example  
  *Deadlines: During 3rd week*
- **Collaborate:** The class will be split into two groups, each group shall collaborate independently and discuss the concepts, implications, and principles of the Mediator Objectives  
  *Deadlines: During 3rd week*
- **Submit:** Each team shall submit one “Team Assessment” of a leader in the role of a mediator following the instructions provided  
  *Deadlines: By end of 3rd week*
- **Submit:** Individually complete the “Successful Mediator Component” assessment section following the instructions provided  
  *Deadlines: By end of 3rd week*
- **Read:** Individual Assessment Case Example  
  *Deadlines: During 3rd week*
- **Submit:** Each student shall independently complete the “Individual Assessment” section following the case example and instructions provided  
  *Deadlines: By end of 3rd week*

**Key Assessment Topics Covered:**
- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader

[Note *: Course week is defined as Monday through Friday]

<table>
<thead>
<tr>
<th>Week 04</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-05</td>
<td>Module: Managing and Leading as a Facilitator</td>
<td></td>
</tr>
</tbody>
</table>

**Module Synopsis**: Student introduction to the concept and importance of a technical leader as a facilitator. This module introduces and addresses the advantages of being able to facilitate situations and individuals or teams to accomplish project, programs, or company goals.

- **Read**: Chpt. XX, pages xxx-xxx -Managing Engineers & Technical Employees  
  1st half of 4th week*
- **Read**: Handout material from instructor on Facilitator  
  1st half of 4th week*
- **Submit**: Self-Assessment  
  During 4th week*
- **Read**: Case Example  
  During 4th week*
- **Collaborate**: The class will be split into two groups, each group shall collaborate independently and discuss the concepts, implications, and principles of the Facilitator Objectives  
  During 4th week*
- **Submit**: Each team shall submit one "Team Assessment" of a leader in the role of a Facilitator following the instructions provided  
  By end of 4th week*
- **Submit**: Individually complete the “Successful Facilitator Component” assessment section following the instructions provided  
  By end of 4th week*
- **Read**: Individual Assessment Case Example  
  During 4th week*
- **Submit**: Each student shall independently complete the “Individual Assessment” section following the case example and instructions provided  
  By end of 4th week*
- **Read**: The material for the “Group Exercise – Force-field Analysis”  
  During 4th week*
- **Submit**: Individually complete and submit the “Force-field” analysis  
  By end of 4th week*
- **Submit**: Individually complete the “Tips for expanding a FACILITATOR’s thinking” section  
  By end of 4th week*
- **Submit**: Individually complete and submit the “Force-field” analysis  
  By end of 4th week*
- **Collaborate**: As a group, discuss the importance, the factor's, actions, and responsibilities of a facilitator  
  By end of 4th week

**Key Assessment Topics Covered**:  
- List the key components that define a successful technical manager  
- Compare and explain the interrelationship between the key technical leader elements  
- Identify, define, and explain the key technical leader terminology  
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
### Week 05 Activities & Assignments

<table>
<thead>
<tr>
<th>TCMT644-06</th>
<th>Module: Managing and Leading as a Communicator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module Synopsis:</strong> Student introduction to the single most important element of a successful technical leader and manager. As a technical manager or leader you are introduced to the concept of one way and two way communication and the advantages and disadvantages to each. This module introduces the need to understand various audience types (technical and non-technical), how to convey information, the use of gestures, cultural nuisances, information detail and quantity.</td>
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</tbody>
</table>

#### Deadlines
- **Read:** Chapter XX, pages xxx-xxx - The Essentials of Technical Communication | 1st half of 5th week*
- **Read:** Handout material from instructor on a Communicator | 1st half of 5th week*
- **Submit:** Self-Assessment | During 5th week*
- **Read:** Case Example | During 5th week*
- **Collaborate:** The class will be split into two groups, each group shall collaborate independently and discuss the concepts, implications, and principles of the Communicator Objectives | During 5th week*
- **Submit:** Each team shall submit one “Team Assessment” of a leader in the role of a Communicator following the instructions provided | By end of 5th week*
- **Submit:** Individually complete the “Successful Communicator Component” assessment section following the instructions provided | By end of 5th week*
- **Read:** Individually read the hand out material on “Communication – Explained from a Manager’s Perspective” | During 5th week*
- **Collaborate:** The class will be split into two groups, each group shall collaborate independently and discuss the concepts mentioned from a leader or managers point of reference acting in the capacity of a Communicator. | During 5th week*
- **Submit:** Each team shall submit a collective opinion on the channels (factors) listed that make up a successful communicator, ranking them in order of importance with an explanation for the ordering. | By end of 5th week*
- **Submit:** Each team shall identify after a group discussion, and submit 5 examples of when for each channel (trait) is best utilized | By end of 5th week*

#### Key Assessment Topics Covered:
- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- Assess the impact of poor communication in the workplace
- List the key decision factors for determining which communication channel should be used
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
### Module: Managing and Leading as a Communicator

**Module Synopsis:** This module follows on with the technical leaders or manager’s role as a communicator introduced the previous week. It provides additional information, supporting examples and case scenarios to consider depending on audience type.

- **Read:** Chapter XX, pages xxx-xxx - *The Essentials of Technical Communication*  
  - 1st half of 6th week*

- **Read:** Hand out material on Non-Verbal Gestures and Global Interpretations  
  - During 6th week*

- **Collaborate:** The class will be split into two groups, each group shall discuss the concepts of non-verbal communication from the readings with emphasis to situational analysis, identifying with each non-verbal clue  
  - During 6th week*

- **Submit:** Each team shall submit a group collective opinion on the impact of non-verbal communication, additionally identify additional non-verbal characteristics the team has come across or can think of that are important for a leader to consider  
  - By end of 6th week*

- **Read:** The hand out material on “Technical Communication Explained”  
  - During 6th week*

- **Read:** Individual Assessment exercise and “Case Example”  
  - During 6th week*

- **Submit:** Each student shall independently complete the “Individual Assessment” section following the case example and instructions provided  
  - By end of 6th week*

- **Submit:** Individually complete and submit the Technical Communicator Quiz” section  
  - By end of 6th week*

**Key Assessment Topics Covered:**

- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- Assess the impact of poor communication in the workplace
- List the key decision factors for determining which communication channel should be used
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
### [Note *: Course week is defined as Monday through Friday]

<table>
<thead>
<tr>
<th>Week 07</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-07</td>
<td><strong>Module:</strong> Managing and Leading Responsibly and with Accountability</td>
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</tr>
<tr>
<td><strong>Module Synopsis:</strong> Student introduction to concepts of responsibility and accountability as a technical leader or manager, and how they relate to individuals, team members, customer, and vendor expectations. This module examines these concepts as a method of individual and team assessment and as a tool to use when examining rewards, promotions and rankings.</td>
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</tr>
<tr>
<td>➢ <strong>Read:</strong> Chpt. XX, pages xxx-xxx -Managing Engineers &amp; Technical Employees</td>
<td>1st half of 7th week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Read:</strong> Hand out material on Management and Team Accountability</td>
<td>During 7th week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Read:</strong> Hand out material on A leaders responsibility</td>
<td>During 7th week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Collaborate:</strong> The class will be split into two groups; each group shall discuss the concepts of Responsibility and Accountability from the readings.</td>
<td>During 7th week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Submit:</strong> Each team shall submit a group collective opinion on the importance of being a responsible and accountable leader or manager and the impacts of a leader or manager that doesn’t display both characteristics</td>
<td>By end of 7th week*</td>
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</tr>
<tr>
<td>➢ <strong>Submit:</strong> Each student shall independently complete and submit the quiz on “Reliability and Accountability”</td>
<td>By end of 7th week*</td>
<td></td>
</tr>
</tbody>
</table>

### Key Assessment Topics Covered:
- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- Assess the impact of poor communication in the workplace
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
- Identify and explain the importance components used to select and build a successful team
<table>
<thead>
<tr>
<th>Week 07 Con’t</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-08</td>
<td>Module: Managing and Leading as a Career Coach</td>
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</tbody>
</table>

**Module Synopsis:** Student introduction to the concept of a leader or manager as a career coach. This module looks at the benefit of promoting, retaining, and growing individuals and team members as a method of achieving intended short and long term goals.

- **Read:** Handout material from instructor on a Coaching 1st half of 7th week*
- **Complete:** Self-Assessment During 7th week*
- **Collaborate:** The class will be split into two groups, each group shall collaborate independently and discuss the concepts, implications, and principles of the Career Coach Objectives During 7th week*
- **Read:** Handout material from instructor on a Coaching Tools and Coaching Preferences 1st half of 7th week*
- **Complete:** Individually complete the “Coaching Tools and Coaching Preferences” section following the instructions provided By end of 7th week*
- **Submit:** Individually complete the “Coaching Obstacles to Overcome” section following the instructions provided By end of 7th week*
- **Read:** Handout material from instructor on assessing team needs and skills 1st half of 7th week*
- **Complete:** Individually complete the “Assessing Team Needs and Skills Instrument” exercise following the instructions provided By end of 7th week*

**Key Assessment Topics Covered:**
- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
- Identify and explain the importance components used to select and build a successful team
**Weekly Activities & Assignments**

<table>
<thead>
<tr>
<th>Week 08</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-08</td>
<td><strong>Module:</strong> Managing and Leading as a Career Coach – Con’t</td>
<td></td>
</tr>
</tbody>
</table>

**Module Synopsis:** This module follows on with the technical leaders or manager’s role as a career coach introduced the previous week. It provides additional details, examples and methods to consider with different types of employees or situations.

- **Read:** Handout material from instructor on Development Planning
  - **1**: 1st half of 8th week*

- **Collaborate:** Every student will be paired with another student, one to act as a leader or manager, and one as an employee.
  - **1**: 1st half of 8th week*

- **Complete:** As a pair, each will conduct the exercises and complete the Situational Analysis on development planning following the instructions provided
  - **By end of 8th week***

- **Read:** Handout material from instructor on The Development Action Planning
  - **1**: 1st half of 8th week*

- **Complete:** As a pair, each will conduct the exercises and complete the Development Action Plan for the other following the instructions provided
  - **By end of 8th week***

- **Submit:** Each team shall submit both “The Development Action Plan” exercises
  - **By end of 8th week***

- **Read:** Individually read the Coaching and Action Plan Checklist provided in the handout material
  - **By end of 8th week***

- **Read:** Read the handout material on continuous coaching and Feedback
  - **1**: 1st half of 8th week*

- **Complete:** Individually complete the Coaching worksheet from the handout material following the instructions provided
  - **By end of 8th week***

- **Collaborate:** The class will be divided into 4 groups; all students shall participate in the Round Robin discussion in accordance with the handout material instructions.
  - **By end of 8th week***

**Key Assessment Topics Covered:**
- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
- Identify and explain the importance components used to select and build a successful team

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*Note*: Course week is defined as Monday through Friday.
**[Note *: Course week is defined as Monday through Friday]**

<table>
<thead>
<tr>
<th>Week 08 Con't</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-09</td>
<td>Module: Managing and Leading as a Motivator / Teaming Exercises</td>
<td></td>
</tr>
</tbody>
</table>

**Module Synopsis:** Student introduction to the concept of being a motivator from the perspective of a leader or manager. In this module students will identify, study, and utilize the basic skills of a motivator. Students will examine multiple methods of motivation, and understand the positive and negative aspects of different motivational methods. Students will learn the differences between applied pressure, threats, rewards, guilt, and the implications from a legal, moral, and ethical perspective to these seemingly diametrically opposed motivational techniques.

- **Read:** Chpt. XX, pages xxx-xxx -Managing Engineers & Technical Employees  
  2\textsuperscript{nd} half of 8\textsuperscript{th} week*

- **Read:** Handout material from instructor on Motivator  
  2\textsuperscript{nd} half of 8\textsuperscript{th} week*

- **Complete:** Self-Assessment  
  During 8\textsuperscript{th} week*

- **Read:** Case Example  
  During 8\textsuperscript{th} week*

- **Collaborate:** The class will be split into two groups, each group shall collaborate independently and discuss the concepts, implications, and principles of the Motivator objectives included and missing from the case example  
  During 8\textsuperscript{th} week*

- **Submit:** Each team shall submit one “Team Assessment” of a leader in the role of a motivator following the instructions provided  
  By end of 8\textsuperscript{th} week*

- **Complete:** Individually complete the “Successful Motivator Component” assessment section following the instructions provided  
  By end of 8\textsuperscript{th} week*

- **Read:** Individual Assessment Case Example  
  By end of 8\textsuperscript{th} week*

- **Submit:** Each student shall independently complete the “Individual Assessment” section following the case example and instructions provided  
  By end of 8\textsuperscript{th} week*

- **Read:** Teaming Exercise  
  By end of 8\textsuperscript{th} week*

- **Collaborate:** In teams, collaborate on the teaming exercise and established appropriate responses  
  During 8\textsuperscript{th} week*

- **Submit:** Results of Teaming Exercise  
  By end of 8\textsuperscript{th} week*

**Key Assessment Topics Covered:**

- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader

TCMT 642 - Ronald Lerner, 2017
### Week 09: Activities & Assignments

<table>
<thead>
<tr>
<th>TCMT644-10</th>
<th>Module: Managing and Leading as a Liaison</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module Synopsis:</strong></td>
<td>Student introduction to the concept and importance of being a successful liaison in day-to-day activities, and the importance of communicating across internal and external boundaries to achieve intended goals while in the role of a technical leader or manager.</td>
</tr>
</tbody>
</table>

- **Read:** Chpt. XX, pages xxx-xxx - Managing Engineers & Technical Employees  
  1st half of 9th week*
- **Read:** Handout material from instructor on Liaison  
  1st half of 9th week*
- **Complete:** Self-Assessment  
  During 9th week*
- **Read:** Case Example  
  During 9th week*
- **Collaborate:** The class will be split into two groups, each group shall collaborate independently and discuss the concepts, implications, and principles of the Liaison objectives included and missing from the case example  
  During 9th week*
- **Submit:** Each team shall submit one “Team Assessment” of a leader in the role of a Liaison following the instructions provided  
  By end of 9th week*
- **Complete:** Individually complete the “Successful Liaison Component” assessment section following the instructions provided  
  By end of 9th week*
- **Read:** Individual Assessment Case Example  
  By end of 9th week*
- **Submit:** Each student shall independently complete the “Individual Assessment” section following the case example and instructions provided  
  By end of 9th week*

### Key Assessment Topics Covered:
- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader

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**Week 9 Continued**
### Week 09 Con’t

<table>
<thead>
<tr>
<th>TCMT644-11</th>
<th><strong>Module:</strong> Managing and Leading as a Cultural Ambassador</th>
</tr>
</thead>
</table>

#### Module Synopsis:
Student introduction to the concept and importance of being a successful liaison in day-to-day activities, and the importance of communicating across internal and external boundaries to achieve intended goals while in the role of a technical leader or manager.

- **Read:** Handout material from instructor on Liaison  
  1st half of 9th week*
- **Complete:** Self-Assessment  
  During 9th week*
- **Collaborate:** The class will be split into two groups, each group shall collaborate independently and discuss the values and importance of being a cultural ambassador as a leader and manager  
  During 9th week*
- **Submit:** Each team shall submit one “Team Assessment” of a leader in the role of a Cultural Ambassador following the instructions provided  
  By end of 9th week*

**Key Assessment Topics Covered:**
- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader

### Week 10

<table>
<thead>
<tr>
<th>TCMT644-12</th>
<th><strong>Module:</strong> Managing and Leading as a Change Champion</th>
</tr>
</thead>
</table>

#### Module Synopsis:
Student introduction to the concept and importance of being a successful liaison in day-to-day activities, and the importance of communicating across internal and external boundaries to achieve intended goals while in the role of a technical leader or manager.

- **Read:** Chpt. XX, pages xxx-xxx -Managing Engineers & Technical Employees  
  1st half of 10th week*
- **Read:** Handout material from instructor on Change Champion  
  1st half of 10th week*
- **Complete:** Self-Assessment  
  During 10th week*
- **Read:** Case Example  
  During 10th week*
- **Collaborate:** The class will be split into two groups, each group shall collaborate independently and discuss the concepts, implications, and principles of the Change Champion objectives included and missing from the case example  
  During 10th week*
Submit: Each team shall submit one “Team Assessment” of a leader in the role of a Change Champion following the instructions provided  

By end of 10th week*

Complete: Individually complete the “Successful Change Champion Component” assessment section following the instructions provided  

By end of 10th week*

Read: Individual Assessment Case Example  

By end of 10th week*

Submit: Each student shall independently complete the “Individual Assessment” section following the case example and instructions provided  

By end of 10th week*

Key Assessment Topics Covered:
- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader

Week 10 Continued

<table>
<thead>
<tr>
<th>Week 10 Con’t</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-13</td>
<td>Module: Dealing with Problem Employees</td>
<td></td>
</tr>
</tbody>
</table>

Module Synopsis: Student introduction to various individual and team situations commonly created by individuals referred to as a problem employee. In this module students will be introduced to the potential causes and effects of a problematic employee. Additional information will be presented for technical managers to identifying, interfacing, and handling this type of team member, along with who company resources that should be consulted during problematic employee engagements.

Read: Handout material from instructor on Problem Employees  

1st half of 10th week*

Complete: Self-Assessment  

During 10th week*

Read: Individual Assessment Case Example  

By end of 10th week*

Submit: Each student shall independently complete the “Individual Assessment” section following the case example and instructions provided  

By end of 10th week*

Key Assessment Topics Covered:
- List the key components that define a successful technical manager
- List the key decision factors for determining which communication channel should be used
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
- Identify and explain the importance components used to select and build a successful team
- Identify and explain the legal, moral, and ethical impact a technical leader must consider when performing assigned duties
[Note *: Course week is defined as Monday through Friday]

<table>
<thead>
<tr>
<th>Week 11</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-13</td>
<td>Module: Dealing with Problem Employees (con’t)</td>
<td></td>
</tr>
<tr>
<td><strong>Module Synopsis</strong>: This module follows on with the technical leaders or manager’s role when dealing with problem employees. Student will examine in greater detail the concepts discussed in prior weeks and applying them in a manner that is aligned with common practices and company procedures.</td>
<td></td>
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</tr>
<tr>
<td>➢ <strong>Read</strong>: Case Example</td>
<td>During 11th week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Collaborate</strong>: The class will be split into 4 groups, each group shall collaborate independently and discuss the problems, identification, mitigation tactics, legal ramifications, and implications of a problem employee on teams, moral, efficiency, and overall productivity</td>
<td>During 11th week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Submit</strong>: Each team shall submit one “Team Assessment” of a leader in the role of Dealing with Problem Employees following the instructions provided</td>
<td>By end of 11th week*</td>
<td></td>
</tr>
<tr>
<td><strong>Key Assessment Topics Covered:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>❖ List the key components that define a successful technical manager</td>
<td></td>
<td></td>
</tr>
<tr>
<td>❖ List the key decision factors for determining which communication channel should be used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>❖ Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader</td>
<td></td>
<td></td>
</tr>
<tr>
<td>❖ Identify and explain the importance components used to select and build a successful team</td>
<td></td>
<td></td>
</tr>
<tr>
<td>❖ Identify and explain the legal, moral, and ethical impact a technical leader must consider when performing assigned duties</td>
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</tbody>
</table>

Week 11 Con’t

<table>
<thead>
<tr>
<th>Week 11 Con’t</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-14</td>
<td>Module: Liabilities, the law, and how it applies to you as a leader</td>
<td></td>
</tr>
<tr>
<td><strong>Module Synopsis</strong>: Students will be introduced to legal considerations and potential liabilities faced each day during the course normal business by technical leaders and managers. The concepts of proper handling and impact of mishandling intellectual or proprietary property, contractual agreements, document retention policies, staffing and termination of employees.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Read</strong>: Presented material on legal aspects of a leader and manager</td>
<td>By end of 11th week*</td>
<td></td>
</tr>
<tr>
<td>Activities &amp; Assignments</td>
<td>Deadlines</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------</td>
<td>----------------------------</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Complete</strong>: Self-Assessment</td>
<td>During 11(^{th}) week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Read</strong>: Individual Assessment exercise and “Case Example”</td>
<td>During 11(^{th}) week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Submit</strong>: Each student shall independently complete the “Individual Assessment” section following the case example and instructions provided</td>
<td>By end of 11(^{th}) week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Read</strong>: Case Example</td>
<td>During 11(^{th}) week</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Submit</strong>: Each student shall independently complete the assignment on “Individual Assessment” section following the case example and instructions provided</td>
<td>By end of 11(^{th}) week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Read</strong>: Case Example</td>
<td>During 11(^{th}) week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Complete</strong>: Individually complete and submit the handout section titled “ethical, moral, or legal – which to choose”</td>
<td>By end of 11(^{th}) week*</td>
<td></td>
</tr>
</tbody>
</table>

**Key Assessment Topics Covered:**
- List the key components that define a successful technical manager
- List the key decision factors for determining which communication channel should be used
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
- Identify and explain the legal, moral, and ethical impact a technical leader must consider when performing assigned duties

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**Week 12**

<table>
<thead>
<tr>
<th>TCMT644-15</th>
<th>Module: Handling internal and external proprietary and Intellectual Property (IP)</th>
</tr>
</thead>
</table>

**Module Synopsis:** As a follow on to the prior module on the law and liabilities, this section provides more in depth details on the importance of intellectual and proprietary information, proper marking of such information, classifications.

<table>
<thead>
<tr>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ <strong>Read</strong>: Presented hand out material on IP (Internal and External)</td>
<td>By middle of 12(^{th}) week*</td>
</tr>
<tr>
<td>➢ <strong>Collaborate</strong>: Group discussion on the importance of proper handling of intellectual property as a leader and manager</td>
<td>By middle of 12(^{th}) week</td>
</tr>
<tr>
<td>➢ <strong>Collaborate</strong>: The impact of mis-information and accidentally releasing IP and when not to accept information from a external source or customer</td>
<td>By middle of 12(^{th}) week</td>
</tr>
<tr>
<td>➢ <strong>Complete</strong>: Self-Assessment</td>
<td>During 12(^{th}) week*</td>
</tr>
<tr>
<td>➢ <strong>Read</strong>: Case Example I</td>
<td>During 12(^{th}) week*</td>
</tr>
<tr>
<td>➢ <strong>Submit</strong>: Individual assessment of the case example (I), provide logical justification for accepting or not accepting the intellectual property identified within the case example following the directions provided</td>
<td>By end of 12(^{th}) week*</td>
</tr>
<tr>
<td>➢ <strong>Read</strong>: Case Example II</td>
<td>During 12(^{th}) week*</td>
</tr>
<tr>
<td>➢ <strong>Submit</strong>: Individual assessment of the case example (II), provide logical justification for accepting or not accepting the intellectual property identified within the case example following the directions provided</td>
<td>By end of 12(^{th}) week*</td>
</tr>
</tbody>
</table>

**Key Assessment Topics Covered:**
- List the key components that define a successful technical manager
- Identify, define, and explain the key technical leader terminology
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader

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**Week 13**

<table>
<thead>
<tr>
<th>TCMT644-16</th>
<th>Module: Managing cultural diversity, biases and Geographically Isolated Teams</th>
</tr>
</thead>
</table>

- **Note**: Course week is defined as Monday through Friday
**Module Synopsis:** Students will be introduced to specific methods for handling culturally diverse and geographically isolated teams, the implication of different time zones on productivity and methods to mitigate such issues.

- **Read:** Chpt. XX, pages xxx-xxx - Managing Engineers & Technical Employees  
  
- **Read:** Handout material from instructor on Diversities and Biases  
  1st half of 13th week*  

- **Complete:** Self-Assessment  
  During 13th week*  

- **Read:** Case Example  
  During 13th week*  

- **Collaborate:** The class will be split into two groups, each group shall collaborate independently and discuss the values of being an Unbiased leader or manager in a diverse workplace using the case example provided  
  During 13th week*  

- **Submit:** Each team shall submit one “Team Assessment” of a leader in the role of a Change Champion following the instructions provided  
  By end of 13th week*  

- **Complete:** Individually complete the “Successful Change Champion Component” assessment section following the instructions provided  
  By end of 13th week*  

- **Read:** Individual Assessment Case Example  
  By end of 13th week*  

- **Submit:** Each student shall independently complete the “Individual Assessment” section following the case example and instructions provided  
  By end of 13th week*  

**Key Assessment Topics Covered:**
- List the key components that define a successful technical manager  
- Identify, define, and explain the key technical leader terminology  
- List the key decision factors for determining which communication channel should be used  
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader  
- Identify and explain the importance components used to select and build a successful team  

[Note *: Course week is defined as Monday through Friday]

### Week 14 Activities & Assignments

<table>
<thead>
<tr>
<th>Week 14</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-16</td>
<td>Module : Managing cultural diversity, biases and Geographically Isolated Teams (Con’t)</td>
<td></td>
</tr>
</tbody>
</table>

**Module Synopsis:** Students will be introduced to specific methods for handling culturally diverse and geographically isolated teams, the implication of different time zones on productivity and methods to mitigate such variables.

- **Read:** Handout material from instructor on Managing Geographical Isolated Teams  
  1st half of 14th week*  

- **Complete:** Self-Assessment  
  During 14th week*  

- **Read:** Case Example I  
  During 14th week*  

- **Collaborate:** The class will be split into two groups, each group shall collaborate independently and discuss the issues associated with leading a geographically dispersed or isolated team using the case example provided  
  During 14th week*  

- **Submit:** Each team shall submit one “Team Assessment” of a leader or managers role and responsibilities when managing culturally dispersed or isolated teams following the instructions provided  
  By end of 14th week*  

- **Complete:** Individually complete the “Dispersed Team Management” assessment section following the instructions provided  
  By end of 14th week*  

- **Read:** Individual Assessment Case Example II  
  By end of 14th week*  

- **Collaborate:** Students will be divided up into 4 groups, each group and all members shall collaborate on exercise with emphasis on the impact of geographically isolated and culturally diverse teams to a leader or manager  
  During 14th week*  

- **Submit:** Each student shall independently complete the “Individual Assessment” section following the case example and instructions provided  
  By end of 14th week*
Key Assessment Topics Covered:
- List the key components that define a successful technical manager
- Identify, define, and explain the key technical leader terminology
- List the key decision factors for determining which communication channel should be used
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
- Identify and explain the importance components used to select and build a successful team

<table>
<thead>
<tr>
<th>Week 14 Con’t</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-18</td>
<td>Module: Technical Writing for a Non-Technical or Mixed Audience</td>
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<tr>
<td></td>
<td><strong>Module Synopsis:</strong> Students will be introduced initially to the idea of technical writing within the module of communication; this module provides a more detailed explanation into successful concepts of writing for different audiences. This module will introduce different audience types and techniques to use as guideline for addressing each. Included within this module is quantity versus quality versus audience type. As a technical leader or manager you will be continuously exposed to a variety of audience types (technical, senior management, finance, vendor, sales, marketing, legal, manufacturing, and the like. This module will provide rudimentary guideline to use as a leader or manager to be successful and efficient in your technical writings and achieve expected outcomes.</td>
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<tr>
<td></td>
<td>➢ Read: Handout material from instructor on Technical Writing for a non-technical audience</td>
<td>By start of 14th week*</td>
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<tr>
<td></td>
<td>➢ Collaborate: Collaboratively discuss as a single group the factors and variables of successful written communication to those less technical. Identify and elaborate on the concepts of “Too much technical information”, Not enough technical information”, Presentation timeframes, and Visual cues</td>
<td>By middle of 14th week*</td>
</tr>
</tbody>
</table>
|               | ➢ Submit: Individually submit 5 key points to each of the following constructs:  
➢ a) How do you know how much is enough technical information?  
➢ b) How short or long should a presentation be?  
➢ c) The impact of losing your audience in details?  
➢ d) The best type of presentation to mixed audience | By end of 14th week* |

[Note *: Course week is defined as Monday through Friday]
Key Assessment Topics Covered:
- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- List the key decision factors for determining which communication channel should be used
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader
- Identify and explain the legal, moral, and ethical impact a technical leader must consider when performing assigned duties

[Note *: Course week is defined as Monday through Friday]

<table>
<thead>
<tr>
<th>Week 15</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-17</td>
<td>Module: Financial responsibilities of a Leader and Manager</td>
<td></td>
</tr>
<tr>
<td><strong>Module Synopsis:</strong> Student introduction to financial responsibilities encountered as a technical leader or manager. This module looks at day-to-day, short-term (near-term), long-term (far-term), budgets, resource compensations, rewards, contracts, agreements, costing, project, program, and services reconciliations, cost reductions, re-engineering a design, inefficiencies, and other fiscal responsibilities. This module is intended to provide students with an understanding of decisions and financial implications of mismanaging a team or project.</td>
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<tr>
<td>➢ <strong>Read:</strong> Handout material from instructor on Financial Responsibilities of a Successful Leader and Manager</td>
<td>1st half of 15th week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Complete:</strong> Self-Assessment</td>
<td>During 15th week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Read:</strong> Case Example I</td>
<td>During 15th week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Collaborate:</strong> The class will be split into two groups, each group shall collaborate (on case example I) independently and discuss the importance of finances to a technical leader</td>
<td>During 15th week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Submit:</strong> Each team shall submit one “Team Assessment” of a leader in the role of a Technical Manager with regards to financial responsibilities. The assessment shall provide a listing of identified and missing financial responsibilities and follow the instructions provided</td>
<td>By end of 15th week*</td>
<td></td>
</tr>
<tr>
<td>➢ <strong>Read:</strong> Case Example II</td>
<td>During 15th week*</td>
<td></td>
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</tbody>
</table>
Collaborate: The class will be split into two groups, each group shall collaborate independently and discuss the importance of proper handling of contractual agreements

During 15th week*

Submit: Each team shall submit one “Team Assessment” of a leader in the role of a Technical Manager with regards to contractual agreements, vendor and supplier agreements, and intradepartmental agreements that impact program or product bottom line cost basis following instructions provided

By end of 15th week*

Read: Case Example III

During 15th week*

Collaborate: The class will be split into two groups, each group shall collaborate independently and discuss the case example regarding financial responsibilities and focused specifically on raises, bonuses, and rewards

During 15th week*

Submit: Each team shall submit one “Team Assessment” of a leader in the role of a Technical Manager with regards to financial responsibilities, raises, bonuses, and rewards following the instructions provided

By end of 15th week*

Key Assessment Topics Covered:

- List the key components that define a successful technical manager
- Elaborate on the role of a technical leader within any organization; identify 5 benefits to having a strong technical leader

<table>
<thead>
<tr>
<th>Week 16</th>
<th>Activities &amp; Assignments</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCMT644-19</td>
<td>Module: Summary Review – A holistic view of Leadership and technical Management</td>
<td></td>
</tr>
<tr>
<td>Module Synopsis: This module is an all-inclusive review of the course material; it is presented as a case example or scenario. Students will be expected to complete the reading and concluding multiple part assessment to demonstrate competency of the subject matter. This assessment will include key concepts and topics from each module.</td>
<td></td>
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</tr>
<tr>
<td>Review: Review key points</td>
<td>Week 16</td>
<td></td>
</tr>
<tr>
<td>Submit: Individually, each student shall complete and submit the course assessment quiz to demonstrate their competence by completing an end-of-course assessment. Multiple variations of assessments will exist with varying questions and answers. Students will be randomly assigned assessment forms prior to the final week. Assessments will include material from all modules, presented materials, and discussions.</td>
<td>By Friday 5:00pm CST of week 16*</td>
<td></td>
</tr>
</tbody>
</table>

Key Assessment Topics Covered:

- List the key components that define a successful technical manager
- Compare and explain the interrelationship between the key technical leader elements
- Identify, define, and explain the key technical leader terminology
- Assess the impact of poor communication in the workplace
- List the key decision factors for determining which communication channel should be used
Course Policies:

Attendance Policy:
Attendance and participation will be measured by participation in discussions forums, timely completion of readings and required material, submitting of assignments, and successful completion of any exams.

Late Work Policy:
LATE WORK is not accepted except for university excused absences. This course relies on discussion, interaction, and group work among class members. Therefore it is essential that work be completed on schedule. At the beginning of every module, you should spend time planning. Read the learning modules very carefully. Punctuality is especially important when assignments impact your classmates. If your schedule impacts others, notify them and me and make alternative arrangements.

If an unforeseen event(s) arises such as a university excused absence, you must follow the TAMU student rule regarding attendance to makeup these assignments. For more information on TAMU excused absences, please visit http://student-rules.tamu.edu/rule07. If you do not have a university excused absence and miss an assignment, you may see a deduction of a point or two in your overall your grade. If this is a rare occurrence and your work for this class it otherwise excellent, it should make no difference in your final grade for the course. It is only when work is frequently late and/or quality of the work is consistently below standard that your final grade will suffer. In those rare circumstances where an emergency takes you away from the course for an extended period of time, contact your instructor right away to make arrangements.

Incomplete Grade:
Grades of "INCOMPLETE" will be given only for certifiable medical reasons or in other extraordinary circumstances arranged in advance. If you are planning to be away from your usual location (travel, vacation, etc.) during this course, consider dropping the course or discuss your situation with me and we can see if you will be disadvantaged by your mobility or impacting others’ work.

Institutional Policies:

Americans with Disabilities Act (ADA) Policy Statement:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information visit http://disability.tamu.edu.
This course uses Blackboard Learn as its online platform. To know more about its accessibility standards please to their website, http://www.blackboard.com/Platforms/Learn/Resources/Accessibility.aspx.
If you find that course content or software are not accessible, please contact your course instructor or disability services so that appropriate accommodations to the learning environment can be made.

Academic Integrity Statement and Policy:
For many years Aggies have followed a Code of Honor, which is stated in this very simple verse:
"An Aggie does not lie, cheat or steal, or tolerate those who do."

Aggie Code of Honor is an effort to unify the aims of all Texas A&M men and women toward a high code of ethics and personal dignity. For most, living under this code will be no problem, as it asks nothing of a person that is beyond reason. It only calls for honesty and integrity, characteristics that Aggies have always exemplified. The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other.

For more information please visit, http://student-rules.tamu.edu/aggiecode and http://aggiehonor.tamu.edu/

Statement of Plagiarism:
All materials generated for this class (which may include but are not limited to syllabi and in-class materials) are copyrighted. You do not have the right to copy such materials unless the instructor expressly grants permission. As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writing, etc. which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Plagiarism is one of the worst academic violations, for the plagiarist destroys trust among others. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section "Scholastic dishonesty."

Export Control Statement:
United States export control laws regulate the release of goods and technologies that affect U.S. national security or foreign policy interests. Distance education students and course content MUST comply with these U.S. export control laws. If TAMU indicates that you are attempting to access course content from an IP address associated with a country currently subject to economic and sanction, your TAMU NetID account will be terminated and you will be contacted by the TAMU Export Control Office and the Office of Identity Management. For additional information visit: https://vpr.tamu.edu/resources/export-controls/resources.
Course Change Request

New Course Proposal

Date Submitted: 10/18/17 7:45 am

Viewing: VIZA 676 : Data Visualization
Also Known As: CSCE 679
Last edit: 10/23/17 9:45 am
Changes proposed by: traciz

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ann McNamara</td>
<td><a href="mailto:ann@viz.tamu.edu">ann@viz.tamu.edu</a></td>
<td>9798454715</td>
</tr>
</tbody>
</table>

Course prefix: VIZA
Course number: 676

Department: Visualization
College/School: Architecture
Academic Level: Graduate
Academic Level (alternate): Undergraduate
Effective term: 2018-2019

Complete Course Title: Data Visualization
Abbreviated Course Title: DATA VISUALIZATION

Catalog course description:
Foundation principles of data visualization and hands-on experience in design and evaluation; includes abstract data visualization, 3D visualization, infographics, data narratives, principles of visual data encoding and interaction techniques.

Prerequisites and Restrictions:

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced? No

Crosslistings:
CSCE 679: Yes

Stacked:
VIZA 476 - Course VIZA 476 not Found

Semester: 3
Credit Hour(s): (per week):
Lecture: 3
Lab: 0
Other: 0
CIP/Fund Code: 1101040019

Approval Path

1. 10/18/17 8:57 am
   Terry Larsen (t-larsen): Approved for VIZA Department Comm Chair

2. 10/19/17 12:41 pm
   Tim McLaughlin (timml): Approved for VIZA Department Head

3. 10/23/17 8:37 am
   Scott Schaefer (schaefer): Approved for CSCE Department Head

4. 10/23/17 9:46 am
   Sandra Williams (sandra-williams): Approved for Curricular Services Review

5. 10/23/17 10:30 am
   Ann Broussard (ambroussard): Approved for AR Committee Preparer

6. 10/24/17 3:23 pm
   Leslie Feigenbaum (l-feigenbaum): Approved for AR Committee Chair

7. 10/30/17 9:06 pm
   Leslie Feigenbaum (l-feigenbaum): Approved for AR College Dean

8. 11/22/17 8:53 am
   LaRhesa Johnson (LRjohnson): Approved
Default Grade Mode: Letter Grade (G)

Alternate Grade Modes: Satisfactory/Unsatisfactory

Method of instruction: Lecture

Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)

Will this course be taught as a distance education course?

Is 100% of this course going to be taught in Texas?

Will classroom space be needed for this course?

This will be a required course or an elective course for the following programs:

**Required (select program):**

- (MFA-VIST) Master of Fine Arts in Visualization
- (MS-VIST) Master of Science in Visualization
- (MS-CPSC) Master of Science in Computer Science
- (MS-CECN) Master of Science in Computer Engineering
- (MCS-CPSC) Master of Computer Science in Computer Science
- (MEN-CECN) Master of Engineering in Computer Engineering
- (PHD-CPSC) Doctor of Philosophy in Computer Science
- (PHD-CECN) Doctor of Philosophy in Computer Engineering

**Course Syllabus**

**Syllabus:** Upload syllabus

Upload syllabus: VIZA676DataVisualization-1.docx

Letters of support or other documentation: No

**Additional information:** Added cross-listed course to syllabus.

Stacked with VIST476, which is a new course. Also, cross-listed with CSCE 447/679, which is also new courses.

The difference between UG and GR is the following:
- Different homework assignments
- Different exam formats
- Higher expectations for project outcomes for graduate section
Reviewer Comments

Sandra Williams (sandra-williams) (09/27/17 5:18 pm): Edits made to catalog course description to comply with catalog style guide for course descriptions.

Sandra Williams (sandra-williams) (09/27/17 5:19 pm): Rollback: Form shows course is stacked, on the syllabus, what is the difference in grading for UG and GR students?

Sandra Williams (sandra-williams) (10/02/17 5:12 pm): Rollback: If the course is stacked, as indicated on the minimum syllabus requirements, the syllabus must clearly indicate the additional work required for graduate students. The syllabus must have this information, not the field on the form titled "Additional Information". Please reference: http://registrar.tamu.edu/Our-Services/Curricular-Services/Curricular-Approvals/Course-Approvals#1-MinimumSyllabusRequirements

Sandra Williams (sandra-williams) (10/17/17 10:12 am): Rollback: As requested.

Sandra Williams (sandra-williams) (10/17/17 9:50 pm): Rollback: Syllabus must show cross-listed course number.

Sandra Williams (sandra-williams) (10/23/17 9:46 am): Update received.

Reported to state?

Add
I. COURSE DESCRIPTION

VIZA 676 Data Visualization. Credit Hours 3. 3 Lecture Hours.

Visual representation and design of data and information; 3D visualization, infographics, data narratives, principles of visual data encoding, and interaction techniques.

Prerequisites: none. Cross-listed: CSCE 679.

II. INTRODUCTION

This course covers the visual representations that facilitate human understanding of data. Data visualization includes simple charts, complex applications, aesthetic infographics, and interactive tools that allow the exploration, inspection, analysis, and interpretation of data. This course covers the foundational principles of data visualization and provides a hands-on experience in design and evaluation. Topics include abstract data visualization, 3D visualization, infographics, data narratives, principles of visual data encoding, and interaction techniques.

This course involves the use and development of software for data visualization. Students are expected to have experience with computer programming prior to taking this course. Most introductory programming courses should provide satisfactory preparation for this course, but students who are uncertain of the expected level of technical proficiency are encouraged to contact the instructor to discuss specifics. Experience with graphical and visualization tools, frameworks, and libraries (e.g., D3.js, Unity, Processing, OpenGL) is not required, but would be beneficial. Familiarity with concepts of human-computer interaction, aesthetic design, and mathematical functions is also recommended but not required.
III. LEARNING OUTCOMES OR COURSE OBJECTIVES

By the end of this course, students will be able to:
1. Apply principles of visual encoding for data visualization.
2. Evaluate and apply existing information visualization designs and tools.
3. Identify and explain deceptive information visualizations.
4. Analyze and assess appropriate visualizations for different data types and analysis goals.
5. Design and program a data visualization or evaluation tool.

Departmental Learning Outcomes

<table>
<thead>
<tr>
<th>Critical Thinking</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Teamwork</td>
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<tr>
<td>Personal Responsibility</td>
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<tr>
<td>Social Responsibility</td>
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</tr>
</tbody>
</table>

Weave Assessment Learning Objectives

<table>
<thead>
<tr>
<th>Stimulate Visual Thinking</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurture Design Skills</td>
<td></td>
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<tr>
<td>Enhance Multidisciplinary Focus</td>
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<tr>
<td>Encourage Collaborative Behavior</td>
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<tr>
<td>Strengthen Ethical Behavior</td>
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<tr>
<td>Improve Personal Responsibility</td>
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</tr>
</tbody>
</table>

IV. CONTACT INFORMATION

Eric Ragan
Email: eragan@tamu.edu
Office Hours: TBD. Please email to confirm an appointment
Office Location: Langford A-136

V. COURSE TOPICS AND CALENDAR

Class attendance is expected. Students should report any known future absences at least one week prior to the absence. Any graded class activities missed (e.g., quizzes, exams, presentations,
homework submissions) during unapproved absences cannot be made up without the instructor’s prior approval and a valid excuse. The below schedule is tentative and may change (notice will be given if changes are made).

<table>
<thead>
<tr>
<th>Tuesday</th>
<th>Thursday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 17</td>
<td>Jan. 19</td>
</tr>
<tr>
<td>Syllabus and overview</td>
<td>Foundations, basic charts, and applications</td>
</tr>
<tr>
<td></td>
<td>Paper summary overview, project overview</td>
</tr>
<tr>
<td>Jan. 24</td>
<td>Jan. 26</td>
</tr>
<tr>
<td>Deception, lies, and junk</td>
<td>Evaluation approach overview</td>
</tr>
<tr>
<td>Storytelling and infographics</td>
<td>Project introduction</td>
</tr>
<tr>
<td><strong>HW:</strong> Cereal</td>
<td><strong>HW Papers:</strong> Overview</td>
</tr>
<tr>
<td>Jan. 31</td>
<td>Feb. 2</td>
</tr>
<tr>
<td>D3.js</td>
<td>D3.js</td>
</tr>
<tr>
<td></td>
<td><strong>HW:</strong> D3 #1</td>
</tr>
<tr>
<td>Feb. 7</td>
<td>Feb. 9</td>
</tr>
<tr>
<td>D3.js</td>
<td>Multidimensional data</td>
</tr>
<tr>
<td>Project development</td>
<td><strong>HW Papers:</strong> Narrative and embellishment</td>
</tr>
<tr>
<td><strong>HW:</strong> Project plan</td>
<td></td>
</tr>
<tr>
<td>Feb. 14</td>
<td>Feb. 16</td>
</tr>
<tr>
<td>Interaction</td>
<td>Graphs and networks</td>
</tr>
<tr>
<td><strong>HW:</strong> D3 #2</td>
<td></td>
</tr>
<tr>
<td>Feb. 21</td>
<td>Feb. 23</td>
</tr>
<tr>
<td>Hierarchical data</td>
<td>Time</td>
</tr>
<tr>
<td><strong>HW:</strong> Project literature</td>
<td><strong>HW Papers:</strong> Space and time</td>
</tr>
<tr>
<td>Feb. 28</td>
<td>Mar. 2</td>
</tr>
<tr>
<td>Catch up and review</td>
<td><strong>Midterm Exam</strong></td>
</tr>
<tr>
<td>Mar. 7</td>
<td>Mar. 9</td>
</tr>
<tr>
<td>Project development and informal review</td>
<td><strong>Project early review and demo</strong></td>
</tr>
<tr>
<td></td>
<td><strong>HW Papers:</strong> Humans and sensemaking</td>
</tr>
<tr>
<td>Mar. 14</td>
<td>Mar. 16</td>
</tr>
<tr>
<td>Break - No class</td>
<td>Break - No class</td>
</tr>
<tr>
<td>Mar. 21 *</td>
<td>Mar. 23</td>
</tr>
<tr>
<td>Special topics</td>
<td>3D visualization and volume</td>
</tr>
<tr>
<td><strong>HW:</strong> Project preliminary report</td>
<td><strong>HW Papers:</strong> SciVis</td>
</tr>
<tr>
<td>Mar. 28</td>
<td>Mar. 30</td>
</tr>
<tr>
<td>Text and documents</td>
<td>Big data overview</td>
</tr>
<tr>
<td></td>
<td><strong>HW Papers:</strong> Text</td>
</tr>
<tr>
<td>Apr. 4</td>
<td>Apr. 6</td>
</tr>
<tr>
<td>Statistical graphics</td>
<td><strong>Project review and demos</strong></td>
</tr>
<tr>
<td><strong>HW:</strong> Movies 1</td>
<td></td>
</tr>
<tr>
<td>Apr. 11</td>
<td>Apr. 13</td>
</tr>
<tr>
<td>Maps and space</td>
<td>Design critique and classification</td>
</tr>
<tr>
<td></td>
<td><strong>HW Papers:</strong> Cyber</td>
</tr>
<tr>
<td>Apr. 18</td>
<td>Apr. 20</td>
</tr>
<tr>
<td>Review</td>
<td><strong>Project presentations</strong></td>
</tr>
<tr>
<td><strong>HW:</strong> Movies 2</td>
<td></td>
</tr>
<tr>
<td>Apr. 25</td>
<td>Apr. 27</td>
</tr>
<tr>
<td><strong>Project presentations</strong></td>
<td><strong>Project presentations</strong></td>
</tr>
<tr>
<td>May. 2 *</td>
<td><strong>All final project deliverables due</strong></td>
</tr>
</tbody>
</table>

**Final Exam: TBA**
VI. GRADING AND EVALUATION:

Course grades will be calculated based on a combination of weighted scores for projects, homework, exams, and quizzes. The final grade (after applying weights) will be truncated to the nearest whole number to determine the letter grade.

<table>
<thead>
<tr>
<th>Evaluation Weights</th>
<th>Grading Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project: 25%</td>
<td>A: &gt;= 90 &lt;= 100%</td>
</tr>
<tr>
<td>Project Leadership:</td>
<td>B: &gt;= 80 &lt; 90%</td>
</tr>
<tr>
<td>Research Papers (4):</td>
<td>C: &gt;= 70 &lt; 80%</td>
</tr>
<tr>
<td>Programs &amp; exercises (8): 20%</td>
<td>D: &gt;= 60 &lt; 70%</td>
</tr>
<tr>
<td>Exams: 20%</td>
<td>F: &lt; 60%</td>
</tr>
<tr>
<td>Participation/Quizzes: 10%</td>
<td></td>
</tr>
</tbody>
</table>

Project (25% of final grade)

Students will work in teams to complete a semester-long project involving the design, creation, and evaluation of data visualizations. Projects will provide students with opportunities to prototype creative visualizations and gain experience with research methods. More detail on possible project concepts and expectations will be given in class. Early in the semester, teams will decide on project goals and develop an execution plan to be approved or revised by the instructor, and students will be expected to provide status updates and demonstrations throughout the class. Final project deliverables will include:

1. A brief oral presentation of the project goals and accomplishments
2. A live online demonstration of the project software/outcomes
3. A brief video (maximum 3 minutes) demonstrating the visualization, design, and novelty of the work
4. A document explaining the project’s purpose, the rationale for the visualization approach, the visualization, and the results of any evaluation.
5. A document summarizing each team member’s contributions to the project.

For all but the last of the listed deliverables, each team is expected to work together to produce a single deliverable. For example, each team will submit one document and create one video (rather than multiple individual submissions). However, every student is expected
to submit a separate summary of contributions explaining how each team member contributed to the project.

**Project Leadership (5% of final grade)**
Graduate students are expected to provide leadership and management of the team project. The individual project submission should include information about the decisions, roles, milestones, etc. required for the project.

**Expectations will be higher for project outcomes for students enrolled in the graduate sections of the course. The level of quality, innovation, and professionalism for all project deliverables will be graded more strictly.**

**Research Papers (20% of final grade)**
Papers will be required as the course progresses which will require the student to research a particular topic that goes beyond the content in the course lectures. Topics will be discussed as the course progresses. Unless otherwise stated, papers must be submitted before class on the given deadline to be eligible for full credit. Students can submit an assignment one day late to earn up to 75% of the assignment total; otherwise, a score of zero will be earned.

**Programs and exercises (20% of final grade)**
Short programs and exercises will be given to emphasize important concepts and techniques useful in virtual reality app development. Students can submit a program or exercise one day late to earn up to 50% of the assignment total; otherwise, a score of zero will be earned.

Each student may have one submission dropped from consideration at the end of the semester. However, a reasonable attempt at the assignment must be submitted in order for it to be eligible to be dropped from consideration. A minimum score of 40% is expected to be considered a valid attempt. Students cannot drop an assignment that they do not submit; a score of zero cannot be dropped. In other words, each student’s assignment with the lowest score (of at least 40%) will not negatively affect the total homework score.

**Exams (20% of final grade)**
Up to two exams will be administered in class (a midterm exam and a final exam). The formats of these exams will be described prior to exam days. **Note that graduate and undergraduate sections have different exam formats.**
**Participation/Quizzes (10% of final grade)**
Class participation is expected, and failure to attend classes or participate in class discussions will result in lost participation points. Occasional daily attendance checks or participation points will be valued the same as quizzes. On some days, short quizzes or assignments will be administered in class. Quiz days will be announced ahead of time either during class or by email (in other words, these are not surprise or “pop” quizzes). The topic of each quiz or instructions for preparation will also be announced ahead of time. Quizzes are designed to be short, and each usually consists of a single question or exercise. A time limit will be provided for each quiz (typically, five minutes). Students must be present at the start of the quiz to be eligible to participate; otherwise, a score of zero will be earned.

**Extra Assignments (extra credit)**
Opportunities to earn extra credit are not promised, but the instructor may opt to offer supplemental assignments for extra credit. Details will be determined per assignment and must be agreed upon by both the instructor and the student.

**Attendance:** The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line at [http://student-rules.tamu.edu/](http://student-rules.tamu.edu/).

**Make-up Policy:** If an absence is excused, the instructor will either provide the student an opportunity to make up work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. The make-up work must be completed in a time frame not to exceed 30 calendar days from the last day of the initial absence.

The student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for the absence. Among the reasons absences are considered excused by the university are the following (see Student rule 7 for details [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07)). The fact that these are university excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the honor code.
VII. REQUIRED MATERIALS/TEXT

There is no required textbook for the class, but reading assignments will be given from online university resources or publically available content. Supplemental reading is recommended from the listed books.

Recommended Texts:

VIII. COSTS

No additional costs are expected for this course.

IX. ADDITIONAL INFORMATION

*Disabilities Act*: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

*Copyright*: The handouts used in this course are copyrighted. By “handouts,” I mean all materials generated for this class, which include but are not limited to syllabi, quizzes, lab problems, in-class materials, review sheets and additional problem sets and the contents of the class Web site. Because these materials are copyrighted, you do not have the right to copy the handouts, unless you are expressly granted permission. You have permission to make printouts of the on-line class notes and the class web site strictly for your use in this class.

*Plagiarism*: In this course, students are responsible for their own work, and credit must be given for external resources or assistance from others. Sharing or adopting the work of others (including, but not
limited to, writing, code, and ideas) without providing proper credit can be interpreted as cheating or plagiarism. However, targeted discussion and collaboration with other students is encouraged in this course. Discussion of topics, design concepts, research philosophies, and implementation approaches is recommended to help elicit new ideas, improve understanding, and achieve a broader range of overall knowledge. Therefore, helping other students is acceptable and appreciated so long as any given assistance does not inhibit others from doing their own work and achieving assignment objectives for themselves. Use your best judgment and be mindful of the university integrity policies.

Aggie Honor Code:
“An Aggie does not lie, cheat or steal or tolerate those who do”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M University community from the requirements or the processes of the Honor System. For additional information please visit: http://aggiehonor.tamu.edu/Rules-and-Procedures/Rules/Honor-System-Rules.

Defacement of Property: "It is unlawful for any person to damage or deface any of the buildings, statues, monuments, trees, shrubs, grasses, or flowers on the grounds of any state institutions of higher education (Texas Education Code Section 51.204)"

The words damage or deface refer specifically to any and all actions, whether direct or indirect, that either diminish the value or mar the appearance of the physical environment.
Course Change Request

New Course Proposal

Date Submitted: 10/18/17 7:45 am

Viewing: VIZA 677 : Virtual Reality
Also Known As: CSCE 650
Last edit: 10/23/17 9:47 am
Changes proposed by: traciw

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ann McNamara</td>
<td><a href="mailto:ann@tamu.edu">ann@tamu.edu</a></td>
<td>979-845-2320</td>
</tr>
</tbody>
</table>

Course prefix: VIZA
Course number: 677
Department: Visualization
College/School: Architecture
Academic Level: Graduate
Academic Level (alternate): Undergraduate
Effective term: 2018-2019
Complete Course Title: Virtual Reality
Abbreviated Course Title: VIRTUAL REALITY

Catalog course description:
Theory and practice of virtual reality (VR); interactive 3D virtual environments, immersive technology, perceptual realism, and embodied interaction experience; overview of VR with topics including input devices, output devices, 3D interaction techniques, augmented reality, the role of realism in VR, navigation techniques, design guidelines, and evaluation methods; hands-on experience designing VR experiences emphasizing application, demonstration, or research purposes.

Prerequisites and Restrictions:

Concurrent Enrollment: No
Should catalog prerequisites / concurrent enrollment be enforced?: No
Crosslistings: Yes
Crosslisted With: CSCE 650
Stacked: Yes
Stacked with: VIST 477 - Virtual Reality

Semester: 3
Credit Hour(s): (per week): 3
Contact Hour(s): 3
Lecture: Total 3
Lab: 0
Other: 0
Repeatable for credit?: No
Three-peat?: No

In Workflow:
1. VIZA Department Comm Chair
2. VIZA Department Head
3. CSCE Department Head
4. Curricular Services Review
5. AR Committee Preparer
6. AR Committee Chair
7. AR College Dean
8. GC Preparer
9. GC Chair
10. Faculty Senate Preparer
11. Faculty Senate
12. Provost II
13. President
14. Curricular Services
15. Banner

Approval Path:
1. 10/18/17 8:57 am
   Terry Larsen (t-larsen): Approved for VIZA Department Comm Chair
2. 10/19/17 12:41 pm
   Tim McLaughlin (timm): Approved for VIZA Department Head
3. 10/23/17 8:37 am
   Scott Schaefer (schaefer): Approved for CSCE Department Head
4. 10/23/17 9:47 am
   Sandra Williams (sandra-williams): Approved for Curricular Services Review
5. 10/23/17 10:30 am
   Ann Broussard (ambroussard): Approved for AR Committee Preparer
6. 10/24/17 3:24 pm
   Leslie Feigenbaum (l-feigenbaum): Approved for AR College Dean
7. 10/30/17 9:06 pm
   LaRhesa Johnson (ljohnson): Approved

https://nextcatalog.tamu.edu/courseleaf/approve#
Course Syllabus

Syllabus: Upload syllabus

Upload syllabus: viza677VirtualReality1.docx

Letters of support or other documentation: No

Additional information: Added cross-listed course to syllabus.

This course will be stacked with VIST 477 which is also a new course. Also, cross-listed with CSCE 446/650, which is also new courses.

The difference in UG and GR is the following:
- Different homework assignments
- Different exam formats
- Higher expectations for project outcomes for graduate section

Reviewer Comments

Sandra Williams (sandra-williams) [09/27/17 5:21 pm]: Rollback: Additional Comments on form state course is stacked. The syllabus does not show how UG and GR students will be graded; syllabus course number shows X89.

Sandra Williams (sandra-williams) [10/02/17 5:12 pm]: Rollback: If the course is stacked, as indicated on the minimum syllabus requirements, the syllabus must clearly indicate the additional work required for graduate students. The syllabus must have this information, not the field on the form titled "Additional Information". Please reference: http://registrar.tamu.edu/Our-Services/Curricular-Services/Curricular-Approvals/Course-Approvals#1-MinimumSyllabusRequirements

Sandra Williams (sandra-williams) [10/17/17 10:12 am]: Rollback: As requested.

Sandra Williams (sandra-williams) [10/17/17 9:51 pm]: Rollback: Syllabus must show cross-listed course number.

Sandra Williams (sandra-williams) [10/23/17 9:47 am]: Update received.

Reported to state?

Add
I. COURSE DESCRIPTION

VIZA 677 Virtual Reality. Credit Hours 3. 3 Lecture Hours.

Theory and practice of virtual reality; interactive 3D virtual environments; input/output devices, 3D interaction techniques, augmented reality, role of realism in VR, navigation techniques, design guidelines, and evaluation methods.

Prerequisites: none. Cross-listed: CSCE 650.

II. INTRODUCTION

This course covers the theory and practice of virtual reality (VR). Virtual reality includes interactive 3D virtual environments that take advantage of immersive technology to provide enhanced perceptual realism and an embodied interaction experience. The course aims to provide an overview of VR with topics including input devices, output devices, 3D interaction techniques, augmented reality, the role of realism in VR, navigation techniques, design guidelines, and evaluation methods. Student will gain hands-on experience designing VR experiences emphasizing application, demonstration, or research purposes.

Students are expected to have some experience with computer programming and 3D graphics tools prior to taking this course. Recommended experience includes topics covered in courses such as VIST 271, CSCE 221, or CSCE 441. Students who are uncertain of the expected level of technical proficiency are encouraged to contact the instructor to discuss specifics. Experience with graphical and visualization tools, frameworks, and libraries (e.g., Unity, Unreal, Processing, OpenGL) is recommended. Familiarity with concepts of human-computer interaction, aesthetic design, and mathematical functions is also recommended, but experience with all is not required.
III. LEARNING OUTCOMES OR COURSE OBJECTIVES

By the end of this semester, students will be able to:

1. Apply 3D interaction techniques to the design and development of 3D virtual environments.
2. Produce team based immersive virtual reality applications.
3. Distinguish between virtual reality systems in terms of display properties and interaction techniques.
4. Critically evaluate the design, purpose, benefits, and limitations of different virtual reality applications.
5. Evaluate and classify past and current virtual reality techniques.

Departmental Learning Outcomes

<table>
<thead>
<tr>
<th>Critical Thinking</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teamwork</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Personal Responsibility</td>
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<tr>
<td>Social Responsibility</td>
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</tbody>
</table>

Weave Assessment Learning Objectives

<table>
<thead>
<tr>
<th>Stimulate Visual Thinking</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurture Design Skills</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Enhance Multidisciplinary Focus</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Encourage Collaborative Behavior</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Strengthen Ethical Behavior</td>
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<tr>
<td>Improve Personal Responsibility</td>
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</tr>
</tbody>
</table>

IV. CONTACT INFORMATION

Eric Ragan
Email: eragan@tamu.edu
Office Hours: TBD. Please email to confirm an appointment
Office Location: Langford A-136
V. COURSE TOPICS AND CALENDAR

Class attendance is expected. Students should report any known future absences at least one week prior to the absence. Any graded class activities missed (e.g., quizzes, exams, presentations, homework submissions) during unapproved absences cannot be made up without the instructor’s prior approval and a valid excuse. The below schedule is tentative and may change (notice will be given if changes are made).

<table>
<thead>
<tr>
<th>Tuesdays</th>
<th>Thursdays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug. 29 Course overview</td>
<td>Aug. 31 Foundations</td>
</tr>
<tr>
<td>Sep. 5 Navigation</td>
<td>Sep. 7 <strong>Papers:</strong> Navigation Present &amp; discuss</td>
</tr>
<tr>
<td>Sep. 12 Selection and manipulation</td>
<td>Sep. 14 <strong>Papers:</strong> Selection and manipulation Present &amp; discuss</td>
</tr>
<tr>
<td>Sep. 19 Fidelity and presence</td>
<td>Sep. 21 <strong>Papers:</strong> Fidelity and presence Present &amp; discuss</td>
</tr>
<tr>
<td><strong>Project plan due</strong> (team roles, schedule, description)</td>
<td></td>
</tr>
<tr>
<td>Sep. 27 Perceptual Illusion</td>
<td>Sep. 29 <strong>Papers:</strong> Perceptual illusion Present &amp; discuss</td>
</tr>
<tr>
<td>Oct. 3 Evaluation methodology</td>
<td>Oct. 5 <strong>Papers:</strong> Evaluation methodology</td>
</tr>
<tr>
<td><strong>Project related literature</strong></td>
<td>Midterm Exam</td>
</tr>
<tr>
<td>Oct. 10 Applications</td>
<td>Oct. 12 <strong>Papers:</strong> Applications Present &amp; discuss</td>
</tr>
<tr>
<td>Oct. 17 Sickness and perception</td>
<td>Oct. 19 <strong>Papers:</strong> Haptics Present &amp; discuss</td>
</tr>
<tr>
<td>Oct. 24 * Project work day</td>
<td>Oct. 26 * <strong>Papers:</strong> Project work day Preliminary project report (team roles, schedule, description, literature review)</td>
</tr>
<tr>
<td>Oct. 31 Project: 3-minute updates</td>
<td>Nov. 2 <strong>Papers:</strong> System control and symbolic input Present &amp; discuss System control and symbolic input</td>
</tr>
<tr>
<td>Nov. 7 3D tracking systems</td>
<td>Nov. 9 <strong>Papers:</strong> Collaborative VR Present &amp; discuss</td>
</tr>
<tr>
<td>Nov. 14 Final exam review</td>
<td>Nov. 16 Final exam review</td>
</tr>
<tr>
<td>Nov. 21 Preliminary project videos</td>
<td>Nov. 23 Thanksgiving <strong>No class</strong></td>
</tr>
<tr>
<td>Nov. 28 Project presentations</td>
<td>Nov. 30 Project presentations</td>
</tr>
<tr>
<td>Dec. 5 Project presentations</td>
<td>Dec. 7 Reading day <strong>No class</strong></td>
</tr>
<tr>
<td><strong>Final project deliverables</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Final Exam</strong></td>
<td>TBA</td>
</tr>
</tbody>
</table>

**TBA**
VI. GRADING AND EVALUATION:

Course grades will be calculated based on a combination of weighted scores for projects, homework, exams, and quizzes. The final grade (after applying weights) will be truncated to the nearest whole number to determine the letter grade.

<table>
<thead>
<tr>
<th>Evaluation Weights</th>
<th>Grading Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team project:</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>A: &gt;= 90 &lt;= 100%</td>
</tr>
<tr>
<td>Project Leadership:</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>B: &gt;= 80 &lt; 90%</td>
</tr>
<tr>
<td>Research Papers (6):</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>C: &gt;= 70 &lt; 80%</td>
</tr>
<tr>
<td>Programs &amp; exercises (12):</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>D: &gt;= 60 &lt; 70%</td>
</tr>
<tr>
<td>Exams:</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>F: &lt; 60%</td>
</tr>
<tr>
<td>Participation:</td>
<td>10%</td>
</tr>
</tbody>
</table>

Project (20% of final grade)
Students will work in teams to complete a semester-long project involving the design and development of a virtual reality application. Projects will provide students with opportunities to prototype creative designs and interaction techniques. More details on possible project concepts and expectations will be given in class. Early in the semester, teams will decide on project goals and develop an execution plan to be approved or revised by the instructor, and students will be expected to provide status updates and demonstrations throughout the class. Final project deliverables will include:

1. An oral presentation of the project goals and accomplishments.
2. A live demonstration of the project outcomes.
3. A brief video (maximum 3 minutes) demonstrating the outcome, design, and novelty of the work.
4. A document explaining the project’s purpose, the rationale for the approach, the design, and the results of any evaluation.
5. A document summarizing each team member’s contributions to the project.

For all but the last of the listed deliverables, each team is expected to work together to produce a single deliverable. For example, each team will submit one document and create one video (rather than multiple individual submissions). However, every student is expected to submit a separate summary of contributions explaining how each team member contributed to the project.
Project Leadership (5% of final grade)
Graduate students are expected to provide leadership and management of the team project. The individual project submission should include information about the decisions, roles, milestones, etc. required for the project.

Expectations will be higher for project outcomes for students enrolled in the graduate sections of the course. The level of quality, innovation, and professionalism for all project deliverables will be graded more strictly.

Research Papers (25% of final grade)
Papers will be required as the course progresses which will require the student to research a particular topic that goes beyond the content in the course lectures. Topics will be discussed as the course progresses. Unless otherwise stated, papers must be submitted before class on the given deadline to be eligible for full credit. Students can submit an assignment one day late to earn up to 75% of the assignment total; otherwise, a score of zero will be earned.

Programs and exercises (20% of final grade)
Short programs and exercises will be given to emphasize important concepts and techniques useful in virtual reality app development. Students can submit a program or exercise one day late to earn up to 50% of the assignment total; otherwise, a score of zero will be earned.

Students may be given the option of making up at most one assignment with a new assignment to be determined by the instructor. It is optional to make up points, and opportunities to make up points are not guaranteed. Make-up assignments may not be at the same level of difficulty or require the same level of work as the original assignment. Make-up opportunities must be agreed upon by both instructor and student.

Exams (20% of final grade)
Up to two exams will be administered in class (a midterm exam and a final exam). The formats of these exams will be described prior to exam days. Note that graduate and undergraduate sections have different exam formats.
Participation (10% of final grade)
Class attendance and participation are expected and required. Students are expected to engage in class discussion, offer answers to questions, and ask questions during/after presentations.

Extra Assignments (extra credit)
Opportunities to earn extra credit are not promised, but the instructor may opt to offer supplemental assignments for extra credit. Details will be determined per assignment and must be agreed upon by both the instructor and the student.

Attendance: The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line at http://student-rules.tamu.edu/.

Make-up Policy: If an absence is excused, the instructor will either provide the student an opportunity to make up work that contributes to the final grade or provide a satisfactory alternative by a date agreed upon by the student and instructor. The make-up work must be completed in a time frame not to exceed 30 calendar days from the last day of the initial absence.

The student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for the absence. Among the reasons absences are considered excused by the university are the following (see Student rule 7 for details http://student-rules.tamu.edu/rule07). The fact that these are university excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. Falsification of documentation is a violation of the honor code.

VII. REQUIRED MATERIALS/TEXT
Reading assignments will be given from articles and research papers that are available through the university. There is no required textbook for the course, but the two recommended textbooks will complement the topics covered in the course.
Recommended Texts:

VIII. COSTS

No additional costs are expected for this course.

IX. ADDITIONAL INFORMATION

**Disabilities Act:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

**Copyright:** The handouts used in this course are copyrighted. By “handouts,” I mean all materials generated for this class, which include but are not limited to syllabi, quizzes, lab problems, in-class materials, review sheets and additional problem sets and the contents of the class Web site. Because these materials are copyrighted, you do not have the right to copy the handouts, unless you are expressly granted permission. You have permission to make printouts of the on-line class notes and the class web site strictly for your use in this class.

**Plagiarism:** In this course, students are responsible for their own work, and credit must be given for external resources or assistance from others. Sharing or adopting the work of others (including, but not limited to, writing, code, and ideas) without providing proper credit can be interpreted as cheating or plagiarism. However, targeted discussion and collaboration with other students is encouraged in this course. Discussion of topics, design concepts, research philosophies, and implementation approaches is recommended to help elicit new ideas, improve understanding, and achieve a broader range of
overall knowledge. Therefore, helping other students is acceptable and appreciated so long as any given assistance does not inhibit others from doing their own work and achieving assignment objectives for themselves. Use your best judgment and be mindful of the university integrity policies.

**Aggie Honor Code:**

“An Aggie does not lie, cheat or steal or tolerate those who do”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M Unprojects, homework, exams, and quizzes. The final grade (after applying weights) will be truncated to the nearest whole number to diversity community from the requirements or the processes of the Honor System. For additional information please visit: [http://aggiehonor.tamu.edu/Rules-and-Procedures/Rules/Honor-System-Rules](http://aggiehonor.tamu.edu/Rules-and-Procedures/Rules/Honor-System-Rules).

**Defacement of Property:** "It is unlawful for any person to damage or deface any of the buildings, statues, monuments, trees, shrubs, grasses, or flowers on the grounds of any state institutions of higher education (Texas Education Code Section 51.204)"

The words damage or deface refer specifically to any and all actions, whether direct or indirect, that either diminish the value or mar the appearance of the physical environment.