

Course Outline

COURSE: CGD 2 **DIVISION:** 50 **ALSO LISTED AS:**

TERM EFFECTIVE: Summer 2017 **Inactive Course**

SHORT TITLE: 2D/3D TECH COMP GRAPH I

LONG TITLE: 2D, 3D Technical Computer Graphics I

<u>Units</u>	<u>Number of Weeks</u>	<u>Type</u>	<u>Contact Hours/Week</u>	<u>Total Contact Hours</u>
3	18	Lecture:	2	36
		Lab:	3	54
		Other:	0	0
		Total:	5	90

COURSE DESCRIPTION:

Introduces specialized communication skills and knowledge while developing graphic and design competencies used by architects, engineers, game/simulation developers, industrial designers and others who plan, develop, manufacture and market real and/or virtual consumer products. Project based learning applies problem solving, design skills, drafting standards, professional ethics, and research skills. Uses freehand sketches, SolidWorks and/or other industry standard used for drafting and design tools to develop 3D models, drawings, and animations needed to produce functional objects that meet human needs in an environmentally sound, cost effective, and aesthetically pleasing manner. This course has the option of a letter grade or pass/no pass. **ADVISORY:** MATH 430, Algebra I; English 250, Practical Writing; and English 260, Preparation for College Reading.

PREREQUISITES:

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES

- L - Standard Letter Grade
- P - Pass/No Pass

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. Work with team to create report that identifies desired technical graphics careers and describes specialized skills required for success in those fields.

Measure: Portfolio

PLO: 1

ILO: 7, 4, 3, 2, 1, 6

GE-LO: A3, A5, B8, E1

Year assessed or anticipated year of assessment: 2015

2. Apply problem solving to propose consumer project that meets a human need in a cost effective, environmentally sound, aesthetically pleasing manner.

Measure: Portfolio

PLO: 3

ILO: 7, 2, 3, 1, 5

GE-LO: A5, B3, C1, D3, E3, F1

Year assessed or anticipated year of assessment: 2015

3. Develop an electronic portfolio to present to potential clients/employers.

Measure: Portfolio

PLO: 6

ILO: 7, 1, 2, 3, 6, 5, 4

GE-LO: A3, A5, B7, C1, F1

Year assessed or anticipated year of assessment: 2015

PROGRAM LEARNING OUTCOMES:

- 1) Describe specialized skills for entry and success in desired technical graphics careers.
- 3) Use design problem solving to propose an aesthetically pleasing design that satisfactorily addresses clients' needs.
- 6) Develop an electronic portfolio to present to potential clients/employers.

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Inactive Course: 02/27/2017 Effective Summer 2017

2 Hours

CONTENT: Introduction to creative problem solving, overview of CGD careers, self-assessment of skills & research methods for investigating CGD career pathways

STUDENT PERFORMANCE OBJECTIVES: Complete career assessment inventory, use creative problem solving model to identify "ideal" CGD-related career(s) for aptitudes and attitudes.

HOMEWORK: Complete career assessment, summarize results, identify career pathways to achieve career, demonstrate use of creative problems solving process to generate pros and cons of career, compare and contrast with other career(s), and select "best" career.

6 Hours

CONTENT: Overview of MLA referencing, basic design and topographic principles and ways to integrate visual and verbal communication techniques.

STUDENT PERFORMANCE OBJECTIVES: Create digital presentation that integrates verbal and visual communication to summarize research findings on career selection

HOMEWORK: develop and present a group presentation about CGD careers that incorporates basic design principles and MLA research methodologies

7 Hours

CONTENT: Ways additional topographic concepts and elements and principles of design are used to support 2D graphic design and introducing a CAD interface and computer graphic text

STUDENT PERFORMANCE OBJECTIVES: Apply typological understanding to create 2D logo using graphics of initials, name or symbols

HOMEWORK: Use software program to create logo and describe design principles/theories used

15 Hours

CONTENT: Scale drawings, line styles, freehand orthographic sketching and introduction to SolidWorks and/or other computer graphic program(s) drawing tools

STUDENT PERFORMANCE OBJECTIVES: Create manual orthographic sketches and computer generated models of simple geometric objects.

HOMEWORK: Produce freehand orthographic sketches and CAD models of simple product designed by selected career field scan and present graphics using design principles

11 Hours

CONTENT: Industry standards used for product design and ways designers integrate creative problem solving with visualization skills to redesign and improve products

STUDENT PERFORMANCE OBJECTIVES: Develop and propose improvements to an existing product using a problem solving process, design sketches and CAD models.

HOMEWORK: Provide and critique design sketches summarizing creative problem solving process to assess and improve simple product to produce proposal of an improved product

7 Hours

CONTENT: Instruction on differences and similarities between parametric design and other graphic programs, differences between graphics used for concept, manufacturing and marketing presentation and use of topography for marketing projects

STUDENT PERFORMANCE OBJECTIVES: Use creative problem solving and visualization skills to present conceptual drawing for basic product that serves one function. Describe how different software packages could be used to same ideas and propose ways to market final product.

HOMEWORK: Provide simple CAD generated concept drawing of proposed product for final project along with documentation of creative design process used to develop idea including notes and freehand sketches. Critique project in terms of how other software packages could have been used.

15 Hours

CONTENT: Searching, configuring, downloading, and documenting use of parts, components, and assemblies to professionally support product design.

STUDENT PERFORMANCE OBJECTIVES: Functioning as part of a team by locating, uploading, integrating and documenting files that support designed projects.

HOMEWORK: Add and document sources of parts, components, and assemblies

19 Hours

CONTENT: Case studies and problem solving process

STUDENT PERFORMANCE OBJECTIVES: Use problem solving process, freehand sketches, and CAD software to propose, refine, revise and present design for simple product

HOMEWORK: Document design process used to develop a final presentation of a designed object.

6 Hours

CONTENT: Improving product design by providing and using feedback

STUDENT PERFORMANCE OBJECTIVES: Give and use constructive criticism.

HOMEWORK: Review and provide critiques of peer's projects by identifying positive qualities of peers designs and suggesting improvements then use critiques to improve final product presentation

2 Hours

Final Exam

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 Reports

Term or Other Papers

Other: Written Critiques

CATEGORY 2 -The problem-solving assignments required:

Percent range of total grade: 10 % to 25 %

Homework Problems

Quizzes

Exams

Other: Design Problems

CATEGORY 3 -The types of skill demonstrations required:

Percent range of total grade: 25 % to 50 %

Class Performance/s

Performance Exams

CATEGORY 4 - The types of objective examinations used in the course:

Percent range of total grade: 10 % to 25 %

Multiple Choice

True/False

Matching Items

Completion

Other: Applied Skill Exam

CATEGORY 5 - Any other methods of evaluation:

Percent range of total grade: 10 % to 25 %

Portfolio of design projects and other assignments

REPRESENTATIVE TEXTBOOKS:

Required:

Bertoline, Gary Robert et al., Fundamentals of Graphics Communication 6th Ed. New York: McGraw-Hill, 2011. Or other appropriate college level text.

ISBN: 0073522635

Reading level of text, Grade: 13.1 Verified by: SMOG Calculator at <http://www.niace.org.uk/misc/SMOG-calculator/smogcalc.php>

Other textbooks or materials to be purchased by the student: USB, Pencil Paper, Ear-buds/head phones, Optional Text Rapid Viz

ARTICULATION and CERTIFICATE INFORMATION

Associate Degree:

CSU GE:

IGETC:

CSU TRANSFER:

Transferable CSU, effective 200670

UC TRANSFER:

Not Transferable

SUPPLEMENTAL DATA:

Basic Skills: N

Classification: Y

Noncredit Category: Y

Cooperative Education:

Program Status: 1 Program Applicable

Special Class Status: N

CAN:

CAN Sequence:

CSU Crosswalk Course Department: CGD

CSU Crosswalk Course Number: 2

Prior to College Level: Y

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: N

Occupational Course: B

Maximum Hours:

Minimum Hours:

Course Control Number: CCC000160641

Sports/Physical Education Course: N

Taxonomy of Program: 095300