4. Change in Curriculum

**College of Architecture**

Department of Architecture  
Bachelor of Environmental Design  
Visual Studies Option

New Courses

**ENDS 474. Designing for the Web. (2-4). Credit 3.** Visual presentations on the web using web standards design; foundations of web technologies; web page and site creation; design typography for the web; controlling the page real estate through cascading style sheets (CSS); imaging for the web; the creation and use of color and graphics. Prerequisite: Junior or senior classification.

**VIST 271. Computing Environments. (3-1). Credit 3.** Introduction to the theory and practice of visual computer based problem solving; system tools; scripting; high level programming constructs; interactive programming and interface design; development concepts and principles useful in digital art and visualization production. Prerequisites: CPSC 206 or approval of the Chair of the Visual Studies Option.

**VIST 441. Scientific and Technological Developments in Visual Arts. (3-1). Credit 4.** Advanced level course focusing on the relationship between art, science and technology; visual arts before the digital revolution; the development of computer graphic arts. Prerequisite: Upper level classification or approval of the Chair of the Visual Studies Option.
Date: November 26, 2006

TO: Linda F. Lacey
    Director of Academic Support Services

From: Leslie Feigenbaum
    Assistant Dean, Undergraduate Studies
    College of Architecture

CC: Mark Clayton, PhD.
    Interim Head, Architecture

Professor Thomas Regan
    Dean, College of Architecture

RE: Changes to the BED – Visual Studies Option

The attached proposal is for changes to the Visual Studies Option of the Environmental Design Degree. This package also includes new course requests for:
    VIST 271 Computing Environments
    VIST 441 Scientific & Technological Dev. In Visual Arts
    ENDS 474 Designing for the Web

I would appreciate including this course on the December Agenda for the University Curriculum Committee.

Thanks in advance for your help!
A PROPOSAL

FOR CHANGES TO THE

BACHELOR OF ENVIRONMENTAL DESIGN DEGREE – VISUAL STUDIES OPTION

FOR THE ACADEMIC YEAR 2007-2008 (CATALOG 130)

Presented by
The Department of Architecture
College of Architecture
Texas A&M University
A PROPOSAL FOR CHANGES TO THE BACHELOR OF ENVIRONMENTAL DESIGN DEGREE (B.E.D.) - VISUAL STUDIES OPTION

The Department of Architecture is proposing changes to the existing Bachelor of Environmental Design (B.E.D.) degree - Visual Studies Option - to become effective fall 2007. These changes do not impact the total number of credit hours required for the B.E.D. degree. The changes have been made considering a reduction in the total number of credit hours for the bachelor’s degree program as will be required by the Texas Legislature beginning with the fall semester 2008.

The Visual Studies Option focuses on the fundamental principles and theory of art and design within the context of technologically based image making and digital environments. Coursework within the Option requires a blending of artistic, scientific and technical abilities. Students acquire specialized skills and knowledge that enable them to create digital products through a synthesis of interdisciplinary knowledge. The Option promotes opportunities for expression through contemporary means of communication and expression integrated with critical aesthetic principles. Graduates find career opportunities as designers or artists in film, media and communication industries. In addition, the Option prepares students for entry into graduate level programs which emphasize specialized, technologically based coursework in design and communication, including the Master of Science (M.S.) program in Visualization in the College of Architecture at Texas A&M University. The Option responds to a stated goal in Vision 2020, that of creating a culture of excellence through the creation of a fine arts offering, distinctive to Texas A&M University and the fine arts disciplines.

CLARITY AND INTEGRITY OF THE VISUAL STUDIES OPTION

The proposed changes will strengthen the Visual Studies Option to better support the development of artistic, scientific and technical skills and knowledge. Visual Studies Option students are currently required to take four classes offered by the College of Architecture that are inappropriate to the Option. These four courses – ENDS 211 (Design Detailing), ENDS 231 (Architectural Structures I), ENDS 233 (Environmental Systems I) and COSC 253 (Construction Materials and Methods) - support the Architecture Studies Option. The four courses cover building materials, structural and environmental systems as well as construction documents, and expose students to issues unique to the education and practice of architectural design. The thirteen credit hours required by these course offerings prevent students in the Visual Studies Option from taking coursework more appropriate to their area of interest. Because of the lack of available credit hours, more desirable course offerings in the areas of the arts and technology have not been assimilated into the curriculum. The faculty are in agreement that the Option does not support sufficient computing courses relative to the field of visualization. In fact, it is now possible for students to complete the degree plan Option with a single freshman level computing course (CPSC 111). In addition to the four courses above, one course taught outside the College is being replaced. This proposal calls for CPSC 111 (Introduction to Computer Concepts and Programming) to be replaced with CPSC 206 (Structured Programming in C). Also, Directed Electives have not been clearly defined in the existing Visual Studies Option and do not give students a directed focus in an area of concentration within the Option. The major changes being proposed address these issues and include the following.
(1) A common first year that responds to both the Architectural Studies and the Visual Studies Options.

The Visual Studies Option will continue to exist along with the Architectural Studies Option in the Bachelor of Environmental Design Degree. The first year of study is identical in both Options. The proposed Visual Studies Option will hold forty-six (46) hours of common coursework with the Architectural Studies Option. Forty-four (44) hours of coursework will be unique to the Visual Studies Option (see appendix 1).

(2) Foundation studios that better respond to both the Architectural Studies and the Visual Studies Options.

Visual Studies Options students and Architecture Studies Options students will continue to take common foundation design studios for three semesters. The content of the ENDS 205 design studio is not consistent across sections and favors Architecture Studies Option students. This course is undergoing content modification to better respond to both Options.

(3) Replacement of four College of Architecture Courses

The Bachelor of Environmental Design Degree is not, in and of itself, a pre-professional degree. Students interested in pursuing graduate studies in architecture or those who wish to gain employment with architectural firms pursue the Architectural Studies Options. Four courses offered in the College of Architecture are more appropriate to these endeavors. The proposed Option replaces these four courses with computing and arts courses that better prepare students for careers and graduate studies in visualization.

COSC 253 (Construction Materials and Methods I – Credit 3)
This course will no longer be required for students on the Visual Studies Option. It will be required for students on the Architectural Studies Option as the content deals with the design and construction of buildings with a particular emphasis on structures using steel, concrete and framing lumber. The course will be replaced on the Visual Studies Option by ARTS 312 (Life Drawing) – Credit 3. The Department of Construction Science has been notified of these changes and a letter in support is included in this proposal.

ENDS 211 (Design Detailing – Credit 4)
This course will no longer be required for students on the Visual Studies Option. This course will be required for students pursuing the Architectural Studies Option as the course content deals with design decisions and material choices with respect to issues related to the building envelope, structure and environmental systems. This course will be replaced on the Visual Studies Option by a new course VIST 441 (Scientific and Technological Developments in Visual Studies) – Credit 4. This course explores relationships between art, science and technologies. The course will introduce students to research and seminal papers in the Visualization field. Students will come to understand significant developments that are having impacts on the profession today.
ENDS 231 (Architectural Structures I – Credit 3)
This course will no longer be required for students on the Visual Studies Option. This course will be required for students pursuing the Architectural Studies Option as the course content deals with physical principles that govern statics and strengths of materials in architectural building design. **This course will be replaced on the Visual Studies Option with a Directed Elective – Computing Menu (see section 5) – Credit 3.**

ENDS 233 (Environmental Systems I – Credit 3)
This course will no longer be required for students on the Visual Studies Option. This course will be required for students pursuing the Architectural Studies Option as the course content focuses on applications of building energy use, shading analysis of buildings and heating and cooling systems. **This course will be replaced on the Visual Studies Option by a new course VIST 271 (Computing Environments) – Credit 3.** VIST 271 will build on knowledge gained in CPSC 206 and introduce students to foundation technical considerations applicable to visualization, including the introduction of system utilities, scripting, interface design and graphics programming. A copy of the new course request and syllabus is included in this proposal.

(4) The elimination of one College of Engineering/Computer Science Course

The proposed Option also replaces one course taught outside the College of Architecture. This course is being replaced with another computing course that better prepares students for careers and graduate studies in visualization.

CPSC 111 (Introduction to Computer Science Concepts and Programming – Credit 4)
This course is no longer be required on the Visual Studies Option. **This course will be replaced by CPSC 206 (Structured programming in C) – Credit 4.** The new course being proposed in the Visual Studies Option (VIST 271 - Computing Environments) builds on skills and knowledge presented in CPSC 206. The Department of Engineering/Computer Science has been notified of these changes and a letter in support is included in this proposal.

(5) A modification of the Directed Elective Options allows a focus in topical areas of computing and the arts.

The proposed menu of Directed Electives strengthens the Visual Studies Option with regard to educational and career goals. The current Visual Studies Option requires 4 electives - 2 Free Electives and two Directed Electives. The directed electives currently offer little focus in one area of study. The proposed Option will allow students to take 5 electives. One Free Elective, two Directed Electives in the ARTS menu and two Directed Electives in the COMPUTING Menu are being proposed. Departments outside of the College of Architecture whose classes are listed below as electives have been notified of these changes and a letter in support is included in this proposal.
Directed Electives - ARTS Menu – 6 credit hours in one category
A. Graphics - Arts 203 (Graphic Design I); ARTS 304 (Graphic Design II)
B. Painting - ENDS 353 (Color Theory); ARTS 305 (Painting I)
C. Web Design - ENDS 374 (Multimedia Design and Development); ENDS 474 (Web Interface Design * see note)
D. Film - FILM 201 (Introduction to Film Analysis); FILM 394 (Studies in Film Genre); FILM 481 (Seminar on Film Studies)
E. Creative Theory – EPSY 430 (Creativity Theories and Research); EPSY 432 (Creativity and Creative Problem Solving)

Directed Elective – COMPUTING Menu – 6 credit hours in one category
A. Programming and Computing Fundamentals - CPSC 211(Data Structures); CPSC 441 (Computer Graphics)
B. Visual Computing Applications - ENDS 370 (Virtual Architecture); ENDS 372 (Creating Digital Environments); ENDS 470 (Digital Rendering)

A listing of approved Directed Electives will be available in the Undergraduate Studies Office Room A219 Langford.

* Note: ENDS 474 was proposed as a new class during the last academic year (2005-2006). This course has been modified to address concerns raised by another College in the Faculty Senate. The course is being resubmitted to committees as ARTS 474. A request has been made that ENDS 374 be changed to ARTS 374.

(6) The Architectural and Art History Courses on the Visual Studies Option – Departmental Substitutions

The Department of Architecture currently has the capability to offer sections of ENDS 149, ENDS 150 and ENDS 250 on a regular basis. These Architectural History courses will remain on the Visual Studies Option as their content includes both architecture and art. However, departmental substitutions will be allowed for equivalent ARTS history courses as follows:

ENDS 149 (Survey of Architectural History I) or ARTS 149 (Art History Survey I)
ENDS 150 (Survey of Architectural History II) or ARTS 150 (Art History Survey II)

RESOURCES

The proposed changes to the Visual Studies Option can be initiated without any immediate changes in the Bachelor of Environmental Design Degree and Option enrollment. The proposed changes will have minimal impacts on class enrollments, and will not alter the current faculty teaching loads. No additional faculty are required to implement these changes. Existing faculty are proposing the two new Option courses. No additional laboratory or studio space is required. The Department of Architecture requires students to purchase lap top computers upon arrival. The studio spaces have access to wireless
connections. Software is available to students at no or nominal cost. No additional library resources will be required.

Enrollment will continue to be managed as it currently is with one exception. Following the students third semester, Visual Studies Option students will be required to attend academic departmental advising sessions. Students not attending an advising session will be blocked from registration. This advising will better prepare students for their application to the upper levels of study the following semester.

The College wide study away initiatives will remain the same. Students will still be required to study away one semester. The Department is working toward developing programs and internship opportunities appropriate to students on the Visual Studies Option.

**RELATIONSHIPS TO COLLEGE INITIATIVES AND DEPARTMENTAL PROGRAMS**

The College of Architecture is proposing the establishment of a new Department of Visualization at Texas A&M University. Initially, programs in this department will be at the graduate level. The proposed changes to the Visual Studies Option have been formulated in consultation with faculty in the graduate Visualization program so that any immediate changes to the Visual Studies Option will be supportive of any future initiatives.

The proposed curriculum has been reviewed by the faculty in the Department of Architecture, the Department Head of Construction Science, the Department Head of Landscape and Urban Planning, the Deans of the College Administration, the College level Undergraduate Academic Affairs Committees (UAAC and GAAC) and the College Executive Committee (EXCOM).
Appendix I


Common Coursework with the Architectural Studies Option
46 Credit Hours

- ENDS 102 – Design Foundations I (Lecture)
- ENDS 105 – Design Foundations I
- ENDS 149 – Architecture History I
- ENDS 170 – Computer Techniques
- ENDS 103 – Design Foundations II (Lecture)
- ENDS 106 – Design Foundations II
- ENDS 115 – Design Communication
- ENDS 150 – Architecture History II
- ENDS 205 – Environmental Design I
- ENDS 214 – Design Detailing
- ENDS 231 – Architectural Structures I
- ENDS 233 – Environmental Systems I
- ENDS 250 – History of Modern Architecture
- ENDS 260 – Comparative Theory
- CARC 301 or ENDS 494 – Study Away
- CARC 481 – Study Away Seminar
- COSC 263 – Construction Materials and Methods
- ARCH 406 – Interdisciplinary Design III
- Art/Architecture History Elective

Specialized Coursework unique to the Visual Studies Option – 44 Credit Hours

Replace CPSC 111 – Intro to Computer Science Concepts and Programming with CPSC 206 (Programming in C)
- ENDS 375 – Foundation of Visualization
- VIST 305 – Visual Studies Studio I
- PHIL 375 – Philosophy of Visual Media
- VIST 405 – Visual Studies Studio II
- Visual Studies Directed Elective
- Visual Studies Directed Elective
- Visual Studies Directed Elective
- Replace COSC 253 with ARTS 312 (Life Drawing)
- Replace ENDS 211 with VIST 441 (Scientific and Technological Developments in Visual Arts)
- Replace ENDS 231 with Visual Studies Directed Elective – Computing Menu
- Replace ENDS 233 with VIST 271 (Computing Environments)

Two Free Electives – 6 Credit Hours

In addition 39 credit hours of additional coursework satisfy the remaining required University Core Curriculum courses
# Bachelor of Environmental Design - Visual Studies Option

**Proposed Changes for Catalog 130 (2007-2008)**

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## Visual Studies Option - Catalog 129

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## Notes
- New Option Requirement
- Additional changes and updates for the second semester.
# Bachelor of Environmental Design - Visual Studies Option

**Proposed Changes for Catalog 130 (2007-2008)**

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<td>VIST 305</td>
<td>Visual Studies Studio I</td>
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<td>Directed Elective</td>
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<td>Interdisciplinary Design III</td>
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**TOTAL HOURS: 135**

**TOTAL HOURS: 135**

**NOTES:**

1. To be selected from an approved list in the Undergraduate Studies Office Room A219, Langford
2. To be selected from the University Core Curriculum
3. Students who elect to intern in the U.S. during their junior year should select one 3 credit hour course that satisfies the International and Cultural Diversity Core Curriculum requirement as one of the Core Curriculum Electives. International and Cultural Diversity courses are...
Bachelor of Environmental Design - Visual Studies Option  
Proposed Changes for Catalog 130 (2007-2008)

<table>
<thead>
<tr>
<th>Listed in the Texas A&amp;M catalog.</th>
<th></th>
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<tr>
<td>A grade of C or better must be made in all College of Architecture courses (ARCH, ARTS, CARC, COSC, ENDS, LAND, LDEV, PLAN and VIST) and in all other Option coursework (MATH 151, 152; CPSC 206; PHIL 375; and Directed Elective coursework)</td>
<td></td>
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<tr>
<td>Students must also make a C or better in any course used as an equivalent substitution for College of Architecture and Option coursework that satisfy degree requirements.</td>
<td></td>
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</tbody>
</table>
November 2, 2006

Dr. Mark Clayton, Interim Department Head  
Department of Architecture  
College of Architecture  
Texas A&M University  
College Station, Texas, 77843

Dear Dr. Clayton,

The Department of Educational Psychology is pleased that you would like to include EPSY430 – Theories and Research of Creativity and EPSY 432 – Creativity and Creative Problem Solving on the list of directed electives within your proposed curriculum for the Visual Studies Option. We feel that these courses will offer your students a greater depth of understanding of the area of creative studies and will be of value to them long after they complete their studies here at Texas A&M University. We support their inclusion in this program and welcome the opportunity to partner with you in this way.

Sincerely,

[Signature]

Michael R. Benz, Ph.D.  
Professor and Department Head
November 1, 2006

Dr. Julie Rogers  
Associate Department Head  
Department of Architecture  
Texas A&M University  
College Station, Texas 77843-3137  

Re: Bachelor of Environmental Design – Visual Studies Option, COSC 253

Dear Dr. Rogers:

Thank you for letting me know that the Department of Architecture plans to eliminate COSC 253, Construction Materials and Methods 1, as a required course in the Bachelor of Environmental Design – Visual Studies Option – beginning in the fall 2007 semester.

The Construction Science Department has no objection to your proposed action to eliminate COSC 253, Construction Materials and Methods 1, as a required course in the Bachelor of Environmental Design – Visual Studies Option – beginning in the fall 2007 semester. We look forward to working with you in other areas and always are prepared to cooperate with your needs.

Yours truly,

[Signature]

Joe Horlen  
Associate Department Head  
Assistant Professor  
Construction Science Department  
3137 TAMU  
College Station, Texas 77843-3137
November 2, 2006

To Whom It May Concern:

The current plan in for a degree program in Visual Studies designates three courses from the film studies curriculum, FILM 201, FILM 394, and FILM 481 as directed electives. These courses are offered almost every semester. We would welcome the Visual Studies students and are happy to accommodate them.

Sincerely,

[Signature]

Robert A. Shandley
Coordinator, Interdisciplinary Program in Film Studies
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 ____________________________
   ARCHITECTURE

2. Course prefix, number and complete title ____________________________
   ENDS 474 DESIGNING FOR THE WEB

3. Course description (not more than 50 words) ____________________________
   Visual presentations on the web using web standards design;
   foundations of web technologies; web page and site creation; design typography for the web;
   controlling the page real estate through cascading style sheets (CSS); imaging for the web; the
   creation and use of color and graphics.

4. Prerequisite(s) ____________________________ Cross-listed with ____________________________
   Cross-listed courses require the signatures of both department heads.

5. Is this a variable credit course? □ Yes ☐ No If yes, from _______ to _______.

6. Is this a repeatable course? □ Yes ☐ 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 ☐ 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. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

Bachelor of Environmental Design (B.E.D.)

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)
    ENDS 474 DESIGNING FOR THE WEB
    Lect. Lab SCH Subject Matter Content Code Admin. Unit Acad. Year FICE Code
    0 2 0 4 0 3 ____________________________ 0 0 3 6 3 2
    Do not complete shaded area.

Approved and 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:
Dean of College ____________________________ Date ____________

Director of Academic Support Services ____________________________ Date ____________

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.
GAR/AS-504

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I. COURSE DESCRIPTION

ENDS 474 Designing for the Web. (2-4). Credit 3.
Visual presentations on the web using web standards design; foundations of web
technologies; web page and site creation; design typography for the web; controlling
page real estate through cascading style sheets (CSS); imaging for the web; the
creation and use of color and graphics.

II. INSTRUCTOR

Howard F. Eilers
306D Langford C
979-945-4785, 778-8803
h-eilers@temu.edu

III. PREREQUISITES

none

IV. INTRODUCTION

ENDS 474 is a course that emphasizes the technical, creative and compositional
aspects of web design. Topics include the Internet and the web, terminology, HTML
document type definition and standards, web technologies, basics of web design,
controlling page real estate, cascading style sheets, ADA accessibility standards and
the building and management of complete web sites.

V. COURSE OBJECTIVES

The objectives of this course are as follows:

- to understand the power and utility of the web
- to explore the creative potential for the web
- to control presentation by the use of positioning
- to introduce good coding practices through the use of web standards
- to learn how to separate content and format styling
- to create an awareness for ADA standards and the necessity for compliance
- to create an entire web site; explore web site management
VI. COURSE SCHEDULE:

Week 1: Course Introduction; How the web works; history of the web

Week 2-5: Data quality, optimization and content
- HTML/XHTML – HyperText Markup Language
- Graphic design image creation for web usage
- Typography for web usage
- The use of special graphics programs
- ADA Concepts: the text based site; paper format; Section 504 & 508
- Design Concepts: color, resolution, image layout and font usage
- Technical Concepts: formatting-color, sound, files, text, text coding, file uploading, tables
- Various exercises and projects to meet these goals.

Week 6-10: Interface design
- Design Concepts: Organization and layout, navigation (mouse-overs and image maps), menus, styles and themes, designing with web standards, styling fonts and text, positioning elements, multicolumn layouts, positioning backgrounds.
- Technical Concepts: cascading style sheets: separating content from presentation, interface components: button interactivity, layers, frames and templates
- Various exercises and projects to meet these goals.

Week 11-15: Content integration
- Web site construction and management
- Design Concepts: plot structure, point of view, narrative
- Technical Concepts: style sheets, forms and fireworks
- Animation on the web: GIF animation and using Flash
- The use of DreamWeaver (etc.) to handle site management
- Project: Creation and management of complete business oriented web site.

VII. PERFORMANCE EVALUATION:

Projects for the web course:

Basic HTML things:
- Web Pages – Create web pages incorporating shape layout, color and design techniques designed in class. Include text, still images and sound. Link more than one page together. Create graphics for inclusion in basic web pages.

Styling – Interface design:
- A series of exercises and creative projects to style web pages with multi-column layouts, floats, various link (menu) configurations, incorporating different design, layout, imagery, typographic, and special effects using background images, transparency and layering.
Content integration:
Web site and management: Create and publish a web site applying non-linear web strategies integral to the corporation.

Students enrolled in ENDS 489 will be evaluated according to the following criteria:
Projects and instructor designed exercises 80 %
3 Examinations 15 %
Class participation 5 %

VIII. TEXT

Required: Budd, Andy, *CSS Mastery: Advanced Web Standards Solution*
Friends of Ed 2006


Wyke-Smith *stilin’ with CSS* New Riders Publishing 2005

References: Baker, Donna *CSS For Web Designers Only* Wiley 2006

Cederholm, Dan *Bulletproof Web Design* New Riders 2005


Cooper, Alan *The Essentials of Interaction Design* Wiley 2003


Eccher, Clint, Hunley, Eric and Simmons Erik *Advanced Professional Web Design: Techniques and Templates* Charles River Media 2006


Holzschlag, Molly *El Cascading Style Sheets: The Designer’s Edge* Sybex 2003

Molly Holzschlag, *Spring into HTML & CSS* Adison-Wesley, 2005


Meyer, Eric More on CSS New Riders Publishing 2004


Ruse, Kevin Web Standards Design Guide Charles River Media 2005


Shea, Dave and Holzschlag, Molly The Zen of CSS Design New Riders 2005


Whitehead, Paul HTML: Your Visual Blueprint for Designing Web Pages with HTML, CSS and HTML Wiley 2005

Williams, Robin Web Design Workshop Peachprint 2002

Wyke-Smith, Charles Codin' for the Web New Riders 2006

Zeldman, Jeffrey Taking Your Talent to the Web Peachpit 2001
IX. MATERIALS

No special materials are required for this course beyond those required for note taking.

X. COSTS

Beyond the required text books, the only costs will be for backup media, blank CDs, a memory "key" or a 250 Zip Disk is convenient and recommended with a cost between $10 and $30. CD-ROM and DVD burners are also available. Media costs between a few cents to a few dollars each.

XI. AMERICANS WITH 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 the Department of Student Life, Services for Students with Disabilities, in Cain Hall or call 845-1637.

XII. 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: www.tamu.edu/aggiehonor/

"On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work."
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 ARCHITECTURE

2. Course prefix, number and complete title VIST 271 Computing Environments

3. Course description (not more than 50 words) Introduction to the theory and practice of visual computer based problem solving. System tools; scripting; high level programming constructs; interactive programming and interface design; development concepts and principles useful in digital art and visualization production.

4. Prerequisite(s) CPSC 206 or approval of the Chair of the Visual Studies Option Cross-listed with

5. Is this a variable credit course? □ Yes □ No If yes, from ________ to ________.

6. Is this a repeatable course? □ Yes □ 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 □ 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)
      Bachelor of Environmental Design - Visual Studies Option
   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)
    VIST 271 Computing Environments

    | Lect. | Lab | SCH | Subject Matter Content Code | Admin. Unit | Acad. Year | FICE Code |
    |-------|-----|-----|-----------------------------|-------------|------------|----------|
    | 0     | 3   | 0   | 103                         |             |            | 0 0 3 6 3 3 2 |

   Do not complete shaded area.

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

   Submitted to Coordinating Board by:
   Dean of College Date

   Director of Academic Support Services Date Effective Date

To have this form reviewed, please send to Linda F. Laury, Mail Stop 1265 or fax to 847-8737.
OAR/AS-5/04

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Description: VIST 271. Computing Environments. (3-1). Credits 3. Introduction to the theory and practice of visual computer based problem solving. System tools; scripting; high level programming constructs; interactive programming and interface design; development concepts and principles useful in digital art and visualization production.

Introduction: Understanding the technical basis for computer-based visualization allows the student to venture beyond the limitations of existing software applications. VIST 271, Computing Environments, introduces the fundamentals of visualization management and developmental techniques. These principles provide the necessary background for higher level coursework, personal exploration/practices, and basic research within the context of the visualization experience.

Content: Topics to be covered in VIST 271 will include the LiNUX operating system, principles of operation, management and development tools. The creation and use of shell scripts, concepts and use of interactive graphics programming, high level graphics libraries and data structures will be introduced. Useful practices emphasizing the integration of computer graphics, data structures and vector/matrix operations will be emphasized.

Objectives: Course objectives include the following:
- To introduce terminology relevant to computing, design and visualization.
- To become familiar with the visualization computing environment, tools, practices and procedures.
- To explore the basics of graphics programming using a high level language and graphics library.
- To understand useful mathematical concepts that form the basis of computer graphics programming.

Prerequisites: CPSC 206 or approval of the Chair of the Visual Studies Option.

Coursework: Weekly assignments will be given during the course of the semester. These may include laboratory and/or reading assignments. Short, unscheduled quizzes may be given at any time, so the student should be prepared.

Assignment grades will be based upon:
- Completion: completing the assignment, handed in on time
- Programmatic requirements: fulfilling the specific points/issues to be addressed in the assignment
- Project quality: problem solving with clarity, robustness and versatility
- Creativity: innovation and creative insight expressed within the problem's context
Assignments are due at the beginning of the period on the date indicated on the handout, regardless of the level of completion.

Both exams and the final will cover concepts, processes and techniques discussed in the lectures and the required text. While a significant amount of detail will be covered, the intent of the exams is not to challenge your short term memory, but your understanding of the course content, concepts and techniques.

Attendance is essential to complete the course successfully. Excused absences will be allowed for those specified in Rule 7 of the Texas A&M University Student Rules.

Two unexcused absences will be allowed beyond those listed above. Each successive unexcused absence will result in a 3 point numerical reduction in your semester grade. A total of 6 unexcused absences will result in automatically failing the course. Quizzes cannot be made up if an absence is unexcused.

Evaluation: Students in VIST 271 will be evaluated according to the following criteria:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weightage</th>
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<tbody>
<tr>
<td>Assignments/problem sets</td>
<td>45 %</td>
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<tr>
<td>2 Exams</td>
<td>30 %</td>
</tr>
<tr>
<td>Comprehensive final examination</td>
<td>20 %</td>
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<tr>
<td>Personal evaluation</td>
<td>5 %</td>
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</table>

Course Topics: Operating system fundamentals:
- using the bash shell
- command line utilities
- file system overview
- process control
- programming tools

Shell scripting:
- script basics/overview
- data, variables and expressions
- control structures
- text processing

Graphics programming:
- window systems and basic functions
- interactive techniques
- 2D modeling transformations and functions
- 3D modeling, transformations and functions
- projection transformations
- lighting modes

Vectors, matrices and transformations:
- vectors and their properties
- matrices and homogeneous coordinates
- coordinate transforms
- systems of linear equations
Data structures
- arrays
- trees
- single and double linked lists

**Required Texts:**


**Additional Refs:**


Materials: No special materials are required for this course. Most assignments will be turned in via ftp but others may require special considerations which will be defined on the problem statement. A flash drive, CDRW or zip drive should be used for backup of personal student work.

Costs: The only costs will be for the required text books and backup media, approximately $110.

Office Information: Rm 328, Langford Architectural Center
Hours: M-W 1:30 - 2:30; T-R 10:00 - 11:00
Telephone: 845-7068
trl@archone.tamu.edu
**SPECIAL NOTES**

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**Plagiarism:** 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. 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 should have the permission of that person.

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.”

**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: [www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/).

“On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.”

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 Architecture.

2. Course prefix, number and complete title: VIST 441 - Scientific and Technological Developments in Visual Arts

3. Course description (not more than 50 words): Advanced level course focusing on the relationship between art, science and technology; visual arts before the digital revolution; the development of computer graphic arts.

4. Prerequisite(s): Upper level classification or approval of the Chair of the Visual Studies Option

5. Is this a variable credit course? ☐ Yes ☐ No If yes, from _____ to _____.

6. Is this a repeatable course? ☐ Yes ☐ 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 ☐ 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)
      Bachelor of Environmental Design (B.E.D.) - Visual Studies Option
   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)
     
     | V I S T 4 4 1 S C I & T E C H D E V V I S A R T S |

     Lect. Lab SCH Subject Matter Content Code Admin. Unit Acad. Year FICE Code
     0 3 0 1 0 4

     Do not complete shaded area.

Approval recommended by:

Head of Department 11/09/00 11/24/00
Date

Chair, College Review Committee 11/24/00
Date

Head of Department (if cross-listed course) Date

Dean of College 11/24/00
Date

Submitted to Coordinating Board by:

Dean of College Date

Director of Academic Support Services Date

Effective Date

Received by Academic Support Services

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.

OAR/AS-5/04
VIST 441- Scientific and Technological Developments in Visual Arts
Web Address: http://www-viz.tamu.edu/courses.
Credit 4 (3-1)

Instructor Contact Information
Instructor: Ergun Akleman
Address: Visualization Lab, Langford C 418
Phone 845-6599
Email ergun@viz.tamu.edu

Course Information
Description
Advanced level course focusing on the relationship between art, science and technology; visual arts before the digital revolution; the development of computer graphic arts.

Prerequisites
Upper level classification or approval of the Chair of the Visual Studies Option.

Textbook
Course notes compiled by instructor.

References
A. Gallup, G. Gruiitrooy and E. W. Weisberg, Great Paintings of the Western World.
SIGGRAPH Proceedings.
Rosalee Wolfe, Seminal Graphics, Pioneering Efforts That Shaped the Field.

Course Outline
This course will examine the relationship between art, science and technology. There will be two main subject areas: (1) the Visual Arts before digital revolution and (2) Computer Graphic Arts.

The subjects related to Visual Arts before digital revolution will include, but not limited to

Euclidean Geometry and Golden Ratio.
The discovery of concept of weight, Giotto.
Perspective and early ray-tracing, Durer.
Physically correct illumination, Giorgione and Titian.
Introduction of anatomical studies, Leonardo DaVinci.
Regular solids, Kepler and Poinsot.
Discovery of oil painting, Jan Van Eyck.
Using optics, Caravaggio and Vermeer.
Projective geometry.

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Color Studies, Impressionists.
Relativity of Color, Albers.
Four dimension, Dali and Escher.
Shape Perception, Picasso, Dali.
Principles of Animation, Disney.

The subjects related to Computer Graphics Arts will include, but not limited to

Sketchpad, Sutherland.
2D Drawing, Bresenhem.
2D Painting, A. R. Smith.
Hidden Surface Elimination.
Shading, Gouraud and Phong.
Illumination models, Lambert, Phong, Cook, Torrance and Blinn.
Bump Mapping, Blinn.
Texture Mapping, Catmull.
Geometry Engine, Clark.
Ray Tracing, Whitted.
Particle Systems, A. R. Smith.
L-Systems, Lindenmeyer and Prusinkiewicz.
Compositing, Porter and Duff.
Color Quantization, Heckbert.
Radiosity, Cohen and Greenberg.
Photon Mapping, Jensen.
Parametric Surfaces, Coons, Bezier, De Casteljeau and De Boor.
Solid Modeling, Hoffman.
Implicit Surfaces, Blinn, Barr and Wyvill.
Deformations, Barr.
Fractal Geometry, Mandelbrot.
Subdivision Surfaces, Catmull, Clark and Sabin.
Facial Animation, Parke.
Principle of Animation, Lasseter.
Grading

There will be 13 weekly quizzes and a final in the class. Each quiz is worth a maximum of 65 points. The final is worth a maximum of 150. An additional 105 points can be earned through class participation.

The highest possible number of points a student can earn in the class is 1100. Below are the numerical grades based on earned points.

A  Grade >900 points
B  900 points > Grade >800 points
C  800 points > Grade >700 points
D  700 points > Grade >600 points
F  600 points > Grade

Attendance:
Refer to the University student rules for the policy on attendance.

Schedule

Week 1  Greek Art.
         Euclidean Geometry and Golden Ratio.
         The discovery of concept of weight, Giotto.
         Introduction of anatomical studies, Leonardo DaVinci.

Week 2  Perspective and early ray-tracing, Durer.
         Projective geometry.
         Physically correct illumination, Giorgione and Titian.
         Discovery of oil painting, Jan Van Eyck.
         Using optics, Caravaggio and Vermeer.

Week 3  Color Studies, Impressionists.
         Relativity of Color, Albers.
         Regular solids, Kepler and Poinset.
         Four dimension, Dali and Escher.

Week 4  Shape Perception, Picasso, Dali.
         Motion, Futurists and Duchamp.
         Short history of photograph.
         Innovations related to photography.

Week 5  Short history of film.
         Discoveries on storytelling.
         Short history of animation.
         Principles of animation, Disney.

Week 6  Birth of Computer Graphics, Sketchpad, Sutherland.
The concept of drawing. Bresenhem algorithms.
Compositing, Porter and Duff. Color Quantization, Heckbert.
Warping, Beier and Neely.

**Week 7**
Hidden Surface Elimination.
Shading, Gouraud and Phong.
Illumination models, Lambert, Phong, Cook, Torrance and Blinn.

**Week 8**
Geometry Engine, Clark and Silicon Graphics.
GL and Open-GL.
Ray Tracing, Whitted.
Distributed Ray-Tracing, Cook.

**Week 9**
Parametric Surfaces, Coons, Bezier, De Casteljeau and De Boor.
B-Splines and NURBS.
Particle Systems, A. R. Smith. Lucasfilm and Wrath of Khan.
Fractal Geometry, Mandelbrot. L-Systems, Lindenmeyer and Prusinkiewicz.

**Week 10**
Solid Modeling, Hoffman.
Implicit Surfaces, Blinn, Barr and Wyvill.
Deformations, Barr.
Free-Form Deformations, Sedeberg.

**Week 11.**
Radiosity, Cohen and Greenberg.
Photon Mapping, Jensen.
Subdivision Surfaces, Catmull, Clark and Sabin.
Reintroduction of Subdivision Surfaces by Pixar.

**Week 12**
Facial Animation, Parke.
Principle of Animation, Lasseter. (Toy Story.)
Physically Based Modeling, Barr and Terzopoulos.
Cloth Modeling Breen, House. Clothing, Thalmans.

**Week 13**
Water Simulation, Fournier.
Physically based water Simulation, Foster and AntZ. Perfect Storm.
Polygon Reduction and Level of Details, Hoppe.
Image Based Rendering and Modeling