

## COURSE OUTLINE

Revision: Loc Nguyen, February 2008

DEPARTMENT:	Academic Programs
CURRICULUM:	Engineering
COURSE TITLE:	Engineering Graphics I
COURSE NUMBER:	ENGR& 111
TYPE OF COURSE:	Academic Transfer
COURSE LENGTH:	1 quarter
CREDIT HOURS:	1
LECTURE HOURS:	22
LAB HOURS:	44
CLASS SIZE:	24
PREREQUISITES:	MATH 102

## COURSE DESCRIPTION:

This course is designed for students enrolled in an engineering program who need to learn the basic concepts of engineering graphics. Topics include freehand sketching, lettering, scale, geometric construction, drawing layout, orthographic or multiview drawings and dimensioning. This course also studies the concepts of 3-D Computer-aided Drafting (CAD) parametric solid modeling design and its application to engineering drawing.

## STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication – Read and translate technical data relative to geometric spatial relationships into a graphical form easily understood by others with similar technical understanding.
2. Computation – Use basic mathematical operations as required to define geometrical spatial relationships.
3. Human Relations – Use social interactive skills to enhance learning through informal tutoring activities.

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STUDENT LEARNING OUTCOMES ADDRESSED: (cont.)

4. Critical Thinking and Problem Solving – Organize and evaluate technical data, as well as select and apply appropriate spatial relationship principles to determine problem solution.
5. Technology – Select and use appropriate technological tools to create technical graphics.
6. Personal Responsibility – Value and take pride in one's own skill and work, and manage time to meet required schedules.

GENERAL COURSE OBJECTIVES:

At the end of the course the student should be able to:

1. Describe the roles of the engineer on design team.
2. Identify uses of the graphic language.
3. Describe the relationship between computer-aided drafting (CAD) and computer-aided design.
4. Understand issues that affect the choice and the use of a CAD system.
5. Familiarize a 3D CAD software using parametric solid modeling design program.
6. Create freehand sketches using the correct sketching techniques.
7. Apply geometry terminology to objects, and identify geometric shapes.
8. Use basic drafting tools in the geometric constructions.
9. Identify and draw the orthographic, or multiview that are possible on an object.
10. Identify and create the necessary dimensions needed to produce a part.

TOPICAL OUTLINE:

APPROX. HOURS

I. The Graphic Language and Design	1
II. Lettering	1
III. Scale reading	4
IV. Geometric Constructions	12
V. Sketching and Shape description	12
V. Multiview Projection	12
VI. Basic Dimensioning	6
VII. Computer-aided drafting (CAD)	18
Total hours	66

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DATE: February 2008

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Course Prefix and Number: ENGR& 111

Course Title: Engineering Graphics I

SLO #	Included in Course Objective Number	SSCC Student Learning Outcomes
SLO 1.1	1-13	Communication - Read and listen actively
SLO 1.2		Communication - Speak and write effectively
SLO 2.1	10	Computation - Use mathematical operations
SLO 2.2	10	Computation - Apply quantitative skills
SLO 2.3		Computation - Identify, interpret, and utilize higher level mathematical and cognitive skills
SLO 3.1		Human Relations - Use social interactive skills to work in groups effectively
SLO 3.2		Human Relations - Recognize the diversity of cultural influences and values
SLO 4.1	2, 4-10	Critical Thinking and Problem Solving -
SLO 5.1	4,5	Technology - Select and use appropriate technological tools
SLO 6.1		Personal Responsibility - Be motivated and able to continue learning and adapt to change
SLO 6.2		Personal Responsibility - Value one's own skills, abilities, ideas and art
SLO 6.3		Personal Responsibility - Take pride in one's work
SLO 6.4		Personal Responsibility - Manage personal health and safety
SLO 6.5		Personal Responsibility - Be aware of civic and environmental issues
SLO 7.1	1-5	Information Literacy - Access and evaluate information
SLO 7.2	1-10	Information Literacy - Use information to achieve personal, academic, and career goals, as well as to participate in a democratic society

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DATE: May 2008