B.Sc. Semester-II
Course code: PH-MJ 202

Total Credits: 04 (Theory: 3, Practical; 1)

Total Hrs: Theory: 45, Practical: 30

PH-MJ 202 (Theory)

Unit1	**Magneto-statics andElectro magnetic Induction (Physics by Halliday,Resnik And Krane, Vol.2, 5thedition,Wiley)**
	Magneto-statics: Magnetic interactions and magnetic poles (32.1), the magnetic force on a moving charge (32.2), circulating charges (32.3), the magnetic force on a current carrying wires(32.5), the torque on a current loop (32.6) **Electromagnetic Induction**: Faraday's experiments (34.1),Faraday's law of induction (34.2), Lenz's law (34.3),motional emf (34.4), generator and motor (34.5)
Unit2	**Thermodynamics(Physics by Halliday,Resnik and Krane,Vol.2, 5thedition)**
	Temperature and thermal equilibrium (21.1),thermal expansion(21.4),the ideal gas (21.5), a molecular view of pressure (22.2), the mean free path (22.3), the distribution of molecular speeds(22.4),equations of state for real gas(22.6) Heat: energy and transit (23.1), the transfer of heat (23.2), the first law of thermo dynamics (23.8), the application of the first law of thermodynamics (23.8)Defining entropy change(24.2),entropy change for irreversible process (24.3),the Second law of thermodynamics(24.4)
Unit3	**Optics (Optics by Ajoy Ghatak, 6thedition,McGraw-Hill Education)and Particle properties of waves (Concepts of Modern Physics by A. Beiser)**
	Optics: Introduction (12.1), Huygens' theory (12.2), Introduction (13.1), superposition oftwosinusoidalwaves(13.5),Introduction(14.1),coherence(14.3),interferenceoflight waves (14.4), the interference pattern (14.5), the intensity distribution (14.6)**Particle properties of waves:** Blackbody radiation (2.2), photoelectric effect (2.3), what is light (2.4), X-rays(2.5),X-ray diffraction(2.6),Compton effect(2.7), pair production(2.8),photons and gravity (2.9)

ReferenceBooks:

1. Electricity and Magnetism by A S Mahajan and A R Rangwala 7th Ed. Tata McGraw-Hill,2003.
2. University Physics by H D Young, R A Freedman and A Lewis Ford, 13th Ed. PearsonEducation,2013.
3. Fundamentals of Optics by F Jenkins and H White, 4th Ed. McGraw Hill Education,