	systems, Pumping schemes, Threshold gain coefficient, Components of laser, He-Ne, CO_2, direct & indirect bandgap semiconductor, semiconducting laser and their engineering applications, Problem solving.		a,b,e
5.	**Electromagnetic wave and Optical fibres**: Physics of Divergence, Gradient and Curl, Maxwell Equations (Qualitative), EM waves, EM-Wave Equation (Derivation), Poynting theorem, Light propagation through fibers, Acceptance angle, Numerical Aperture, Types of fibers - step index, graded index, single mode & multimode, Attenuation, Dispersion-intermodal and intramodal. Laser diode(source), PIN diode(photo detector), Applications of fiber optics in industry- Endoscopy, Problem solving.	9	a,b,d,e
7	**Contemporary Topics & Guest Lectures**	2	j,k
	Total Lectures	43	

Text Books	
1	Classical Mechanics, Herbert Goldstein, 3rd Edition, Addison- Wesley, (2002).
2	Mechanics, Keith R. Symon, 3rd Edition, Addison- Wesley, (1971)
3	Concepts of Modern Physics, Arthur Beiser et al., Sixth Edition, Tata McGraw Hill (2013).
4	Laser Fundamentals, William T. Silfvast, Cambridge University Press (2008).
5	Introduction to Electrodynamics, D. J. Griffith, 3rd Edition (2013).
6	Fiber Optic Communication Technology, Djafar K. Mynbaev and Lowell L.Scheiner, Pearson (2011)
Reference Books	
1	Modern Physics, Raymond A. Serway, Clement J. Mosses, Curt A. Moyer, Cengage learning [3rd Indian Edition], 2010
2	Modern Physics, Kenneth Krane, Wiley Indian Edition, 2010
3	Laser Systems and Applications, Nityanand Choudhary and Richa Verma, PHI Learning Private Ltd., 2011
4	Fundamental Physics, Halliday – Resnick, 8th Edtion, Weiley (2009)
5	Nano: The Essentials, T. Pradeep, McGraw Hill (2008)
Indicative list of experiments	
	1. Experimental verification of Newton's second law 2. Determination of Plank's constant using LED's 3. Experimental verification of Heisenberg's Uncertainty principle. 4. Measuring numerical aperture of an optical fibre 5. Measure the distance between tracks of CD/DVD 6. Measurement of wavelength of He-Ne Laser by using grating. 7. Particle size determination. 8. Band gap determination