The University of Texas at Tyler
Bachelor of Science in Computer Science

Syllabus

<table>
<thead>
<tr>
<th>Course Number:</th>
<th>COSC 4345</th>
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<tbody>
<tr>
<td>Course Title:</td>
<td>Computer Graphics</td>
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<tr>
<td>Course Description:</td>
<td>Graphics hardware, software, and applications. Data structures for graphics, graphic languages, computer-aided design, and three-dimensional graphics.</td>
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<td>Pre-requisites:</td>
<td>COSC 2336</td>
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<tr>
<td>Credits:</td>
<td>3</td>
</tr>
<tr>
<td>Languages Used:</td>
<td>C++ (or other equivalent language)</td>
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<td>Topics:</td>
<td>Geometric algorithms, Building a simple graphical user interface, Human-centered software evaluation, Human-centered software development, Graphical user-interface design, Graphical user-interface programming, Fundamental techniques in graphics, Graphic systems, Graphic communication, Geometric modeling, Basic rendering, Computer animation, Virtual reality, Multimedia information and systems</td>
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<tr>
<td>Additional Materials:</td>
<td>Graphics Package (such as OpenGL)</td>
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Evaluation Method: (only items in dark print apply)

1. Examination/Quiz
2. Homework
3. Paper/Report
4. Computer Program
5. Project
6. Presentation
7. Class Participation
8. Peer Review
### Course Objectives:

By the end of this course students are expected to:

1. Offer a meaningful critique of graphical and multimedia interfaces that incorporates an understanding of the principles of HCI design. [1, 4]
2. Apply the principles that underpin the design of graphics and multimedia systems. [1, 4]
3. Describe the range of tools that can be used to support the development of graphical and multimedia systems. [1, 4]
4. Use existing graphics and multimedia packages to develop appropriate graphical applications. [1, 4]

*Numbers in brackets refer to method(s) used to evaluate the course objective.*

### Relationship to Program Outcomes:

This course supports the following Computer Science Program Outcomes, which state that our students at the time of graduation are expected to:

1. Possess knowledge of the fundamentals of mathematics, science, and technology [1, 2, 3, 4]
2. Be able to use modern computational tools and techniques in the practice of computer science. [1, 2, 3, 4]
3. Be able to develop logically sound and efficient algorithms. [1, 2, 3, 4]
4. Be prepared to implement algorithms in multiple programming languages, on multiple hardware platforms, and in multiple operating system environments. [1, 2, 3, 4]
5. Be able to perform analysis, design, implementation, testing, and maintenance of computer-based systems, stressing software engineering principles. [1, 2, 3, 4]
6. Be prepared to seek continuing professional development, graduate studies, or professional certifications related to computer science.
7. Demonstrate effective written, visual and oral communication skills.
8. Possess an educational background to understand the global context in which computer science is practiced, including:
   a. Knowledge of contemporary issues related to computer science;
   b. The impact of computers on society;
   c. The role of ethics in the practice of computer science.
9. Be able to contribute effectively as members of a project development team.
10. Recognize the need to pursue continued learning throughout their professional careers.

*Numbers in brackets refer to course objective(s) that address the Program Outcome.*