4. Texas A&M University at Galveston

New Courses

MASE 212. Engineering Science in Thermodynamics. (2-3). Credit 3. Theory and application of thermodynamics as an engineering science; applications of the laws of thermodynamics and energy equations to heat transfer and flow. Prerequisites: ENGR 221 and MATH 251 or concurrent enrollment.


Changes in Courses

CVEN 346. Structural Steel Design.

Course number
From: CVEN 346.
To: CVEN 446.

Course description
To: Design of structural steel elements found in bridges and building structures, including plate girders, other built-up members, composite beams and slender columns; frame stability, tubular members and connections.

Credit hours
From: (2-3). Credit 3.
To: (3-0). Credit 3.

MASE 301. Dynamics of Waves and Structures.

Course title
From: Dynamics of Waves and Structures.
To: Hydrodynamics of Offshore Structures.

Course description
From: Prediction of loads due to wind, current, and waves; introduction to concepts of linear structural dynamics and to the design of ocean structures; mooring and towing analysis; fluid-structure interactions; vibration of submerged structures.
To: Introduction to offshore structures, wave force formulations; wave forces on small structures, floating structure dynamics, modeling dynamics systems of rigid body motion, structure response statistics.

Prerequisite
From: CVEN 345; OCEN 300 or current enrollment.
To: CVEN 345; MASE 310; OCEN 300 or current enrollment.
Texas A&M University
Departmental Request for a New Course
Undergraduate, Graduate, Professional
Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Maritime Systems Engineering.

2. Course prefix, number and complete title: MASE 212 Engineering Science in Thermodynamics.

3. Course description (not more than 50 words): Theory and application of thermodynamics as an engineering science: applications of the laws of thermodynamics and energy equations to heat transfer and flow.

4. Prerequisite(s): ENGR221 and MATH 251 or concurrent enrollment. Cross-listed with.

5. Is this a variable credit course? Yes x No. If yes, from _________ to _________. Cross-listed courses require the signature of both department heads.

6. Is this a repeatable course? Yes x No. If yes, this course may be taken ________ times. Will the course be repeated within the same semester/term? Yes No.

7. Has this course been taught as a 489/689? Yes x No. If yes, how many times? ________ indicate the number of students enrolled for each academic period it was taught.

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
      B.S. in Maritime Systems Engineering.
   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix | Course # | Title (exclude punctuation)
    MASE 212 | Engineering Science in Thermodynamics.

<table>
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<tr>
<th>Lect.</th>
<th>Lab</th>
<th>SCH</th>
<th>Subject Matter Content Code</th>
<th>Admin. Unit</th>
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<td>98</td>
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Do not complete shaded area.

Approval recommended by: [Signature] 4/24/18
Head of Department  Date

Chair, College Review Committee Date

Dean of College  Date

Submitted to Coordinating Board by: [Signature] 4/24/18
Director of Academic Support Services  Date

Effective Date

*Attach a syllabus according to the guidelines on the Internet site.
MASE – 212
Engineering Science in Thermodynamics
Course Outline
Fall Semester 2006

Instructor: Craig A. Bateman, Lecturer, MASE
Office: MERC 219
Hours: Tuesday 9 – 10
       Wednesday 11 – 12
Extension: 4473
E-mail: batemanc@tamuq.edu

Textbooks: Thermodynamics-An Engineering Approach, 5th Edition,
          Cengel & Boles, McGraw-Hill, 2006

Prerequisites: ENGR 221 and MATH 251 or registration therein.

Course Description: Theory and application of thermodynamics as an
ing engineering science; applications of the laws of
thermodynamics and energy equations to heat transfer and
flow. (Intended as a terminal course in these areas for MASE
students.)

Course Objectives: 1) Introduce students to Thermodynamics as an
engineering science.
   2) Introduce students to heat cycles with maritime
      systems applications.
   3) Introduce students to reversible and irreversible
      processes.
   4) Application of the 1st and 2nd Laws to solve
      engineering problems.
   5) Continue the student's use of accounting concepts
      for conservative systems.

Grading: Assignments 30%
         Exams 45%
         Final Exam 15%
         Evaluation* 10%

*Based on class participation, conduct, and attendance
Assignments:

**In-Class Assignments:**
All in-class assignments must be completed by the end of the class period. It is the discretion of the instructor to grant additional time if deemed necessary.

**In-Class Quizzes:**
In-class quizzes will include individual and team Readiness Assessment Test (RATs), which often contain questions on reading assignments not yet covered in class. In addition, Post Assessment Tests (PATs) will be given which often contain material that has been covered in class.

**Homework Assignments:**
Homework assignments must be worked out on engineering paper, or as submitted by the computer printer. All homework assignments are due at the beginning of the following class period unless otherwise specified by the instructor. NO LATE HOMEWORK WILL BE ACCEPTED IF DUE TO AN UNEXCUSED ABSENCE.

**Attendance:**
Attendance is taken at the beginning of each class session as required by the MASE department. Three unexcused absences will constitute a mandatory conference with the instructor, and a possible reduction of one letter grade from your overall course score.

IT IS YOUR RESPONSIBILITY to see the instructor for arrangements to make up assignments and/or exams missed due to an excused absence. Make-up work must be completed outside of normal class hours within ONE week following an excused absence. All quiz/exam scores, missed due to unexcused absences, will receive a grade of ZERO.

Further information concerning absences can be found in the University Students Rules Section 7. For a University excused absence, the student should contact the Counseling Office to request a letter for the instructor stating that the Associate Vice President for Student Affairs, or his or her designee has verified the student's absence as excused. Please consult the University Student rules for reasons for excused absences, detailed procedures and deadlines.

If the absence is excused in the process as outlined in the university Student Rules, the student must be given the opportunity to make up the work. The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unauthorized absence. See Part III, Student Grievance Procedures, Section 49, Unexcused Absences, for more information on appealing an instructor's decision.
Academic Dishonesty:

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

Upon accepting admission to Texas A&M University at Galveston, 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 TAMUG community from the requirements or the processes of the TAMUG Honor System. For additional information: <http://www.tamug.edu/honorsystem/>.

Collaboration on in-class assignments, homework assignments, or laboratory assignments is forbidden except where specified as "Team" activities. Laboratory computer disks may not be shared for any reason. Students violating this policy may receive a grade of "F" in the course and/or other penalties as outlined in the Texas A&M University Rules.

Disability Statement:
The American Disabilities Act (ADA), 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 accommodation, please contact the Director of Counseling and each of your instructors immediately.

Family Educational and Rights to Privacy Act (FERPA)
FERPA is a federal law designed to protect the privacy of educational records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. To obtain a listing of directory information or to place a hold on any or all of this information, please consult Admissions & Records Office.

Items that can never be identified as public information are a student’s social security number or institutional identification number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your confidentiality.
### MASE 212 – Engineering Science in Thermodynamics

#### Proposed Lecture Schedule

**Fall 2006**

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<thead>
<tr>
<th>Week</th>
<th>Meeting</th>
<th>Subject [Note 1]</th>
<th>{Reading Assignment}</th>
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<td>Introduction definitions, and pressure</td>
<td>Chap 1</td>
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<td>Energy and 1st Law</td>
<td>Chap 2</td>
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<td>3</td>
<td>Properties and Diagrams</td>
<td>Chap 3</td>
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<td>3</td>
<td>4</td>
<td>Ideal Gas Laws</td>
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<td>4</td>
<td>5</td>
<td>Enthalpy, and Specific Heat</td>
<td>Chap 4</td>
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<td>6</td>
<td>6</td>
<td>Analysis</td>
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<td>4</td>
<td>7</td>
<td>Review</td>
<td>Chapters 1,2,3 &amp; 4</td>
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<td>8</td>
<td>Exam #1</td>
<td>Chapters 1,2,3 &amp; 4</td>
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<td>Mass and Flow</td>
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<td>10</td>
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<td>The 1st Law and Flowing Systems</td>
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<td>6</td>
<td>11</td>
<td>The 2nd Law, Engines, and Efficiency</td>
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<td>12</td>
<td>12</td>
<td>Refrigeration and Reversibility</td>
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<td>7</td>
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<td>Carnot Cycles</td>
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<td>Entropy</td>
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<td>Turbine Engines</td>
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<td>25</td>
<td>Refrigeration Cycles</td>
<td>Chap 11</td>
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<td>Heat Pumps</td>
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<td>Review</td>
<td>Chapters 9,10&amp;11</td>
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<td>28</td>
<td>28</td>
<td>Exam #3</td>
<td>Chapters 9,10&amp;11</td>
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</table>

**Note 1:** Subject to change by order and/or content
Texas A&M University  
Departmental Request for a New Course  
Undergraduate, Graduate, Professional  
Submit original form and 2 copies. Attach a course syllabus to each.*  

1. This request is submitted by the Department of Maritime Systems Engineering  

2. Course prefix, number and complete title: MASE 344 Reinforced Concrete Structures  

3. Course description (not more than 50 words): Analysis and design of reinforced concrete beams, columns, slabs, and footings using ultimate strength methods.  

4. Prerequisite(s): CVEN 345  

5. Cross-listed with:  

6. Is this a variable credit course? Yes X No  
If yes, from _________ to _________  

7. Is this a repeatable course? Yes X No  
If yes, this course may be taken _________ times. Will the course be repeated within the same semester/term? Yes X No  

7. Has this course been taught as a 489/689? Yes X No  
If yes, how many times? _________  
Indicate the number of students enrolled for each academic period it was taught.  

8. This course will be:  
a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)  
   B.S. in Maritime Systems Engineering  
b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)  

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.  

10. Approval recommended by:  
    
    Head of Department  
    Date  
    Chair, College Review Committee  
    Date  

    Head of Department (if cross-listed course)  
    Date  
    Dean of College  
    Date  

    Submitted to Coordinating Board by:  
    
    Director of Academic Support Services  
    Date  
    Effective Date  

*Attach a syllabus according to the guidelines on the Internet site
MASE 344  REINFORCED CONCRETE STRUCTURES  SPRING 2007

DESCRIPTION
Analysis and design of reinforced concrete beams, columns, slabs and footings using ultimate strength methods.

PREREQUISITES
CVEN 345 Theory of Structures

INSTRUCTOR
Dr. J. Jin, Assistant Professor, Department of Maritime Systems Engineering (MASE)
Office: MERC 212; Ph. (409) 740-4878; E-mail: jinj@tamug.edu
Office hours: Mon. through Thu. 10am-12pm or by appointment

LECTURE:
MW 9:00-9:50am
F 9:00-11:50am

TEXTBOOKS
Building Code Requirements for Structural Concrete and Commentary (ACI 318-05), by American Concrete Institute Committee, 2005

TOPICS
2. Material Strength: Stress-strain behavior and properties of concrete and rebar.
3. Design of Beams: Flexure, Shear, Torsion and Serviceability
4. Continuous Beams and Frames
5. Detailing Reinforcement
7. Design of Columns
8. Footings: Flexural design and Shear design.

DESIGN PROJECT
Design of a two-story office building that complies with the American Concrete Institute code (ACI 318-05).

PERFORMANCE CRITERIA
The performance of students in this course will be evaluated with homework, exams and design project, and will support EC2000 engineering program objectives.
ABET's Criterion 3 requires engineering programs to demonstrate their graduates have:

a. an ability to apply knowledge of mathematics, science, and engineering;
b. an ability to design and conduct experiments as well as to analyze and interpret data;
c. an ability to design a system, component, or process to meet desired needs;
d. an ability to function on multidisciplinary teams;
e. an ability to identify, formulate, and solve engineering problems;
f. an understanding of professional and ethical responsibility;
g. an ability to communicate effectively;
h. the broad education necessary to understand the impact of engineering solutions in a global societal context;
i. a recognition of the need for and an ability to engage in lifelong learning;
j. a knowledge of contemporary issues; and
k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

This course will satisfy a, c, e, and k of the EC2000 objectives.

HOMEWORK
Homework problems will be regularly assigned and are due in class. Neatness and the use of engineering paper are required on assignments. Homework shall be an individual effort - any copying will result in a meeting with the instructor and a possible reduction in points.

EXAMS
There will be two in-class exams during the semester and a comprehensive final exam (all open book and notes). All exams will be 120 minutes.

GRADING POLICY

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<td>C</td>
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<td>D</td>
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<td>F</td>
<td>&lt; 60%</td>
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<td>TOTAL 100%</td>
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STATEMENT ON ACADEMIC DISHONESTY
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ABSENCES
Information concerning absences can be found in the University Student Rules Section 7. The university views class attendance as an individual student responsibility. All students are expected to attend class and to complete all assignments. For a University excused absence, the student should contact the Counseling Office to request a letter for the instructor stating that the Associate Vice President for Student Affairs, or his or her designee has verified the student's absence as excused. Please consult the University Student Rules for reasons for excused absences, detailed procedures and deadlines.

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## TENTATIVE CLASS SCHEDULE

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<td>3</td>
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<td>2</td>
<td>4</td>
<td>Flexural Analysis of Beams</td>
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<td></td>
<td>5</td>
<td>(Singly-reinforced, Doubly reinforced, Flanged)</td>
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<td></td>
<td>6</td>
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<td>3</td>
<td>7</td>
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<td>Flexural Design of beams</td>
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<td>(Singly-reinforced, Doubly reinforced, Flanged)</td>
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<td>Shear design of one-way slab</td>
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Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional

1. This request is submitted by the Department of

--- Maritime Systems Engineering ---

2. Course prefix, number and complete title of course: CVEN 446 Structural Steel Design

3. Change requested:

   a) Prerequisite(s): From ___________________________ To ___________________________

   b) Withdrawal (reason) ____________________________

   c) Cross-list with ____________________________

   d) Change in course title and description. Enter complete current course title and current course description; complete proposed course title and proposed course description in items 4 and 5.

   e) Change in credit/contact hours. Complete item 6b. Underscore change(s). Attach a course syllabus.*

4. Complete current course title and current course description: CVEN 346 Structural Steel Design


5. Complete proposed course title and proposed course description (not to exceed 50 words): CVEN 446 Structural Steel Design. Design of structural steel elements found in bridges and building structures, including plate girders, other built-up members, composite beams and slender columns; frame stability, tubular members, and connections.

6. a) As currently in course inventory:

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   b) Changed to:

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<td>STRUCTURAL STEEL DESIGN</td>
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<th>Lect.</th>
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<th>Admin. Unit</th>
<th>Acad. Year</th>
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</table>

   Approval recommended by: ____________________________
   Willingham  4/24/06 Level  

   Signed: ____________________________
   Chair, College Review Committee  Date  

   Head of Department (if cross-listed course) ____________________________
   Date

   Submitted to Coordinating Board by: ____________________________
   Dean of College  Date

   Signed: ____________________________
   Dean of College  Date

   Director of Academic Support Services ____________________________
   Date  Effective Date

   * Attach a syllabus according to the guidelines on the Internet site www.tamu.edu/admissions/oaras. To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.
Instructor: Bert Sweetman, PE, Ph.D.
Assistant Professor, MASE
Office: MERC Room 216
e-mail: sweetman@tamu.edu

Class Schedule:
Tuesday – Thursday  1:00–2:15

Office Hours: Proposed: Tuesday:  9:45–10:45
                            Thursday  9:45–10:45

Prerequisites: CVEN 345 (Theory of Structures)

          ISBN 1-56424-055-X

Course Description: Design of structural steel elements found in bridges and building structures, including plate girders, other built-up members, composite beams and slender columns; frame stability, tubular members and connections.

Students are introduced to design of steel structures using the Load and Resistance Factor Design (LRFD) and Allowable Stress Design (ASD) methodologies. The principal goals of the course are to provide students with a fundamental understanding of steel structural design and of the underlying theory and application of code-based design.

Computer Usage: Students are encouraged to use computers for some homework assignments. Basic familiarity with Microsoft Excel will be helpful.
<table>
<thead>
<tr>
<th>Lecture Topics:</th>
<th>Week</th>
<th>Subjects</th>
</tr>
</thead>
</table>
|                | 1    | Introduction and Historical Background  
|                |      | Code Based Design: LRFD, ASD  
|                | 2    | Tension Members, Review of Steel Properties  
|                |      | Tension Members: Yield, Fracture, Holes, LRFD, ASD  
|                | 3    | Tension Members: Block Shear and Examples  
|                |      | Compression Members: Elastic Buckling  
|                | 4    | Compression Members: Inelastic Buckling  
|                |      | Compression Members: Local Buckling  
|                | 5    | Compression Members: Member Selection for Design  
|                |      | Fatigue: Theory  
|                | 6    | Fatigue: Theory - Elastic Analysis  
|                |      | Fatigue: Analysis, Miner's rule, Rainflow Analysis  
|                | 7    | Exam I: AISC Code, Tension, Compression  
|                |      | Fatigue: AISC, Marine Practice  
|                | 8    | Frames: Concept, Failure Modes, AISC Treatment  
|                |      | Bending Members: Pure Bending, Beam Elements  
|                | 9    | Beams: Plastic Behavior and Section Modulus  
|                |      | Beams: Plastic, Inelastic and Elastic Buckling  
|                | 10   | Exam II: Frames and Fatigue  
|                |      | Beams: Plastic, Inelastic and Elastic Buckling  
|                | 11   | Beams: Plastic, Inelastic and Elastic Buckling  
|                |      | Beams: Loading, Built-Up Beams, Misc Topics  
|                | 12   | Beam-Columns  
|                |      | Built-Up Beams and Plate Girders  
|                | 13   | Bolted and Welded Connections  
|                |      | Connections: Bolting and Welding  
|                | 14   | Exam III: Beams, Beam-Columns, Connections, PG's  
|                |      | Modern Shipyard Construction, LRFD vs ASD, Review  

Calculators: Only those calculators listed as being acceptable for use on the Fundamentals of Engineering Exam may be used during exams in this class. There are no restrictions on calculator use during homework assignments.

The allowable calculators are presently limited to: Hewlett Packard: HP 30s, HP 33s, HP 9s; Casio: FX 115 ES, FX 115 MS, and FX 115 MS Plus (Note: FX 115 ES and FX 115 MS models ending with an "SR" designation are also allowed.); Texas Instruments: TI 30XA (or TI 30Xa), TI 30X IIS and TI 30X IIB, TI 36X Solar (http://www.ncees.org/exams/calculators/index.php#approved).
Homework: Students are encouraged to submit homework on the due date. Occasional late homework will be accepted without penalty.

No homework will be accepted after the next assignment is distributed, and late submission of the last assignment before an exam will not be accepted.

Students are encouraged to work on homework in small groups (not more than 4 students). Each student in the group must submit his or her own homework and must note on the assignment the names of the other students in the work group. A student who works alone is required to write a statement to that effect at the top of the assignment.

Grading:

<p>| | |</p>
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<tbody>
<tr>
<td>Homework:</td>
<td>10%</td>
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<tr>
<td>Exam 1:</td>
<td>20%</td>
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<tr>
<td>Exam 2:</td>
<td>20%</td>
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<td>Exam 3:</td>
<td>20%</td>
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<tr>
<td>Final Exam:</td>
<td>30%</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>100%</strong></td>
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</tbody>
</table>

Final Course Grades are curved.

Absences: Attendance will be taken most class sessions. As per MASE Department rules, missing three classes will result in a mandatory conference with the instructor and a probable reduction of one letter grade from the student's final course grade. Assignments and exams may only be made up for excused absences. Students should make arrangements with the course instructor to make up any missed work or exams prior to an excused absence.

University rules specify that excused absences for all exams must be documented. It is the student's responsibility to contact the instructor within three working days following the absence date for make up requirements of exams. Further information concerning absences can be found in the University Student Rules Section 7. For a University excused absence, the student should contact the Counselling Office to request a letter for the instructor stating that the Associate Vice President for Student Affairs, or his or her designee has verified the student's absence may be considered as excused by the course instructor. Please consult the University Student rules for reasons for excused absences, detailed procedures and deadlines.

If the absence is excused in the process as outlined in the university Student Rules, the student must be given the opportunity to make up the work. The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unauthorized absence. See Part III, Student Grievance Procedures, Section 49, Unexcused Absences, for more information on appealing an instructor's decision.
Academic Dishonesty: Aggie Honor Code: “An Aggie does not lie, cheat, or steal or tolerate those who do.” Upon accepting admission to Texas A&M University at Galveston, 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 TAMUG community from the requirements or the processes of the TAMUG Honor System. For additional information: http://www.tamug.edu/honor system.

Solution manuals are strictly prohibited in this class. Copying homework solutions, or substantial portions of solutions, from solution manuals, the internet, or any other source is regarded as an honor code violation. Simple possession of a solution manual in any form, regardless of whether or not it can be shown to have been used on the homework, is regarded as a course honor code violation.

Students will also be required to write and sign the following on examinations: “On my honor, as an Aggie, I have neither given nor received unauthorized aid on this exam.”

American Disabilities Act: The American Disabilities Act (ADA), 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 accommodation, please contact the Director of Counselling and each of your instructors immediately.

Family Educational and Rights to Privacy Act (FERPA): FERPA is a federal law designed to protect the privacy of educational records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. To obtain a listing of directory information or to place a hold on any or all of this information, please consult Admissions & Records Office.

Items that can never be identified as public information are a student’s social security number or institutional identification number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your confidentiality.
Course Objectives: There are two primary goals for the course: familiarizing students with the use and philosophy of code-based design and furthering students' knowledge of how to design steel structures. Both of these objectives are met through learning and using the two predominant steel design codes: LRFD and ASD. The intent is that by the end of the course, students will be able to: [letters refer to the EC-2000 Criteria 3, below]

- use pre-existing knowledge of structural statics and material science for analysis of steel structures [a, e, k],
- understand the philosophy underlying design in general, and code-based design in particular [a, e, f],
- be able to use both of the two predominant steel specification methodologies: LRFD and ASD [a, c, e, j, k],
- design steel structural components: members experiencing tension, compression, bending and combined loading [a, c, e, k],
- design bolted and welded steel connections [a, c, e, k],
- have some understanding of fatigue mechanisms and be able to do simple fatigue calculations for design from physical, practical and specification standpoints. [a, c, e, k], and
- have some knowledge of modern steel fabrication methodologies relevant to large offshore structures [c, e, j, k].

EC-2000 (Criteria 3) Engineering programs must demonstrate that their graduates have:

a. an ability to apply knowledge of mathematics, science, and engineering;
b. an ability to design and conduct experiments as well as to analyze and interpret data;
c. an ability to design a system, component, or process to meet desired needs;
d. an ability to function on multidisciplinary teams;
e. an ability to identify, formulate, and solve engineering problems;
f. an understanding of professional and ethical responsibility;
g. an ability to communicate effectively;
h. the broad education necessary to understand the impact of engineering solutions in a global/societal context;
i. a recognition of the need for and an ability to engage in lifelong learning;
j. a knowledge of contemporary issues; and
k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
>Bert:
>1 check with a few colleagues about your request. I don't see any
>problems with you renumbering your current course of CVEN 346 to be CVEN
>446.
>
>Sincerely,
>Joe
>
>Joseph M. Bracci, Ph.D., P.E.
>Professor and Division Head
>Construction, Geotechnical and Structural Engineering
>Zachry Department of Civil Engineering
>Texas A&M University
>
>-----Original Message-----
>From: Rosowsky, David
>Sent: Tuesday, April 18, 2006 4:17 PM
>To: 'Bert Sweetman'; Bracci, Joseph; Hueste, Mary Beth
>Cc: Panchang, Vijay
>Subject: RE: MASE transition from CVEN 346 to CVEN 446
>
>Joe and Mary Beth,
>This falls under your jurisdiction.
>Dave
>
>David Rosowsky, Ph.D., P.E.
>A.P. and Florence Wiley Chair Professor and Department Head
>Zachry Department of Civil Engineering
>Texas A&M University
>
>-----Original Message-----
>From: Bert Sweetman [mailto:sweetman@tamu.edu]
>Sent: Tuesday, April 18, 2006 4:20 PM
>To: Rosowsky, David
>Cc: Panchang, Vijay
>Subject: MASE transition from CVEN 346 to CVEN 446
>
>Hi David,
>
>As you may recall, for years CVEN 346 (Design of Steel Structures) has
>been required as part of our Maritime Systems Engineering curriculum.
>
>It seems that this year College Station has eliminated CVEN 346 from the
course catalogue. Accordingly, we would like to renumber our existing
course from CVEN 346 to CVEN 446. I have reviewed the present syllabus
on Dr Lowery's course website and it seems the course materials are
substantially identical: we use the same text books, the same steel
manual and teach largely the same topics. The one substantive
difference I noticed is that our course includes a meaningful section on
fatigue while Dr Lowery's does not; I believe our coverage of beams is
somewhat abbreviated compared with Dr Lowery's, which enables us to
include the additional material on fatigue. The explanation for our
inclusion of fatigue is that the vast majority of our students
ultimately find employment designing offshore structures, for which
fatigue is a more critical design issue than for traditional civil
structures.

>Our local administration wants to be sure the Civil Department is aware
of our proposed change and does not have any objections. If our
proposed change is fine at your end, please let me know by return email
and I will pass it along to our local administration.

>If you have undue heartburn over the proposed change, do not hesitate to
object: we can almost as easily create a new MASE 446 that covers the
same material. However, we feel that the CVEN designation better
describes what we are teaching: traditional civil-structural steel
design. A syllabus for our CVEN 446 is attached. Feel free to contact
me if additional information on our course would be helpful.

Regards,

>Bert

>Bert Sweetman, PE, PhD
Assistant Professor
Maritime Systems Engineering Department
Texas A&M at Galveston
200 Seawolf Parkway
Galveston, TX 77553-1675

Phone: (409) 740-4834
Fax: (409) 741-7153
Bert Sweetman, PE, PhD
Assistant Professor
Maritime Systems Engineering Department
Texas A&M at Galveston
200 Seawolf Parkway
Galveston, TX 77553-1675

Phone: (409) 740-4834
Fax: (409) 741-7153

www.tamug.edu/mase/faculty/Bert.htm
www.rms-group.org
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional

1. This request is submitted by the Department of Maritime Systems Engineering.

2. Course prefix, number and complete title of course: MASE 301 HYDRODYNAMICS OF OFFSHORE STRUCTURES

3. Change requested:
   a) Prerequisite(s): From CVEN345;OCEN300 or current enrollment To CVEN345;MASE310;OCEN300 or current enrollment
   b) Withdrawal (reason)
   c) Cross-list with
   d) Change in course title and description. Enter complete current course title and current course description; complete proposed course title and proposed course description in items 4 and 5.
   e) Change in credit/contact hours. Complete item 6b. Underscore change(s). Attach a course syllabus.*

4. Complete current course title and current course description:
   MASE 301 Dynamics of Waves and Structures
   Prediction of loads due to wind, current, and waves; introduction to concepts of linear structural dynamics and to the design of ocean structures; mooring and towing analysis, fluid-structure interactions; vibration of submerged structures.

5. Complete proposed course title and proposed course description (not to exceed 50 words):
   MASE 301 Hydrodynamics of Offshore Structures Introduction to offshore structures, wave force formulations; wave forces on small structures, floating structure dynamics, modeling dynamics systems of rigid body motion, structure response statistics.

6. a) As currently in course inventory:

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<td>DYNAMICS WAVES &amp; STRUCT</td>
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Do not complete shaded area.

b) Changed to:

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<th>Title (exclude punctuation)</th>
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<td>301</td>
<td>HYDRO OF OFFSHORE STRUCT</td>
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Approval recommended by:

William B. Chang 2/28/06  J. Mcc  4-26-06

Head of Department Date Chair, College Review Committee Date

Head of Department (if cross-listed course) Date

Dean of College Date

Submitted to Coordinating Board by:

J. Mcc

Dean of College Date

Director of Academic Support Services Date Effective Date

* Attach a syllabus according to the guidelines on the Internet site: www.tamu.edu/admissions/oaras. To have this form reviewed, please send to Linda E. Lacy, Mail Stop 1265 or fax to 847-8737.

OARAS-1099
MASE 301 Hydrodynamics of Offshore Structures

2006-07 Catalog Data: MASE 301: Hydrodynamics of Offshore Structures. (3-0)

Credits: 3. Introduction to offshore structures, wave force formulations; wave forces on small structures, floating structure dynamics, modeling dynamic systems of rigid body motion, structure response statistics. Prerequisites: CVEN 345, MASE 310; and OCEN 300 or concurrent enrollment therein.

Course Type: Required


Course Objective: To teach students the calculation of wave forces on small offshore structures using Morison's Equation
To provide students with guidance on the dynamic analysis of floating structures
To demonstrate the applications of rigid body motion to floating structures
To teach students the short-term response calculation of linear and nonlinear structural systems

Prerequisites by topics: 1. Water Wave Mechanics (concurrent registration)
2. Statics and Dynamics, Theory of Structures,
3. Calculus and ordinary differential equations
3. Engineering Analysis

General Schedule: Two 75 minutes lectures /week

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<tr>
<th>Week</th>
<th>Topics</th>
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<tr>
<td>1</td>
<td>Mathematical Review – Fourier Series, Hyperbolic Functions, Complex variables, and Bessel Functions</td>
</tr>
<tr>
<td>2</td>
<td>Introduction to Offshore Structures – Fixed and Floating Platforms</td>
</tr>
<tr>
<td>3</td>
<td>Modeling Dynamic Systems of Rigid Body Motion – Part I</td>
</tr>
<tr>
<td>4</td>
<td>Modeling Dynamic Systems of Rigid Body Motion – Part II</td>
</tr>
<tr>
<td>5</td>
<td>Wave Kinematics – Airy Wave theory</td>
</tr>
<tr>
<td>6</td>
<td>Wave Kinematics – Stokes finite amplitude wave theory</td>
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<tr>
<td>7</td>
<td>Wave Kinematics - Stream function wave theory</td>
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<tr>
<td>8</td>
<td>Wave Force Calculation on Small Structures – Morison's equation, traverse force, and free surface effects</td>
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<tr>
<td>Week</td>
<td>Topics</td>
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<tr>
<td>9</td>
<td>Floating Structure Dynamics – Added mass and damping coefficients</td>
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<tr>
<td>10</td>
<td>Floating Structure Dynamics – Part I: Single degree of freedom system</td>
</tr>
<tr>
<td>11</td>
<td>Floating Structure Dynamics – Part II: Six degrees of freedom system</td>
</tr>
<tr>
<td>12</td>
<td>Floating Structure Dynamics – Transient and steady state response</td>
</tr>
<tr>
<td>13</td>
<td>Short-time Response Statistics – Response amplitude operators (RAO)</td>
</tr>
<tr>
<td>14</td>
<td>Review for Final Exam</td>
</tr>
</tbody>
</table>

**Contribution to Professional Component:**
Engineering Science: 3 Credits or 100%

**Assessment For ABET Accreditation Purposes:**
This course contributes to the following program objectives as noted by the Accreditation Board for Engineering and Technology:

**ABET Criterion 3a:** An ability to apply knowledge of mathematics, science and engineering.

Assessment Tools: (i) Apply matrix method for structural analysis. (ii) Calculate wave force using Morison’s equation for fixed-bottom and floating structures.

**ABET Criterion 3e:** An ability to identify, formulate, and solve engineering problems.

Assessment Tools: (i) Generate wave force for a given design wave in preparation of structural analysis.

**Grade Policy:**
- Three tests 60% (20%/test)
- Final exam 30% (comprehensive exam)
- Homework 10%

**Attendance:**
Students are required to attend each class. Information concerning absences can be found in the University Students Rules Section 7. For a University excused absence, the student should contact the Counseling Office to request a letter for the instructor stating that the Associate Vice President for Student Affairs, or his or her designee has verified the student’s absence as excused. Please consult the University Student rules for reasons for excused absences, detailed procedures and deadlines.

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**Academic Dishonesty:**
For many years Aggies have followed a Code of Honor simply stated as, “An Aggie does not lie, cheat, or steal nor tolerate those who do.” As such, it is the responsibility of students and faculty members to help scholastic integrity at this University by refusing to participate or tolerate scholastic dishonesty. The Aggie Code of Honor and the Student
Dishonesty sections in the TAMUG University Rules handbook will be the standard upon which scholastic integrity is maintained in this course. Academic dishonesty infractions will result in failure of this course as a minimum sanction.

Collaboration on in-class assignments, homework assignments, or laboratory assignments is forbidden except where specified as “Team” activities. Laboratory computer disks/files may not be shared for any reason. Students violating this policy may receive a grade of “F” in the course and/or other penalties as outlined in the Texas A&M University Rules.

Disability Statement:
The American Disabilities Act (ADA), 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 accommodation, please contact the Director of Counseling and each of your instructors immediately.

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