



NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Department: Physics

COURSE PLAN

Name of the program and specialization				B.Tech. 1st Year – EEE B			
Course Title				Physics Lab			
Course Code		PHIR12		No. of Credits		2	
Course Code of Pre-requisite subject(s)				NIL			
Session		July- 2023		Section (if, applicable)		B	
Name of Faculty		Dr.R.Nagalakshmi		Department		PHYSICS	
Official Email		nagalakshmi@nitt.edu		Telephone No.		9443940384	
Name of Course Coordinator(s) (if, applicable)		Dr.M.Venkatakirthiga,					
Official E-mail		mvkirthiga@nitt.edu		Telephone No.		0431-2503263	
Course Type (please tick appropriately)		<input checked="" type="checkbox"/> Core course		<input type="checkbox"/> Elective course			
Syllabus (approved in BoS)							
Laboratory Experiments							
1. Determination of rigidity modulus of a metallic wire and moment of inertia of a circular disc.							
2. Field along the axis of a circular coil.							
3. Numerical aperture of an optical fibre.							
4. Conversion of galvanometer into voltmeter and ammeter.							
5. Wavelength of laser using diffraction grating.							
6. Dispersive power of a prism – Spectrometer.							
7. Radius of curvature of lens – Newton's Rings.							
8. Wavelengths of white light – Spectrometer.							
COURSE OBJECTIVES							
1. To introduce the spirit of experiments to verify physics concepts such as reflection, refraction, diffraction and interference on light matter interaction.							
2. To perform experiments to estimate the materials properties and to check their suitability in science and engineering.							
3. To familiarize physics concepts and to design instruments and experimental set up for better							



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and accurate measurements.

4. To teach and apply knowledge to measure and verify the values of certain constants in physics.

Course Outcomes

On completion of this course, the students will be able to

1. calibrate and operate voltmeter, ammeter, potentiometer and galvanometer.
2. demonstrate the principle of dispersion, diffraction, interference and polarization using the optical instruments like spectrometer, travelling microscope and polarimeter.
3. design experimental setup to verify concepts of wave and particle nature of light.
4. explain the principle of light propagation in fibers and light matter interaction using lasers and conventional light sources.
5. acquire knowledge of electricity, magnetism and mechanics to estimate the fundamental constants in Physics

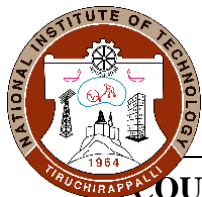
Laboratory		Aligned Programme Outcomes (PO) with level of correlation Programme Outcomes (COs)														
Course Outcomes(Cos)		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PS O1	PSO 2	PS O3
	CO1	H	-	-	H	M	-	-	-	-	M	-	M	H	-	-
	CO2	H	-	-	H	M	-	-	-	-	M	-	M	H	-	-
	CO3	M	H	H	H	-	-	-	-	-	M	-	M	-	H	-
	CO4	H	-	M	H	H	-	H	-	-	M	-	M	H	-	-
	CO5	H	M	-	H	-	-	H	-	-	M	-	M	H	-	-

H(High)- 3 (100- 68%) , M (Medium) – 2 (34-67%) , L(Low) – 1 (0-33%)

**COURSE PLAN – PART
II**

COURSE TEACHING AND LEARNING ACTIVITIES

Sl. No.	Week/Contact Hours	Topic	Mode of Delivery
1.	28 August 2023	Introduction to the course and demonstration of optics experiments	Blackboard and demonstration in the laboratory
2.	1 st week of September 2023	Wavelengths of white light – Spectrometer	Laboratory
3.	2 nd week	Wavelength of laser using diffraction grating	Laboratory
4.	3 rd week	Radius of curvature of lens – Newton's Rings	Laboratory
5.	4 th week	Dispersive power of a prism – Spectrometer	Laboratory
6.	2 nd week of October 2023	Compensation & Revision of the experiments	Laboratory
7.	3 rd Week	Demonstration for non-optical experiments	Blackboard and demonstration in the laboratory
8.	5 th Week	Determination of rigidity modulus of a metallic wire and moment of inertia of a circular disc.	Laboratory
9.	1 st week of November 2023	Numerical aperture of an optical fiber	Laboratory
10.	2 nd week	Field along the axis of a Circular coil	Laboratory
11.	3 rd week	Conversion of galvanometer into voltmeter and ammeter.	Laboratory
12.	4 th week	Compensation & Revision of the experiments	Laboratory
13	As per NITT schedule	Semester Practical Exam	Laboratory



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COURSE ASSESSMENT METHODS

Sl. No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Evaluation of experiments 1 & 2	1 st & 2 nd week of Sep 2023	5 hrs	20%
2	Evaluation of experiments 3 & 4	3 rd & 4 th week of Sep 2023	5 hrs	20%
3	Evaluation of experiments 5 & 6	3 rd & 5 th week of Oct 2023	5 hrs	20%
4.	Evaluation of experiments 7 & 8	2 nd & 3 rd Week of Nov 2023	5 hrs	20%
4	Final Assessment *	As per NITT Schedule	2hrs	20%

***mandatory; refer to guidelines on page 4**

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

Feedback from the students will be taken twice (mid-semester and end of the semester) on the depth of the knowledge gained, effectiveness of the methodology adopted, and scope of improvement.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- 100% attendance is required to complete the experiments.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

FOR APPROVAL

Course Faculty
Dr.R.Nagalakshmi

CC- Chairperson

HOD



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Guidelines

- a) The number of assessments for any theory course shall range from 4 to 6.
- b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.
- c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.
- d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G .
2018	2017	2016	2015	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40 %

- e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.