

COURSE SYLLABUS

70805 ENGR M04 – Engineering Design/CAD, 3.0 Units

Class Time: Lecture W 12:00-1:50 PM; Room T217
 Lab W 2:00-4:50 PM; Room T217

INSTRUCTOR & DEPARTMENT INFORMATION

Instructor: Scarlet Relle, Ph.D.
Office: PS-235
Office Hours: M 11-1 & 3-4; T 10-11; W 10-11; Th 10-12
Voicemail: (805) 553-4162
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Chair: Prof. Ronald Wallingford in PS-236
Dean: Julius Sokenu, Ed.D. in AC-232
Phone: (805) 378-1572

COURSE OVERVIEW

Develops engineering drawing skills through manual and computer aided drafting (CAD) in two- and three-dimensions. Improves three-dimensional spatial visualization skills. Utilizes principles of orthographic drawing, pictorial drawing, and descriptive geometry. Covers principles of orthographic projections; graphical presentation of normal, inclined, and oblique surfaces; auxiliary and sectional views; dimensioning; and tolerances. Builds an understanding for the engineering problem solving and design process through design projects.

COURSE OBJECTIVES

Upon completion of the course student should be able to:

1. Generate two- and three-dimensional engineering drawings using manual and computer aided drafting for an engineering product using standard drawing conventions recognized in the field of engineering.
2. Demonstrate drawing skills, and three-dimensional visualization skills by creating pictorial, isometric, orthographic, auxiliary, and sectional views.
3. Apply rules for dimensioning and tolerances, and use the standard conventions for symbols, styles, and terminology in engineering drawings.
4. Apply the engineering design process to develop creative solutions to engineering problems.
5. Conduct reliable independent work, and develop teamwork, technical writing, and oral presentation skills.

Please Note: Periodically speakers from the industry or the academics will be invited to our classroom to give lectures and presentations.

INSTRUCTIONAL MATERIALS

Textbook: Mark Dix and Paul Riley, Discovering AutoCAD 2012, Pearson Publishing.

eLearning Package: Provided by PTC for 3-Dimensional CAD – Creo.

Handouts: Occasionally handouts, lecture notes, and other reference material will be provided to aid your understanding of the subject matter. Also, assignments in addition to the ones provided in the textbook will be assigned and required for further assessment of your progress in the course.

EVALUATION & GRADING POLICY

The following rubric will be used in determining your final grade in this course:

Homework/Classwork/On-line Assignments	(10%)
Drawings	(20%)
Design Projects	(25%)
Exams	(20%)
Final Exam	(25%)

A: (90-100%) **B:** (80-89%) **C:** (70-79%) **D:** (60 - 69%) **F:** (59% and below)

HOMEWORK/CLASSWORK/ASSIGNMENTS

There will be written assignments – HW or CW. You are **STRONGLY ENCOURAGED AND EXPECTED** to complete all written assignments as this is the best way to learn the material! Late work will not be accepted.

ON-LINE QUIZZES

For each chapter covered, you will complete an accompanying on-line quiz. I will provide you with more information as the semester progresses. Occasionally, there may be in-class quizzes.

DRAWINGS

At the end of each chapter there are a number of drawings projects. You will complete one to three of these drawings as instructed. You are expected to finish these drawings in class. I will check them for accuracy and completeness. You will also complete assigned drawings as quizzes or exams.

EXAMS

There will be 4 exams covering materials from the chapters studied in the textbook and the eLearning Package, and also from any handouts or lecture notes distributed in class. You will have 1 hour to 1.5 hours to complete each exam. The final exam will cover selected topics from the entire course, and you will have 2 hours to complete the final exam. Exams may consist of short answers, multiple-choice & true/false questions, and CAD drawing tools usage and identification.

DESIGN PROJECTS

Since engineers often work in groups, it is essential for you to practice team work. As such, in groups of 2 or 3 you will complete 2 design projects during this semester. Each design project will consist of a written technical report, a power-point presentation, and a CAD drawing. More information on due dates, format, suggested design ideas, references, etc. will be provided. Each project is worth 150 points.

ADDITIONAL POLICIES

PARTICIPATION

Participation in my class is mandatory. I expect you to come to class prepared, ready to learn and to participate. You must bring with you to class your textbook, a notebook to take additional notes during class discussions, a scientific calculator, and a binder or folder to keep all your papers and handouts organized.

USE OF LISTENING, VIDEO, OR OTHER RECORDING DEVICES

I do not permit the use of any electronic listening or recording devices by anyone in my classroom. If you need to use a recording device as an authorized disability accommodation, then you must provide me with verification from ACCESS prior to the use of the device.

USE OF LAPTOP COMPUTERS

You may use laptop computers in the classroom only for note taking purposes. You may not surf the web, play games, or engage in any activity which I would consider disruptive to your learning process.

USE OF CELLPHONES

You may not use your cell phone during class, it must be turned off! Also, you may not use your cell phone in lieu of a scientific calculator.

STUDENT RESPONSIBILITY

You, as the student, are responsible for **all** material presented in class and in assignments. Make-up exams will be given **only** in case of verified illness or exceptional circumstances. You must contact me in a timely manner to schedule a make-up exam.

DISABILITIES ACCOMODATION

Appropriate accommodations will be made for students with disability related needs. Students with a disability, whether physical, learning, or psychological, who believe they will need accommodations in this class, are encouraged to contact ACCESS as soon as possible so accommodations can be set up in a timely fashion. Accommodations are based on eligibility and can only be provided if you have submitted verification from ACCESS in the form of a Confidential Memo. The ACCESS office can be reached at (805) 378-1461 and is newly located in the LMC.

ACADEMIC INTEGRITY

Academic integrity and honesty is of utmost importance. Cheating of any kind will not be tolerated in this course. Cheating includes turning in someone else's work as your own, copying from someone else's paper, using "cheat sheets", class notes, the textbook, unauthorized technology, programmable or graphing calculators, or sharing calculators during exams and in-class quizzes. Cheating will result in a letter grade of "F" equivalent to zero points for that particular assignment/quiz/test, and any previous assignments will be called into question. In addition, a report will be made to the Behavior Intervention Team.

NO SMOKING POLICY

In the interest of the health and welfare of students, employees, and the public, smoking is not permitted on the Moorpark College campus other than in the parking lot.

IMPORTANT DATES

August 30th: Last day to drop with full refund or credit (All students/Fall semester only)

September 6th: Last day to drop a semester-length class without a "W"

November 22nd: Last day to drop a semester-length class with a "W"

CLASS SCHEDULE

DATE	TEXT	LECTURE TOPICS	LAB (DRAWINGS MAY CHANGE)	QUIZ	EXAM
8/21	Handouts Lecture on Engineering and Technical Drawings	Introduction to class; introduction to the engineering profession and technical drawings	Manual Drafting	In- Class Quiz	
8/28	Chapter 1 Lines and Essential Tools Chapter 2 Circles and Drawing Aids	Creating a new drawing; drawing window; methods of command entry; undo, erase, save and open commands Changing grid, snap, units; drawing circles; ERASE & RECTANG commands; accessing on-line help; plotting or printing	DWG: 1-1 DWG: 1-2 DWG: 1-6 DWG: 2-1 DWG: 2-3 DWG: 2-5		

9/4	Chapter 3 Layers, Colors, and Linetypes	Creating new layers and assigning/changing colors; linetypes, and lineweights; FILLET, CHAMFER, ZOOM commands; zooming and panning; single line text	DWG: 3-1 DWG: 3-6		
	Chapter 4 Template, Copies, and Arrays	Drawing limits; creating and saving templates; MOVE, COPY, ARRAY commands; creating center marks; changing plot settings	DWG: 4-1 DWG: 4-7		
9/11	Chapter 5 Arcs and Polar Arrays	Drawing arcs; ROTATE command; Polar tracking; creating polar arrays; mirror images	DWG: 5-1 DWG: 5-2		
	Lecture on Technical Writing and PPP Assign Design Project I	Rules for technical writing; samples of writing; writing rubrics; PPP rubrics			
9/18	Exam I Chapter 6	TRIM command; OSNAP	Instructor provided drawing DWG: E1		Exam I Ch.1,2,3,4,5 + the Handout and lecture info. from Lecture 1 DWG: E1
	Chapter 7 Text	Entering single line and multiline text; Editing text with DDEDIT and MTEDIT; modifying text; Using SPELL command; changing font and style; changing properties; scaling	DWG: 7-1 DWG: 7-3 Or DWG:7-5		
	Chapter 8 Dimensions	Creating and saving a dimension style; draw linear/multiple linear/ ordinate/angular dimensions; dimensioning arcs and circles; using leaders; changing text; using the hatch command	DWG: 8-1 DWG: 8-2		

9/25	Chapter 9 Polylines	Drawing polygons and donuts; using the FILL command; drawing straight polyline segments, arc segments, splines, revision clouds, and points; PEDIT command	DWG: 9-1 DWG: 9-2		
	Chapter 11 Isometric Drawing	Use isometric snap and planes; use COPY and other commands; draw isometric circles with ELLIPSE ; draw text and ellipse	DWG:11-1 DWG:11-2		
	Chapter 12 3D Modeling	Create 3D wireframe box; Define and save user coordinate systems; Explore 3D workspace; Create solid boxes and wedges; Create the union of two solids; Work with DUCS; Create composite solids with SUBTRACT ; Create chamfers and fillets on solid objects; 3D gizmo editing; Change viewpoints with the ViewCube	DWG:12-1 DWG:12-2		
10/2	Introduction to Creo Parametric Basic Modeling	How to use Creo eLearning package	Complete Design Project I DWG		
10/9	Continue with Parametric Basic Modeling	Using the Creo Parametric Interface		Due - Design Project I DWG, PPP, Paper Exam II Ch. 6, 7, 8, 9, 11, 12	
10/16	Selecting Geometry, Features, and Models				
10/23	Editing Geometry Features, and Models			Assign second design project	
10/30	Creating Sketcher Geometry				

11/6	Using Sketcher Tools				
11/13	Creating Sketches for Features			Exam III – Topics in Creo Covered thus far	
11/20	Creating Extrudes, Revolves, and Ribs				
11/27	Creating Holes, Shells, and Draft				
12/4	Creating Rounds, and Chamfers				
12/11	Catch Up Day Review Day			Second Design Project Due – Report, PPP, Drawing	
12/18 W	FINAL EXAM -- Selected topics from the <u>entire course</u> 12:30 – 2:30 PM				

The instructor reserves the right to change class policies and class schedule if necessary.