

Branch Name:	Physics
Program Code:	SC105
Course Name:	Instruments - I
Course Code:	2SC1050521
Pre-requisite Course:	Basic knowledge of Instruments.

Course Objectives:

1. To develop an actual understanding of Michelson's Interferometer.
2. To know the basic concept of optical instruments.
3. To understand the use of Babinet Compensator.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
2	--	--	2	35	15	--	--	50

Subject Contents:

Sr. No	Topic	Total Hours	Weightage (%)
1	(a) Michelson's Interferometer Principle, Construction, Working, Circular fringes, Localized fringes, White light fringes, Visibility of fringes, Applications of Michelson Interferometer, Measurement of wavelength, Determination of difference in the wavelengths of two waves, Thickness of a thin transparent sheet, Determination of the refractive index. (b) Babinet Compensator Construction, Production of polarized light, analysis of elliptically polarized light.	12	50
2	(a) Fabry- Parot Interferometer and Etalon Formation of fringes, Determination of wavelength, Measurement of difference in wavelength. (b) Electron Microscope Principle, electrostatic focusing, magnetic focusing, description, use of electron microscope.	12	50

Reference Books:

1. A textbook of Optics by Dr.N.Subrahmanyam, Brijlal and Dr.M.N. Avadhanulu, S. Chand & Co. (for M.I and B.C.)
2. Hand Book of Electronics by Gupta and Kumar. 30th revised Edition 2002. (For CRO)
3. Refresher Course in Physics Vol-III, S. Chand & Co. Ltd. (7th edition-2006) (for GMC, Ch-28)

List of Open Source Software/learning website:

1. <https://www.youtube.com/watch?v=T2gt7J3jhms>
2. <https://www.youtube.com/watch?v=ka2GY1iG60c>

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Describe the Babinet Compensator.	1 Remembering
CLO2	Discuss the Principle, Construction and Working of Michelson's Interferometer	2 Understanding
CLO3	Solve the problems based on setting of instruments in laboratory.	3 Applying
CLO4	Explain Fabry- Parot Interferometer and Etalon.	4 Analyzing
CLO5	Justify the use of Electron Microscope in various field	5 Evaluating
CLO6	Design a grating by using of optics.	6 creating

Mapping of CLOs with POs & PSOs

Course Learning Outcomes	Programme Outcomes (POs)									Programme Specific Outcome (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2
CLO1	L										
CLO2			H							H	
CLO3					M						
CLO4		H					L				
CLO5									H		H
CLO6						M					

H: High, M: Medium, L: Low