

COURSE OUTLINE

Revision: Mike Steffancin, February 2008

DEPARTMENT:	Academic Programs
CURRICULUM:	Engineering
COURSE TITLE:	Statics
COURSE NUMBER:	ENGR& 214
TYPE OF COURSE:	Academic Transfer
COURSE LENGTH:	1 quarter
CREDIT HOURS:	5
LECTURE HOURS:	55
LAB HOURS:	0
CLASS SIZE:	25
PREREQUISITES:	MATH& 152 (Calculus II) and ENGR 140 (Introduction to Engineering Problems) or PHYS& 221 (Engineering Physics I)

COURSE DESCRIPTION:

Covers statics, Newton's Laws, resultants, force systems, equilibrium diagrams, analysis by vector algebra of two and three dimensional structures, frames, machines, trusses, beams, friction, centroids and moments of inertia.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Critical Thinking and Problem Solving – Analyze and apply principles of engineering mechanics.
2. Computation – Utilize College Algebra and Calculus to solve engineering problems.
3. Technology – Use current data/information in engineering mechanics.
4. Information Literacy – Access and use information from a variety of resources/data.
5. Personal Responsibility – Take pride and value in one's own work.

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GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Acquire knowledge in basic principles of engineering mechanics.
2. Demonstrate an understanding of fundamental properties of force systems and vectors.
3. Draw complete free-body diagrams of whole or part mechanisms.
4. Apply the equations of equilibrium, $\Sigma F = 0$, $\Sigma M = 0$ to the three-dimensional system.
5. Apply these principles in the analysis of structures, both frames to support loads and machines to transmit loads.
6. Apply the friction laws for dry surfaces to both flat surfaces and flat belts. Determine if motion is impending.
7. Locate centroids of simple and composite area.
8. Determine the moment of inertia of simple and composite area.
9. Assess individual ability in using the mathematical problem solving process.

TOPICAL OUTLINE:

APPROX. HOURS

I.	Principles of Statics	1
II.	Force Vectors	6
III.	Equilibrium of a Particle	4
IV.	Force System Resultants	8
V.	Equilibrium of a Rigid Body	7
VI.	Structural Analysis	15
VII.	Friction	4
VIII.	Center of Gravity and Centroid	3
IX.	Moment of Inertia	4
X.	Evaluation	3

Total hours 55

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DATE: February 2008

Course Prefix and Number: ENGR& 214

Course Title: Statics

SLO #	Included in Course Objective Number	SSCC Student Learning Outcomes
SLO 1.1	1	Communication - Read and listen actively
SLO 1.2		Communication - Speak and write effectively
SLO 2.1	1-9	Computation - Use mathematical operations
SLO 2.2	1-9	Computation - Apply quantitative skills
SLO 2.3	1-9	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	1-9	Critical Thinking and Problem Solving -
SLO 5.1		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	Information Literacy - Access and evaluate information
SLO 7.2	1	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