Syllabus of Diploma II Sem

S. No	Subject Code	Subject Name	Hours per Week			Total Hrs	Total Credits
			L	T	P		
1	EN2BS04	PHYSICS-II	3	1	2	6	5

Unit I

Semi Conductor Physics: Energy Bands in Conductor, Semi Conductor & Insulator, Chemical Bonds in Semiconductor, Intrinsic and Extrinsic Semiconductors, PN-Junction Diode, Working, Biasing and Characteristics Curves, Zener Diode and Voltage Regulation using it, Half Wave & Full Wave Rectifiers. General idea about transistors.

Unit II

Sound Waves: Production of sound waves (Longitudinal and transverse waves), Progressive and stationary waves, Basic knowledge of refraction, reflection, interference and diffraction. Ultrasonic, Audible range, Production of ultrasonic, properties and uses Superposition of Waves, Stationary Waves (without mathematical analysis), Resonance tube.

Unit III

Ray Optics: Reflection of light, spherical mirrors, mirror formula. Refraction of light, total internal reflection and its applications, optical fibres, refraction at spherical surfaces, lenses, thin lens formula, lens maker's formula. Magnification, power of a lens, combination of thin lenses in contact combination of a lens and a mirror.

Unit IV

Optical Instruments: Refraction and dispersion of light through a prism. Scattering of light - blue colour of sky and reddish apprearance of the sun at sunrise and sunset. Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.

Unit V

Modern and Nuclear Physics: Photo Electric Effect, Einstein's Equation, Photo Cells, Lasers, Stimulated Emission and Population Inversion, Ruby Laser, Application of Lasers.

Nuclear Physics- Composition of nucleus, Idea of Nuclear Force, Mass - Defect and Binding Energy, Nuclear Reactions, Natural and Artificial Radioactivity, Law of Radioactive Disintegration, Half Life & Mean Life.

Text Books :

1. Fundamentals of Physics-Halliday, Wiley India
2. Concepts of Modern Physics- Beiser, TMH
3. Principle of physics by Brij Lal and Subraminiyan
4. Engineering Physics – Gaur and Gupta , Dhanpat rai publication
5. Optics - Brij Lal and Subraminiyan, S Chand Publication
6. Physics Volume 1 and 2- Halliday and Resnic, Wiley India
7. Optics By Ghatak, TMH

List of Practical Physics-II
Semester-II

1. To prove the law of reflection using plane mirror.
2. To determine the standard deviation of given object using algebric formula and histogram.
3. To study the different parts of spectrometer and their adjustment.
4. To plot and study the significance of graphs of given data.
5. Focal length of a convex lens by u-v method.
6. To study working of Laser using “PhET” Laser Module by Simulation.
7. To find V-I characteristics of a semiconductor diode.
8. To verify Ohm's law.
9. To determine the velocity of sound by resonance tube/ tuning fork.
10. Identification of various electronic components.