Course Profile - Department of Physics

Course Number : PHYS 101	**Course Title :** General Physics I
Required / Elective : Required	**Pre / Co-requisites :** -
Catalog Description: Standards and units; vectors and coordinate systems; kinematics, dynamics; work and energy; dynamics of system of particles; conservation of energy and momentum, collisions; rotational kinematics and dynamics; equilibrium of rigid bodies; oscillations.	**Textbook / Required Material :** Douglas C. Giancoli, *Physics for Scientists and Engineers with Modern Physics*, Prentice Hall, New Jersey, 2009 (4^{th} Edition).
Course Structure / Schedule : (3+0+0)3 / 5 ECTS	
Extended Description : Calculus based introductory physics course on mechanics. Physics and measurement. Kinematics of translational motion. Vectors. Motion in one, two and three dimensions. Dynamics: Newton's Laws of Motion. Circular motion and other applications of Newton's laws. Gravitation. Energy and energy transfer. Conservative systems. Potential energy. Linear momemtum and collisions. Rotational kinematics. Rotation of a rigid object about a fixed axis. Torque and rotational kinetic energy. Angular momentum and its conservation. Oscillations: simple harmonic motion and pendulums.	
Design content : None	**Computer usage**: Linking to course web site for homeworks and announcements, and to Course Online for homework and exam solutions. Optional use of Java applets.

Course Learning Outcomes [relevant program outcomes in brackets]**:**

On successful completion of this course students will be able to

1. demonstrate a conceptual understanding of the fundamental physical laws of dynamics involving gravitation [1, 2];
2. recognize how the fundamental physical laws can be applied to solve a variety of problems [6];
3. analyze the properties of translational and rotational motion [1, 6];
4. employ Newton's equations and conservation laws [1, 2];
5. explain the historical development of these concepts [1, 9];
6. discuss how physics is relevant to the world around them [5, 10].

Recommended reading

H.D. Young and R.A. Freedman, *University Physics*, 11th Edition, Pearson Education Inc., New York, 2004.

Teaching methods

Three lectures per week (utilizing blackboards and overhead projectors); pre-readings and homework problems.

Assessment methods (Related to course outcomes)**:**

Two mid-term examinations, a final examination, weekly homework assignments, and quizzes.

Student workload:

Preparatory reading	28 hrs
Lectures, discussions	42 hrs
Homework	30 hrs
Independent work	20 hrs
Exams	5 hrs

TOTAL …… 125 hrs … to match 25 x 5 ECTS

Prepared by : Rahmi Guven, 06.02.2010	**Revision Date :**