

# Applied Physics

## General Information

<b>Course Number</b>	PHY-150
<b>Credit Hours</b>	3 hours
<b>Prerequisite</b>	None
<b>Course Coordinator</b>	

## Course Objectives

It is a computing support course for a computer science program. The aim is to equip the student with the concepts of physics. Course brushes students' basic knowledge by starting from the basic concepts and then progressing gradually toward the advanced concepts. By the course completion, students would have developed a good understanding of physics fundamentals.

## Catalog Description

PHY-150

## Course Content

Date / Week	a. Topics	Suggested Readings
Week 01	<b>Electrostatics:</b> Coulomb's Law and its application.	
Week 02	<b>Electric Field:</b> Calculation of electric field, Gauss's Law and its application	Chapter 21,22&23: Halliday, Resnick, Walker
Week 03	<b>Potential:</b> Electric potential Relation between electric field and electric potential,	
Week 04	Concept of voltage,	
Week 05	the electron volt etc. Current, resistance& EMF,	Chapter 24: Halliday, Resnick, Walker
Week 06	<b>Capacitance &amp; Dielectrics:</b> Capacitance and capacitor	
Week 07	Effect of Dielectric On Capacitance,	
Week 08	calculation of capacitance of parallel plate capacitor	Chapter 24,25 &28: Halliday, Resnick, Walker

Week 09	voltage, Emf, Internal resistance Terminal potential of the source	Chapter 30: Halliday, Resnick, Walker
Week 10	Power in electrical circuits	
Week 11	Solving electrical circuits using Kirchoff current and voltage Rule.	
Week 13	<b>Semiconductor/Solid State Physics:</b> Free electron theory of solids, the band theory of solids, Intrinsic semiconductors, extrinsic semiconductors	Chapter 33,38&39 Halliday, Resnick, Walker
Week 14	Properties of current carriers, Doping, PN Junction, PN Diodes.	

## Text Book

2. Fundamental of Physics, by Halliday, Resnick and John Walker (8<sup>th</sup> edition)

## Reference Material

- 1. Electronic Devices, by Thomas Floyd
- Conceptual Physics, by Paul. H. Hewitt
- Introduction to Quantum mechanics by David Griffith
- Quantum-Computing-since-Democritus, by Scott Aaronson