



PH201 Aug 3:0

Classical Mechanics

Instructor

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Teaching Assistant

Email:

Department: Department of Physics, Centre for High Energy Physics

Course Time: Tues, Thus 08:00-0930

Lecture venue: Old Department of Physics Building.

Detailed Course Page:

Announcements

Brief description of the course

This course is intended for third year Undergraduate students and First year

Integrated Ph.D students. Most of the mathematical structure required to

study modern mechanics is introduced in this course.

Prerequisites

calculus, linear algebra , Intermediate Mechanics

Syllabus

Newton's laws, generalized co-ordinates. Lagrange's principle of least action and equations.

Conservation laws and symmetry. Integrable problems, elastic collisions and scattering. Small

oscillations including systems with many degrees of freedom, rigid body motion. Hamilton's

equations. Poisson brackets. Hamilton Jacobi theory. Canonical perturbation theory, chaos,

elements of special relativity. Lorentz transformations, relativistic mechanics.

Course outcomes

The student would learn Lagrangian and Hamiltonian formalisms which are

essential to understand modern developments in physics, like quantum mechanics, field theory, condensed matter physics, particle physics, etc.

Grading policy

20% for home work, 20% for mid term , 20% project work and 40 % for final exam.

Assignments

Resources