

COURSE OUTLINE

Revision: Loc Nguyen, August 2009

DEPARTMENT: Engineering Technology
CURRICULLUM: Engineering Technology
COURSE TITLE: Creative Technical Problem-Solving
COURSE NUMBER: MET 102
TYPE OF COURSE: Vocational Preparatory
COURSE LENGTH: 1 quarter
CREDIT HOURS: 3
LECTURE HOURS: 22
LAB HOURS: 33
CLASS SIZE: 25
PREREQUISITES: MAT 111 (Applied Mathematics I)

COURSE DESCRIPTION:

Introduction to systematic procedures for engineering problem-solving. Review of basic math principles, geometry, algebra, trigonometry, and basic physical principles related to analysis of technical engineering problems.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication: Read and comprehend written information. Adapt communication techniques to cultural differences. Work with others and participate as member of team.
2. Computation: Use basic math operations & trigonometry to solve engineering problems.
3. Critical Thinking and Problem Solving: Identify problems & evaluate alternative solution, and apply appropriate analytical methods to develop optional solutions.
4. Technology: Work with a variety of technologies. Apply current and appropriate to specific tasks.

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STUDENT LEARNING OUTCOMES ADDRESSED: (cont.)

5. Information Literacy: Access & use information from variety of resources/data
6. Personal Responsibility: Practice individual responsibility. Take pride and value in own work.

GENERAL COURSES OBJECTIVES:

At the end of the course the student will:

1. Develop individual and team creative thinking skills.
2. Analyze the systematic problem solving process.
3. Read a problem and decide what is given and what is to be found.
4. Practice the creative problem-solving process and associated mindsets.
5. Describe the problem-solving steps used in a design process.
6. Work on group and individual design projects.
7. Present design projects on group and individual design projects
8. Explore different applications of technology including CAD programs.

TOPICAL OUTLINE:

APPROX. HOURS

I. Problem-Solving Strategies	3
II. Problem Definition	5
III. Generating Solution	5
IV. Deciding the course of action	5
V. Implementing the solution	5
VI. Evaluation	5
VII. Case Study	5
VIII. Creative Problem-solving applications	<u>22</u>
	55

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Course Prefix and Number: MET 102

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SLO #	Included in Course Objective Number	SSCC Student Learning Outcomes
SLO 1.1	1 - 8	Communication - Read and listen actively
SLO 1.2	1 - 8	Communication - Speak and write effectively
SLO 2.1	2 - 4, 6 - 8	Computation - Use mathematical operations
SLO 2.2	2 - 4, 6 - 8	Computation - Apply quantitative skills
SLO 2.3	2 - 4, 6 - 8	Computation - Identify, interpret, and utilize higher level mathematical and cognitive skills
SLO 3.1	1, 6 - 8	Human Relations - Use social interactive skills to work in groups effectively
SLO 3.2	1, 6 - 8	Human Relations - Recognize the diversity of cultural influences and values
SLO 4.1	1 - 8	Critical Thinking and Problem Solving -
SLO 5.1	1 - 8	Technology - Select and use appropriate technological tools
SLO 6.1	1	Personal Responsibility - Be motivated and able to continue learning and adapt to change
SLO 6.2	1 - 8	Personal Responsibility - Value one's own skills, abilities, ideas and art
SLO 6.3	1 - 8	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 - 8	Information Literacy - Access and evaluate information
SLO 7.2	1 - 8	Information Literacy - Use information to achieve personal, academic, and career goals, as well as to participate in a democratic society

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