

Engineering Physics

Objectives: 00UV
Ponderation: 3-2-3
Prerequisite: 00UR (*Mechanics*)
Corequisite: 00UP (*Calculus II*)

Discipline: Physics
Course Code: 203-BZE-05
Course Credit: 2 2/3
Semester:

modelling va
 phenomenā
 To help students to thrive in this new environmen
 spreadsheet sessions are scheduled in which the students l
 to model solutions for several dynamics problems - free fall s
 damping, the construction of elliptic integrals to describe a
 solution to a truss problem. The students also perform exper
 data are gathered by computer. The data are then analyzed u
 including differentiation, integration and smoothing of numeric
 some elements of programming are incorporated in the cour
 or algorithms in spreadsheets as well as in creating procedu
 symbolic mathematics program.

Some of the learning activities in Engineering Physics will contribute to attainment of objective 00UU and are marked [00UU].	
3. To apply the experimental method	3.1 – 3.5
4. To take a systematic approach to problem solving	4.1 – 4.6
5. To use the appropriate data-processing technology	5.1, 5.2, 5.4, 5.5

10. To recognize the links between science, technology and the evolution of society	10.1 – 10.3
11. To construct a personal system of values	11.2, 11.3
12. To identify the context in which scientific ideas originated and evolved	
13. To display attitudes and behaviour compatible	

Elements of Competency	Specific Performance Criteria	Intermediate Learning Objectives
1. To analyze a wide variety of rotational phenomena using the concepts of dynamics and energy	1.1. Analysis of the rotation of a rigid body about a fixed axis 1.2. Analysis of the rotation vector properties to determine the moment of inertia	1.1.1. Derive the laws describing rotation of a rigid body about a fixed axis. 1.1.2. Calculate moments of inertia and apply the parallel-axis theorem. 1.1.3. Use the concepts of work and energy in rotational motion. 1.1.4. Determine the moment of inertia of a compound pulley in the laboratory by direct measurement as well as by dynamically by measuring the motion of the system using a smart pulley.

