FPYC-202Optics(Geometrical & physical)

Unit-I
Geometrical Optics: Introduction,Cardinals points, Cardinals points of two thin lenses separated by a distance, Nodal points and Nodal planes, Ramsdens and Huygens eyepiece.

Unit-II
Interference: Coherent sources, division of wave front, Biprism,Interference in thin film due to reflected and transmitted light, Newton's ring by reflected light, determination of wavelength of light by Newton's rings experiment, Michelson interferometer – construction, measurement of wavelength. Febry-perot interferometer experiment and determination of wavelength   (10)

Unit-III
Diffraction: Introduction, Fresnel's half period zones and rectilinear propagation of light, zone plates, diffraction due to straight edge. Fraunhoffer diffraction, single slit and transmission grating.   (5)

Resolving power-Rayleigh's power,limit of resolution of eye,resolving power of optical instruments, resolving power of telescope,resolving power of microscope, resolving power of a plane transmission grating.   (5)

Unit-IV
Polarisation : Polarized and non polarized light.Polarization by reflection refraction and scattering, Brewster's law, Malus law, double refraction, ordinary and extra-ordinary rays,Nicol prism.,Production of elliptically polarised light,Production of circularly polarised light, Babinet compensator, half wave and quarter wave plate, Laurent polarimeter,optical rotation,specific   rotation,Freshnel's   explanation,Biquartz,PhotoelasticityElectro-optic effect,magneto-optic effect.   (10)

Books:
1. Fundamental of optics- Jenkins ,White (Mc Graw Internationl series)
2. Optics- Ghatak (TMH)
3. Principles of Optics- B. K Mathur
4. Geometrical and Physical Optics- R.S Longhurst
5. Optics- Brij Lal Subramaniam
6. Geometrical and Physical Optics- P. K Chakrabarty
7. Optics- Eugene Hecht (Addision Wesley)
8. Optical Physics- Stephen   G. Lipson, Henry Lipson& D.S Tannhauser (Cambridge University Press)