_____SOUTH SEATTLE COMMUNITY COLLEGE_____
Academic Programs

COURSE OUTLINE
Revision: Mike Steffancin, February 2008

DEPARTMENT:	Academic Programs
CURRICULUM:	The Natural World
COURSE TITLE:	Engineering Physics I
COURSE NUMBER:	PHYS& 221
TYPE OF COURSE:	Academic Transfer
Special Requirement Met:	Mathematics/Quantitative Reasoning
AREA(S) OF KNOWLEDGE:	The Physical Universe
COURSE LENGTH:	1 quarter
CREDIT HOURS:	5
LECTURE HOURS:	44
LAB HOURS:	22
CLASS SIZE:	24
PREREQUISITES:	MATH& 151 (Calculus I) and one year of high school physics.

COURSE DESCRIPTION:

Calculus -based study of kinematics, dynamics, energy, and momentum in linear and rotational coordinates; Newton's Laws of Motion. Lab included.

PHYS& 221 Engineering Physics I
February 2008

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Computation - Use arithmetic and other basic mathematical operations including calculus as required by program of study. Apply quantitative skills for personal, academic and career purposes. Identify, interpret, and utilize higher level mathematical and cognitive skills.
2. Communication - Read and listen actively to learn and communicate.
3. Critical Thinking and Problem Solving - Think critically in evaluating information, solving physics problems and making decisions.
4. Technology - Select and use appropriate technological tools for personal, academic and career tasks, including computers and technical software.
5. Personal Responsibility - Be motivated and able to continue learning and adapt to change.
6. Information Literacy - Access and evaluate information from a variety of sources and contexts, including technology. Use information to achieve personal, academic, and career goals, as well as to participate in a democratic society.

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Demonstrate an understanding of the information embodied in the diverse physical laws studied.
2. Apply these laws to qualitatively analyze the behavior of a broad range of physical systems.
3. Combine the conceptual analysis with computational tools to make quantitative predictions of system behavior.

PHYS& 221 Engineering Physics I
February 2008

TOPICAL OUTLINE:
Note: These topics are all covered in the three quarter physics sequence. Which topics and in what order they are covered (and in which class) can vary.

I. Kinetics
II. Particle dynamics & laws of motion
III. Energy and momentum
IV. Conservation laws
V. Rigid body dynamics
VI. Oscillation motion
VII. Law of universal gravitation
VIII. Wave motion
IX. Electric fields: Coulombs' & Gauss Laws
X. Electric potential
XI. Capacitance and dielectrics
XII. Current, resistance, DC circuits
XIII. Magnetic fields
XIV. Faraday's Law and Inductance
XV. AC circuits
XVI. Electromagnetic waves
XVII. Light and optics
XVIII. Modern physics

Total hours 66

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Course Prefix and Number: PHYS& 221
Course Title: Engineering Physics I

SLO #	Included in Course Objective Number	SSCC Student Learning Outcomes
SLO 1.1		Communication - Read and listen actively
SLO 1.2	1	Communication - Speak and write effectively
SLO 2.1	1 - 3	Computation - Use mathematical operations
SLO 2.2	1, 3	Computation - Apply quantitative skills
SLO 2.3	1, 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	1 - 3	Critical Thinking and Problem Solving -
SLO 5.1	3	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: August 2008