_____SOUTH SEATTLE COMMUNITY COLLEGE_____

Academic Programs

COURSE OUTLINE
Revision: Loc Nguyen, February 2008

DEPARTMENT: Academic Programs

CURRICULUM: Engineering & Engineering Technology

COURSE TITLE: Engineering Design and Creativity

COURSE NUMBER: ENGR 116

TYPE OF COURSE: Academic Transfer

COURSE LENGTH: 1 quarter

CREDIT HOURS: 4

LECTURE HOURS: 33

LAB HOURS: 22

CLASS SIZE: 25

PREREQUISITES: MATH& 141

COURSE DESCRIPTION:

Understanding of the creative process by examining the nature of creativity and its process. Team and individual projects will stimulate creativity in engineering design. Introduction to analysis and solution of engineering problems, applications of vector analysis in engineering mechanics.

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 and trigonometry to solve engineering problems.
3. Critical Thinking and Problem Solving – Identify problems and evaluate alternative solution, and apply appropriate analytical methods to develop optional solutions.

February 2008

STUDENT LEARNING OUTCOMES ADDRESSED: (cont.)

4. Technology – Work with a variety of technologies including CAD programs. Apply current and appropriate technology to specific tasks.
5. Information Literacy – Access and use technical information from a variety of resources including documents from the Internet.
6. Personal Responsibility – Practice individual responsibility. Take pride and value in own work.

GENERAL COURSE OBJECTIVES:

At the end of the course the student will have:

1. Developed individual and team creative thinking skills.
2. Analyzed the systematic problem solving process.
3. The ability to read a problem and decide what is given and what is to be found.
4. Practiced the creative problem solving process and associated mindset.
5. Knowledge of the steps of the design process.
6. Explored different applications of technology including CAD programs.
7. Worked on group and individual design projects.
8. Reverse engineered a product.
9. Learned how to present a report on a project.

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.	Design Projects	22
	Total hours	55

REVISED BY: Loc Nguyen
DATE: February 2008

Course Prefix and Number: ENGR 116
Course Title: Engineering Design /Creative Problem Solving

SLO #	Included in Course Objective Number	SSCC Student Learning Outcomes
SLO 1.1	2,3,5	Communication - Read and listen actively
SLO 1.2	4	Communication - Speak and write effectively
SLO 2.1	2-4	Computation - Use mathematical operations
SLO 2.2	2-4	Computation - Apply quantitative skills
SLO 2.3	2-4	Computation - Identify, interpret, and utilize higher level mathematical and cognitive skills
SLO 3.1	1	Human Relations - Use social interactive skills to work in groups effectively
SLO 3.2	1	Human Relations - Recognize the diversity of cultural influences and values
SLO 4.1	1-5	Critical Thinking and Problem Solving -
SLO 5.1	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	4	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	5	Information Literacy - Access and evaluate information
SLO 7.2	5	Information Literacy - Use information to achieve personal, academic, and career goals, as well as to participate in a democratic society

PREPARED BY: Mike Steffancin
DATE: May 2008