NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Department: Physics

COURSE PLAN			
Name of the program and specialization	B.Tech. 1st Year – Computer Science and Engineering		
Course Title	Physics Lab		
Course Code	PHIR12 – Physics II	No. of Credits	2
Course Code of Pre-requisite subject(s)	NIL		
Session	July 2023	Section (if, applicable)	A
Name of Faculty	Dr. T. Sonamani Singh	Department	Physics
Official Email	takhel@nitt.edu	Telephone No.	--
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. Rigidity modulus of the material of a wire - Torsional pendulum with ring.
2. Numerical aperture of an optical fiber.
3. Conversion of Galvanometer to Voltmeter and Ammeter.
4. Field along the axis of a Circular coil.
5. Dispersive power of a prism – Spectrometer.
6. Wavelengths of white light – Spectrometer.
7. Radius of curvature of lens – Newton's Rings.
8. Wavelength of laser using diffraction grating.

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. calibrate and operate voltmeter, ammeter, potentiometer and galvanometer. 2. demonstrate the principle of dispersion, diffraction, interference and polarization using optical instruments like spectrometer, travelling microscope and polarimeter. 3. design experimental setup in order 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.

COURSE PLAN – PART II

COURSE TEACHING AND LEARNING ACTIVITIES

Sl. No.	Week/Contact Hours	Topic	Mode of Delivery
1.	30th Aug 2023	Introduction to the course and demonstration of non-optics experiments.	Blackboard and demonstration in laboratory
2.	6th Sept 2023	Numerical aperture of an optical fiber	Laboratory
3.	13th Sept 2023	Field along the axis of a Circular coil	Laboratory
4.	20th Sept 2023	Determination of rigidity modulus of a metallic wire	Laboratory
5.	4th Oct 2023	Conversion of galvanometer into ammeter and voltmeter	Laboratory
6.	11th Oct 2023	Quiz 1	--
7.	18th Oct 2023	Revision of non-optics experiments	Laboratory
8.	25th Oct 2023	Demo of optics experiments	Blackboard and demonstration in laboratory
9.	1st Nov 2023	Wavelength of laser using diffraction grating	Laboratory
10.	8th Nov 2023	Dispersive power of a prism – Spectrometer	Laboratory
11.	15th Nov 2023	Radius of curvature of lens-Newton's Rings	Laboratory
12.	22th Nov 2023	Wavelengths of white light – Spectrometer	Laboratory
13.	29th of Nov 2023	Quiz 2	--
14.	6th of Dec	Revision of optics experiments	Laboratory

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

Sl. No.	Mode of Assessment	Week/Date	Duration	% Weightage
1.	Quiz 1	11th Oct 2023	30 min	10%
2.	Quiz 2	29th Nov 2023	30 min	10%
3.	Internal Assessment	6th Sep 2023 – 6th Dec 2023	--	40%
4.	Final Assessment *	As per NITT Schedule	3 hr	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, the effectiveness of the methodology adopted, and the 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 programs.

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

FOR APPROVAL

T. Sonamani Sgt

Course Faculty _____ **CC- Chairperson** 6/9/23 Rajeswari Sridhar **HOD** Amdbhan

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.