Course Outline

COURSE: CGD 6  DIVISION:  50  ALSO LISTED AS:  

TERM EFFECTIVE: Summer 2017  Inactive Course

SHORT TITLE: ADVANCED COMPUTER GRAPHICS

LONG TITLE: Advanced Computer Graphics

<table>
<thead>
<tr>
<th>Units</th>
<th>Number of Weeks</th>
<th>Type</th>
<th>Contact Hours/Week</th>
<th>Total Contact Hours</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>18</td>
<td>Lecture: 2</td>
<td>36</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Lab: 6</td>
<td>108</td>
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<td></td>
<td>Other: 0</td>
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<td></td>
<td></td>
<td>Total: 8</td>
<td>144</td>
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COURSE DESCRIPTION:

Technical skills for using computer design for precision manufacturing, including ANSI/ASME Y14.5 2009 geometric dimensioning and tolerancing (GD&T). Prepares students for careers as designers, engineers; CAD/CAM/CAE specialist; drafter, inspectors, machinists, technical sales, and other jobs that interpret engineering drawings. Students may concurrently enroll in CGD 110. ADVISORY: Eligible for English 250, 260 and Mathematics 233. Computer lab work can be done both in lab and off-site.

PREREQUISITES:

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES

L - Standard Letter Grade

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

02 - Lecture and/or discussion
03 - Lecture/Laboratory
04 - Laboratory/Studio/Activity
05 - Hybrid
72 - Dist. Ed Internet Delayed
73 - Dist. Ed Internet Delayed LAB
STUDENT LEARNING OUTCOMES:
1. Identify examples and explain benefits of Geometric Dimensioning and Tolerancing (GD&T).
   Measure: Quizzes & exercises
   ILO: 2, 3, 1, 7, 4
   GE-LO: B7, B8

2. Apply ASTM and ANSI standards in design projects
   Measure: Design Project
   ILO: 1, 7, 2, 3
   GE-LO: B7, B8

3. Incorporate GD&T rules when detailing SolidWorks or other parametric 3D models and working drawings
   Measure: Design Project
   ILO: 7, 3, 2, 1, 6, 5
   GE-LO: B7

4. Propose and render material for student project using ASTM and ANSI Standards
   Measure: Design Project
   ILO: 7, 2, 1, 3, 6
   GE-LO: B7

5. Develop portfolio document that illustrates knowledge of CG&T, ASTM and ANSI standards for creating products for manufacturing industry
   Measure:
   ILO:
   GE-LO: B7

6. Provide and receive constructive criticism and incorporate suggested improvements in design project
   Measure: Revisions & Critique
   ILO: 2, 1, 6, 3, 7, 4, 5
   GE-LO: A2, A2, B8

7. Develop portfolio document that illustrates knowledge of CG&T, ASTM and ANSI standards for creating products for manufacturing industry.
   Measure: Portfolio
   ILO: 2, 7, 5, 3, 1, 6
   GE-LO: B7

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS
Inactive Course: 02/27/2017 Effective Summer 2017
12 Hours
CONTENT: Overview of GD&T and use in design fields.
SPO: Synthesize ways GD&T is required in design fields.
HOMEWORK: Write research report on ways GD&T in students desired career path.

24 Hours

3/8/2017 2
CONTENT: Tolerancing in SolidWorks or other Parametric Models.
SPO: Select and use tolerances for optimal production.
HOMEWORK: Select and provide tolerances on parametric mode.

24 Hours
CONTENT: Incorporating GD&T symbology in Parametric Models.
SPO: Apply GD&T symbology in 3D projects.
HOMEWORK: Produce 3D models that correctly use GD&T Symbology.

24 Hours
CONTENT: Overview of Y14.5 2009 requirements.
SPO: Refer to ANSI/AMSE standards to solve problems.
HOMEWORK: Propose incorporating ANSI/AMSE standards for 3D design solution.

24 Hours
CONTENT: Apply Y14.5 2009 in setting up 3D models.
SPO: ANSI/AMSE used for creating 3D models.
HOMEWORK: Create ANSI/AMSE standards matrix for use in 3D design.

24 Hours
CONTENT: Incorporating GD&T to create Working Drawings.
SPO: Prepare Working Drawings that use CG&T.
HOMEWORK: Prepare working drawings of 3D model that applies GD&T rules.

10 Hours
CONTENT: Documentation of technical expertise in portfolio
SPO: electronic documentation of technical expertise.
HOMEWORK: Compile computer graphics of assignments that communicate technical

2 Hours
Final

METHODS OF INSTRUCTION:
Entire class lecture and small group lectures are used as needed by the class or individual. This method is used in the lab times on a need to know basis. The teacher uses the drawing board, computer, and blackboard as actual drawing and design demonstrations encouraging student interaction.

METHODS OF EVALUATION:
CATEGORY 1 - The types of writing assignments required:
Percent range of total grade: 10 % to 15 %
Written Homework
Reading Reports  Lab Report
Term or Other Papers
Other: written critiques
If this is a degree applicable course, but substantial writing assignments are not appropriate, indicate reason
Course is primarily computational

3/8/2017
Course primarily involves skill demonstration or problem solving

CATEGORY 2 - The problem-solving assignments required:
Percent range of total grade: 25% to 45%
Homework Problems
Quizzes
Exams
Other: Design Projects

CATEGORY 3 - The types of skill demonstrations required:
Percent range of total grade: 10% to 30%
Class Performance/s
Performance Exams

CATEGORY 4 - The types of objective examinations used in the course:
Percent range of total grade: 15% to 25%
Multiple Choice
Matching Items
Completion
Other: Applied Skill Exam Computer Aided Design

CATEGORY 5 - Any other methods of evaluation:
Percent range of total grade: 10% to 15%
Portfolio

REPRESENTATIVE TEXTBOOKS:
Required:
David A. Madsen and David P. Madsen, Geometric Dimensioning and Tolerancing, Goodheart-Willcox, 2011, or other appropriate college level text.
ISBN: 0831130725
Other textbooks or materials to be purchased by the student:
Grid paper, sketch pens, engineering scale, pencils, headphones, flash drive

ARTICULATION and CERTIFICATE INFORMATION
Associate Degree:
CSU GE:
IGETC:
CSU TRANSFER:
  Transferable CSU, effective 199330
UC TRANSFER:
  Not Transferable

SUPPLEMENTAL DATA:
Basic Skills: N

3/8/2017