# COURSE DESCRIPTION

<table>
<thead>
<tr>
<th>Course No. Course Type</th>
<th>Course Title</th>
<th>Coordinator</th>
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</thead>
<tbody>
<tr>
<td>3</td>
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## Current Catalog Description:
Survey of graphics algorithms, data structures, and techniques.

## Textbook:

## References:
None

## Course Outcomes:
Upon successful completion of this course, a student should be able to:

1. Demonstrate mastery of graphics algorithms and understanding of OpenGL graphics language. (CO1)
2. Use the facilities provided by a standard API to express basic transformations such as scaling, rotation, and translation. (CO2)
3. Implement simple procedures that perform transformation and clipping operations on a simple 2-dimensional image. (CO3)
4. Discuss the 3-dimensional coordinate system and the changes required to extend 2D transformation operations to handle transformations in 3D. (CO4)
5. Compare and contrast the techniques of raster graphics and vector graphics. (CO5)
6. Use current hardware and software for creating and displaying graphics. (CO6)
7. Compare and contrast several technologies for motion capture. (CO7)

## Prerequisites by Topic:
Students must have
- grades of at least C (2.0) in CSC 340 (Software Engineering), CSC 350 (Foundations of Computer Science II), and MAT 292 (Calculus II), or
- permission of instructor.
Major Topics Covered in the Course:

- Graphics concepts and models
- OpenGL drawing and vector tools
- Transformations of objects
- Modeling shapes with polygonal meshes
- 3-D viewing
- Rendering

Estimated Curriculum Category Content (Semester hours):

<table>
<thead>
<tr>
<th>Area</th>
<th>Core</th>
<th>Advanced</th>
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<tbody>
<tr>
<td>Algorithms</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Data structures</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Comp Org &amp; Arch</td>
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<td>0</td>
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<tr>
<td>Software design</td>
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<td>1</td>
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<tr>
<td>Prog. Languages</td>
<td>0</td>
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