NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Department: Physics

COURSE PLAN			
Name of the program and specialization	B.Tech. 1st Year – Chemical Engineering		
Course Title	Physics Lab		
Course Code	PHIR12	No. of Credits	2
Course Code of Pre-requisite subject(s)	NIL		
Session	Jan 2023	Section (if, applicable)	-
Name of Faculty	Ajin I Research scholar.	Department	PHYSICS
Official Email	413121001@nitt.edu	Telephone No.	8754758532
Name of Course Coordinator(s) (if, applicable)			
Official E-mail		Telephone No.	
Course Type (please tick appropriately)	☑ Core course	☐ Elective course	

Syllabus (approved in BoS)

Laboratory Experiments

1. Wavelength of laser using diffraction grating
2. Numerical aperture of an optical fiber
3. Field along the axis of a Circular coil
4. Calibration of voltmeter – Potentiometer
5. Dispersive power of a prism – Spectrometer.
6. Wavelengths of white light – Spectrometer
7. Radius of curvature of lens – Newton's Rings
8. Determination of rigidity modulus of a metallic wire and moment of inertia of a circular disc.

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 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. Know how to calibrate a galvanometer and convert it into a current and voltmeters. 2. To make experimental setup to verify certain physics concepts of wave and particle nature of light. 3. Understand the light propagation in fibers, light matter interaction and use of lasers in science and engineering. 4. Acquire knowledge, estimate and suggest materials for engineering applications.

COURSE PLAN – PART II

COURSE TEACHING AND LEARNING ACTIVITIES

Sl. No.	Week/Contact Hours	Topic	Mode of Delivery
1.	22 March 2023	Introduction to the course and demonstration of non-optics experiments	Blackboard and demonstration in the laboratory
2.	29 March 2023	Determination of rigidity modulus of a metallic wire and moment of inertia of a circular disc.	Laboratory
3.	05 April 2023	Numerical aperture of an optical fiber	Laboratory
4.	12 April 2023	Field along the axis of a Circular coil	Laboratory
5.	19 April 2023	Calibration of voltmeter – Potentiometer	Laboratory
6.	26 April 2023	Demonstration for optical experiment	Blackboard and demonstration in the laboratory
7.	03 May 2023	Wavelengths of white light – Spectrometer	Laboratory
8.	10 May 2023	Wavelength of laser using diffraction grating	Laboratory
9.	17 May 2023	Radius of curvature of lens – Newton's Rings	Laboratory
10.	24 May 2023	Dispersive power of a prism – Spectrometer	Laboratory
11.	31 May 2023	Quiz 1 & Revision of the experiments	Laboratory
12.	07 June 2023	Quiz 2 & 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	Quiz 1	31 May 2023	30 min	10%
2	Quiz 2	07 June 2023	30 min	10%
3	Internal Assessment	29 March 2023- 24 May 2023	--	40%
4	Final Assessment *	As per NITT Schedule	3 hrs	40%

***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 30/3/23 **CC- Chairperson** CDr.K.N.Sheely **HOD** 3/4/20

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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 for all the courses shall be 35% or Class Average/2, whichever is maximum.

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.