PH 208 Jan 3:0

Condensed Matter Physics-I

Instructor

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Teaching Assistant

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Department: Physics

Course Time: 9:30-11 a.m

Lecture venue: Physics Auditorium

Detailed Course Page:

Announcements

Brief description of the course

This course is an introduction to solid state and condensed matter physics for advanced undergraduate students.

Prerequisites

The basic quantum mechanics and statistical mechanics are required for taking the course

Syllabus

Drude model, electrical conductivity, thermal conductivity, Crystal lattice, Crystal lattice X ray diffraction., Sommerfeld model, electrons in weak periodic potential, semi classical model, Fermi surface, phonon-normal modes, phonon-thermal properties, phonons-measuring dispersion, magnetism, interaction effect

Course outcomes

These course will help the students to learn about the basics of solid state physics.

Grading policy

40% on midterm Exam and 60% on Final exam

Assignments

Assignment on Lecture 1-3 Drude model

Assignment on Lecture 4-5 Crystal structure

Assignment on Lecture 6-8 Crystal lattice X-ray diffraction-reciprocal lattice

Assignment on Lecture 9-10 Sommerfeld Model

Assignment on Lecture 11-12 Electrons in weak periodic potential

Assignment on Lecture 13-14 Fermi surface determination

Assignment on Lecture 15-17 Phonos, thermal properties, disperson

Assignment on Lecture 18-19 Magnetism

Assignment on Lecture 20 Interaction Physics

Resources

Solid State Physics by Ashcroft-Mermin

Introduction to Solid state Physics by Charles Kittel

Solid state basics by Steven H. Simon