B.Sc. Semester-II
Course code: PH-MN 201

Total Credits: 04 (Theory: 2, Practical; 2)

Total Hrs: Theory: 30, Practical: 60

Unit 1	**Electrostatics (Physics by Halliday, Resnik and Krane, Vol. 2, 5th edition, Wiley)**
	Coulomb's law (25.4), what is a field? (26.1), the electric field (26.2), electric field of point charges (26.3), electric field lines (26.5), What is Gauss' law all about? (27.1), the flux of a vector field (27.2), the flux of the electric field (27.3), Gauss' law (27.4), applications of Gauss' law (27.5), Potential energy (28.1), electric potential energy (28.2), electric potential (28.3), calculating the potential from the field (28.4), potential due to point charges (28.5), calculating the field from the potential (28.7), equi-potential surfaces (28.8)
Unit 2	**Electronics & Optics (Electronic principles by A. P.Malvino,6thEd., Tata Mc Graw-Hill Ltd.)**
	Electronics :The half-wave rectifier (4.1), the transformer (4.2), the full-wave rectifier (4.3), the bridge rectifier (4.4), the choke input filter (4.5), the capacitor input filter (4.6) The zener diode (5.1), the loaded zener regulator (5.2) **Optics** : Introduction (3.1), laws of reflection and refraction from Fermat's principle (3.2), introduction (4.1), refraction at a single spherical surface (4.2), reflection by a single spherical surface (4.3), the thin lens (4.4), the principle foci and the focal length of a lens (4.5), the Newton's formula (4.6), lateral magnification (4.7),aplanatic points of a sphere (4.8)

ReferenceBooks:

1. Elements of Electromagnetic by MNO Sadiku, OxfordUniversityPress,2001
2. Electricity and Magnetism by A S Mahajan and A R Rangwala 7thEd. Tata McGraw-Hill, 2003.
3. University Physics by H D Young, R A Freedman and A Lewis Ford, 13th Ed. PearsonEducation,2013
4. Fundamentals of Optics by F Jenkins and H White 4th Ed. McGraw Hill Education