



INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
भारतीय प्रौद्योगिकी संस्थान तिरुपति
Yerpedu-Venkatagiri Road, Yerpedu Post, Tirupati District, Andhra Pradesh - 517 619

1.	Title of the course	Introduction to Classical Physics
2.	Course number	PH104L
3.	Structure of credits (L-T-P-C)	2-1-0-3
4.	New course/modification to	Modified with PH101L/INTRODUCTION TO CLASSICAL MECHANICS
5.	To be offered by	Physics
6.	Prerequisite	None
7.	Course Objective(s): To discuss fundamental concepts and application techniques of Newtonian mechanics employing rigorous methods of vector calculus which lay the foundation of classical mechanics. To discuss an introduction to static and time varying electromagnetic phenomena in free space as well as matter and their applications.	
8.	Course Content: Causality and determinism in Newton's laws, symmetry and conservation laws, Equations of motion in polar coordinate systems, Non-inertial frames: centrifugal, Coriolis and leap-second terms in a rotating frame, Gradient operator, Oscillations: simple, damped and driven oscillators, resonances, Central forces, satellite orbits, effective radial potential in Kepler-Newton problem, Gauss' divergence theorem, equation of continuity, Stokes' theorem, Review of electrostatics and magnetostatics, Time-varying fields, Maxwell's equations in free space and in dielectric medium, Electromagnetic waves, electromagnetic energy density, Poynting vector.	
9.	Textbook(s): 1. Griffiths D J, Introduction to Electrodynamics, Pearson Education India Learning Private Limited (2015). 2. Deshmukh P C, Foundations of Classical Mechanics, Cambridge University Press (2019).	
10.	Reference(s): 1. Taylor J R, Classical Mechanics, University Science Books (2004). 2. Morin D, Introduction to Classical Mechanics with problems and solutions, Cambridge University Press (2008). 3. Sadiku M N O, Elements of Electromagnetics, Oxford Univ Press, 7th edition (2018).	