

Physics Curriculum for Semester I

I	Course Code	PH 181001			
II	Course Title	Physics - I			
III	Credit Structure	L	T	P	C
		2	1	0	3
IV	Prerequisite(If any for the student)	Nil			
V	Course Content	<p>Special Theory of Relativity: Problems with classical physics, Inertial and non-inertial frames of reference, Postulates of special theory of relativity, Galilean and Lorentz transformation, Length contraction and Time dilation, Relativistic addition of velocities, Energy momentum relationships.</p> <p>Quantum Mechanics: Black-body radiation, Photoelectric effect and Compton effect, Wave nature of matter, Davisson-Germer experiment, Group and Phase velocities, Heisenberg's uncertainty principle, Schrodinger equation, Wave function and Normalization, Probability density and probability, Operators, Expectation values, Eigenvalues and Eigenfunctions, Particle in infinite and finite square wells, Particle in one, two and three dimensional box, Degenerate states, Potential barrier, Tunneling through a barrier, Eigenvalue and Eigenfunction of 1D simple harmonic oscillator without complete derivation.</p>			
VI	Text/References	<ol style="list-style-type: none"> 1. C. Richtmyer and Kennard, Introduction to Modern Physics, 6th Edition, McGraw-Hill, 1969. 2. R. Eisberg and R. Resnick, Quantum Physics, 2nd Edition, John Wiley 2002. 3. H.S. Mani and G.K. Mehta, Introduction to Modern Physics, 1st Edition, East-west Press Pvt. Ltd.-New Delhi, 2000. 4. A. Beiser, Concepts of Modern Physics, 6th Edition, Tata McGraw Hill Education Pvt. Ltd., 2009. 5. R. P. Feynman, R.B. Leighton, and M. Sands, The Feynman Lectures on Physics -Vol III, Narosa Publishing House, 2010. 6. R.A. Serway, C.J. Moses and C.A. Moyer, Modern Physics, 3rd Edition, Thomson Learning, Inc. 2005. 			