



GROSSMONT-CUYAMACA
COMMUNITY COLLEGE DISTRICT

Grossmont-Cuyamaca Community College District Articulation Agreement

Course to be Articulated:	Credits	College Course	Units
Drafting and Design 1,2	10.0	CADD 115 Engineering Graphics	3.0
School/Institution Name: Santana High School		College: Cuyamaca College	

Course Prerequisites

None

Recommended Preparation

College Course Description

Introduction to engineering drafting. Covers the fundamentals of drafting using both mechanical instruments and the computer as drafting tools. Students will learn the fundamentals of engineering graphics as a universal language of communication in all engineering fields. Includes organization and drawing layouts, text, dimensions, tolerances, scales, multiview projections, and pictorial drawings to visualize, represent and document basic engineering problems.

Required Content for Articulation

1. Drawing in AutoCAD
 - A. AutoCAD's User Interface
 - B. The Drawing Area
 - C. Accessing AutoCAD Commands
 - D. Standard Toolbar
 - E. Custom User Interface
 - F. Coordinates
 - G. Printing
2. Orthographic Projection
 - A. Engineering Graphics Overview
 - B. Orthographic Projection
 - C. The Glass Box Method

- D. The Standard Views
- E. Lines Used in an Orthographic Projection
- F. Rules for Line Creation and Use
- G. Creating an Orthographic Projection
- H. Auxiliary Views
- 3. Orthographic Projections in AutoCAD
 - A. Layers
 - B. Line Type Scale
 - C. Properties
 - D. Printing using Pen Widths
 - E. Title Blocks
 - F. Blocking
 - G. Model and Layout Space
- 4. Dimensioning
 - A. Detailed Drawings
 - B. Learning to Dimension
 - C. Dimension Appearance and Techniques
 - D. Dimensioning and Locating Simple and Advanced Features
 - E. Dimension Choice
- 5. Dimensioning in AutoCAD
 - A. Dimension Commands
 - B. Dimension Style and Variables
 - C. The DIM Prompt
 - D. Associative Dimensions
- 6. Sectioning
 - A. Sectional Views
 - B. Types of Sections
 - 1. Full section
 - 2. Half section
 - 3. Offset section
 - 4. Aligned section
 - 5. Rib and web sections
 - 6. Broken section
 - 7. Removed section
 - 8. Revolved section
 - 9. Non-sectioned parts
 - 10. Thin sections
- 7. Creating Section Views in AutoCAD
 - A. Cutting Plane Lines
 - B. Hatches
- 8. Tolerancing
 - A. Tolerancing and Interchangeability
 - B. Tolerance Types
 - C. General Definitions
 - D. Tolerancing Standards
 - E. Inch Tolerances
 - F. Metric Tolerances
- 9. Tolerancing in AutoCAD
 - Tolerance Parameters

10. Pictorials
 - A. Isometric Pictorial Axes
 - B. Drawing Linear Features
 - C. Drawing Circles and Radii
 - D. Drawing Cylinders
 - E. Oblique Pictorials Overview
11. Creating Isometric Pictorials in AutoCAD
 - A. Isometric Snap
 - B. Isocircles

Required Competencies (SLOs) for Articulation

Upon successful completion of this course, students will be able to:

1. Draw orthographic and isometric drawings.
2. Produce working drawings with engineering documentation such as title block and drawing scale.
3. Create sectional, auxiliary and detail drawings.
4. Produce dimensioning and tolerances in accordance with industry standards (ASME 14.5 and ISO standards)

Assessment Methods

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration, or, where appropriate, the symbol system.

1. Portfolio of drawing exercises and projects that demonstrate the student's skill and competency in using and applying mechanical and computer-aided drafting tools for engineering applications.
2. Midterm exam that measures the student's ability to describe and apply fundamental drafting concepts, terminology and techniques used in engineering graphics.
3. Final exam that measures the student's capability as a draftsman. For example, the student will be required to use engineering concepts to produce 2D drawings.
4. In-class activities (written/oral) that measure the student's ability to articulate fundamental drafting design and production skills required in the field of engineering graphics.

RUBRIC: Attached (if applicable)

Texts and other supporting materials (software, etc.)

1. Required (representative example): Plantenberg, Kristie. *Engineering Graphics Essentials with AutoCAD 2018 Instruction*. SDC Publications, 2017.
2. Supplemental: Handouts

Criteria for Course Articulation

1. School instructors and college teachers attend articulation meetings to determine curriculum alignment and articulation competency rubric.
2. Student must pass high school course with a grade of "B" or better and have mastered course competencies as identified in the articulation competency rubric.

Articulation meeting held: _____

Effective date: 12/01/2020

Expiration date: 12/01/2023

School or Institution/CTE/Signatures

Teresa Norne 4/15/21
 Teacher Date

Teresa Norne
 Teacher (print name)

T-SLL 4/15/2021
 Principal Date

Santana High School
 School/Institution

College Signatures

Grossmont
 Cuyamaca

Cyrus Saghafi Apr 1, 2021
Cyrus Saghafi (Apr 1, 2021 16:21 PDT)
 Department Lead, Cuyamaca College Date

Cyrus Saghafi
 Department Lead (print name)

Larry McLemore Apr 1, 2021
Larry McLemore (Apr 1, 2021 16:24 PDT)
 Dean of CE, Cuyamaca College Date

Larry McLemore
 Dean of CE (print name)

Additional Instructors

 Teacher Date

 Department Lead, Grossmont College Date

 Teacher (print name)

 Department Lead (print name)

 Teacher Date

 Dean of CTE, Grossmont College Date

 Teacher (print name)

 Dean of CTE (print name)