FIRST SEMESTER 2016-2017

Course Handout Part II

Date: 02.08.2016

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No. : PHY F112

Course Title : **General Physics**

Instructor-in-charge : **Kaushar Vaidya**

Scope and Objective of the Course

The objective of this course is to give a general overview of the fundamentals of basic Physics. The course will broadly cover the following topics: Mechanics, Waves, and Oscillations.

Textbook

- **Principles of Physics** (Tenth Edition) Walker, *Halliday, & Resnick* , John Wiley & Sons.

Reference Books

- **Principles of Physics** (Third edition), *R.A. Serway and J.W. Jewett*, Thomson Brooks/Cole
- **Sears & Zemansky's University Physics Mechanics** (Twelfth edition) *H.D. Young and R.A. Freedman*, Pearson Education (LPE).

Course Plan

Lecture Number	Learning objective	Topics to be covered	References/Chapters
1-3 (3)	Basic Applications of Newton's Laws	Newton's Laws, Applying Newton's Laws	5.1 – 5.3
4-6 (3)	Relation Between Force and Motion	Friction, Drag Force, Circular Motion	6.1 – 6.3
7-10 (4)	Kinetic Energy and Work	Energy, Kinetic Energy, Work Done, Work Done by Different Forces, Power	7.1 – 7.6
11-14 (4)	Potential Energy and Conservation of Energy	Potential Energy, Mechanical Energy, Conservation of Energy, Work-Done by External Force	8.1 – 8.5
15-20 (6)	Center of Mass and Linear Motion	Center of Mass, Linear Momentum, Conservation of Linear Momentum, Systems	9.1-9.9

		with Varying Mass	
21-24 (4)	Rotation	Rotation, Rotational Variables, Torque, Work and Rotational Kinetic Energy	10.1-10.8
25-28(4)	Rotational Dynamics	Rolling, Kinetic Energy of Rolling, Angular Momentum	11.1-119
29-32(4)	Oscillations	Simple Harmonic Motions, the force law for SHM , Energy in SHM, Angular SHM	15.1-15.6
32-40(6)	Waves	Waves & particles, Transverse and Longitudinal Waves, Wave Equation, Superposition of Waves, Standing Waves, Resonance, Sound Waves, Interference, Beats	16.1-16.7; 17.1-17.8

EC No	Evaluation component	Duration	Weightage	Date & time	Nature of Component
1	Tutorials	15-20 min.	15 %	TBA	Closed Book
2	Assignments	1 week	15 %	Spaced Throughout	Open Book
3	Mid-term	1.5 hour	30 %	<TEST_1>	Closed Book
4	Comp exam	3 hour	40 %	<TEST_C>	Closed/Open Book

Evaluation Scheme:

Chamber consultation Hours To be announced in the class.

Notices: Notices and solutions will be displayed only on the Physics notice board.

Make-up policy: Make up will be granted ONLY on a case-by-case basis and for serious medical emergencies only.

Instructor-In-Charge, PHY F112

Instructor-in-charge

PHY F112