

- Quarter and half wave plates :
- Brewster's law
- Fresnel's theory of optical rotation with analytical treatment
- Numerical
- Laurent's half slide polarimeter
- Plane, elliptically and circularly polarized light production.
- Double refraction and Huygen's theory.
- Nicol prism
- Law of Malus
- specific rotation
- Bi-quartz polarimeter

- Fourier integrals → for even & odd $f(x)^n$
- Fourier theorem to analyse triangular wave.
- Complex form of Fourier series
- Fourier th^m and Fourier coefficients + limitations
- Fourier series for HWR & FWR outputs.
- Parseval's Identity of Fourier series
- Fourier series to analyse a rectangular or square wave
- Fourier sine and Cosine integrals
- Fourier expansion of an even $f(x)^n$ as cosine series
- Fourier expansion of an odd $f(x)^n$ as sine series

- Fourier and Inverse Fourier transform & their importance
- Convolution th^m for Fourier transform
- Unit planes & Nodal planes.
- Fourier transform of Gaussian $f(x)^n$ $f(x) = Ne^{-\alpha x^2}$
- Modulation th^m for Fourier transform
- Matrix Method as paraxial optics. & Translation matrix.
- Fourier transform of $F(x) = e^{-x^2/2}$ & Fourier transform of e^{-x} .

- Derive the lens formula for a thick lens / thin lens.
- Fourier transform of $f(x-z)$ is $F(k) e^{-2ikz}$.
- Infinite (Fourier sine & Cosine transform) & finite

- Astigmatism, Coma, Curvature defects & how they minimised
- Optical fibre & its types
- Normalized frequency (V. number)
- Acceptance angle & expression for Numerical aperture. & Acceptance cone
- Numerical
- Cause of Chromatic Aberration.
- Chromatic Aberration in Lens.
& Spherical
- Graded index, singlemode & multimode fiber
- Optical Communication system with block diagram
- How optical fiber can guide light waves with ray diagram
- Attenuation in Optical fibers