CAP 4034 Computer Animation – Fall 2008

Course description: Course includes basic animation concepts, principles of animation, storyboarding, character development, animation rendering, and design. Also, 2D animations for use in practical applications are developed. Basic 3D modeling, rendering, animation techniques, and common algorithms used to create computer animation are introduced.

Prerequisites: COP3530 Data Structures and Algorithms Analysis (recommended)

Note: This is a senior level computer science and engineering course, it is assumed that students have extensive computer experience and the ability to solve problems independently. Reasonable guidance will always be provided.

Software: the GIMP (GNU Image Manipulation Program) / GAP (the GIMP Animation Package) Blender open source 3D content creation suite Strata 3D CX Autodesk / Maya Personal Learning Edition, 3Ds max Adobe Photoshop, After Effects, Flash Microsoft Silverlight

Goals: Introduce basic concepts and common algorithms used to create computer animations. Understand and develop computer-generated animations for use in practical applications using modern animation software and scripting.

Instructor: Tami Sorgente Telephone: (561) 297-2674
e-Mail: tami@cse.fau.edu or tsorgent@fau.edu Fax: (561) 297-2800

Class Location and Time:
lecture R 12:30 – 1:50 BU 410
lab time (SE 319) T 12:30 -1:50

Office Location and hours: SE356
M 9:00 am – 12:00 pm W 9:00 am – 2:00 pm
T 2:00 pm – 3:00 pm R 2:00 pm – 3:00 pm

Class attendance policy:
It is the student’s responsibility to obtain the material covered during an absence from lab or lecture.

Objectives:
• Introduce basic principles of computer generated animation
• To gain experience using 2D image and animation software and scripting
• To create and incorporate simple 2D animations in common applications using animated GIFs
• To gain experience using 3D animation software and scripting
• To overview some animation software scripting languages
• To introduce common algorithms used to create computer animations
• To complete and present computer animation projects
Topics:
1. Overview of 2D and 3D animation software
2. Manipulating images using 2D software and scripting
3. 2D animations using 2D software
4. Overview of 3D software and scripting
5. Manipulating 3D scenes using 3D software
6. Introduction to common algorithms and principles used to create computer animations
7. Student portfolio presentations

Grading: Due to the variety of computer animation softwares and the independent study nature of this computer animation course, students are given the opportunity to submit an individual course proposal and make changes throughout the semester as new skills are learned. Students are required to complete 14 assignments and a portfolio presentation, 10 assignments are submitted through digital drop box (assign 2 through assign 11) and 3 additional assignments added to portfolio. Assignments are worth up to the amount of points specified per assignment, those assignments barely meeting the requirements, not meeting requirements, and late submissions will have points deducted.

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<thead>
<tr>
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<th>Percentage</th>
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<tbody>
<tr>
<td>Projects</td>
<td>70% (submitted through digital drop box)</td>
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<tr>
<td>Presentation</td>
<td>20% (class presentation and CD/DVD portfolio)</td>
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<tr>
<td>Participation</td>
<td>10%</td>
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Policy on late assignment submissions: Assignments are worth the number of points and percentage points specified on Blackboard gradebook. Assignments are due on the specified due date, assignments up to 60 hrs late will be a penalty of .067%, or (0.2 off a 3 point assignment). Late assignments will be accepted up to one week following the due date and up to 33% off. Assignments submitted after one week will count in the student portfolio presentation, but will not be accepted for individual assignment points. Student presentation portfolios are due by the specified deadline – specific instructions will be given for the student presentations.

Any student requiring additional time for assignment submissions must meet with the instructor on an individual basis, during office hours.

Important notes:
- This course is project oriented – there are no exams
- Please log on to Blackboard to access additional materials (class notes and slides, PDF version of selected papers, images, etc.). [http://blackboard.fau.edu/](http://blackboard.fau.edu/)
- The last day to drop and receive a “W” is Friday, October 17, 2008
- Students need to check myFAU email regularly for important course and individual information
- This course is an elective course and is designed to be practical and enjoyable
Laboratory projects

Project 1: Individual Course proposal

Project 2: 2D
Assign 2, 3 2D raster .gif animation frog and transparency
Assign 4 2D gif Hand drawn animation, GIMP
Assign 5, 6, 7 2D script-fu (.gif) animation, GIMP/ scripting and/or After Effects, additional scripting 2D vector animation and/or Flash introduction and Action script 2D vector animation –

Project 3: 3D
Assign 8 3D software navigation
Assign 9 3D mesh and spline modeling
Assign 10 3D shading/ surface colors and textures
Assign 11 3D lighting and rendering
Assign 12, 13, 14 3D animations and/or character development

Project 4: Common algorithms and principles of computer generated animation
Class discussions and presentations

Project 5: Portfolio presentation of computer generated animation
Student presentations

Accommodations for students with disabilities:
In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton - SU 133 (561-297-3880), in Davie - MOD I (954-236-1222), in Jupiter - SR 117 (561-799-8585), or at the Treasure Coast - CO 128 (772-873-3305), and follow all OSD procedures.

FAU Honor Code:
Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including cheating and plagiarism, is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see http://www.fau.edu/regulations/chapter4/4.001_Honor_Code.pdf.
ABET Program outcomes 2, 3, and 5 are tested

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<thead>
<tr>
<th>PROGRAM OUTCOME</th>
<th>DESCRIPTION OF THE TOOL (TEST METHOD)</th>
<th>CRITERIA</th>
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</table>
| Program Outcome 2  | Project 2: 2D software animation and scripting | Project 2:  
- Correctness of code  
- Clarity of code and program structure |
| Proficiency in the areas of software design and development, data structures, and operating systems | | |
| Program Outcome 2  | Project 3: 3D software animation and scripting | Project 3:  
- Correctness of code  
- Clarity of code and program structure |
| Proficiency in the areas of software design and development, data structures, and operating systems | | |
| Program Outcome 3  | Project 1: Course Proposal  
Student researches tools for computer generated animations and develops and maintains an individual course proposal of assignments meeting specific criteria | Project 1:  
- Demonstrates ability to conduct research and gather information. |
| An ability to plan and execute an engineering design to meet an identified need | | |
| Program Outcome 3  | Project 4:  
Common algorithms and principles of computer generated animation  
Student researches practical animation tools, including Beta tools | Project 4:  
- Demonstrates ability to conduct research and gather information.  
- Learns and uses appropriate documentation, modeling, design, and debugging tools |
| An ability to plan and execute an engineering design to meet an identified need | | |
| Program Outcome 5  | Project 5:  
Cumulative presentation of all animation assignments | Project 5:  
- Clarity of voice in oral presentation  
- Clarity of structure of oral presentation |
| An ability to communicate effectively and to function on multi-disciplinary teams | | |