



DEPARTMENT OF PHYSICS

COURSE PLAN – PART I			
Name of the programme and specialization	B.Tech. MECHANICAL ENGINEERING		
Course Title	PHYSICS – II		
Course Code	PHIR12	No. of Credits	2
Course Code of Pre-requisite subject(s)	NIL		
Session	July 2021	Section (if, applicable)	B
Name of Faculty	Dr. K. Nilavarasi	Department	PHYSICS
Official Email	nilavarasi@nitt.edu	Telephone No.	9788368882
Name of Course Coordinator(s) (if, applicable)	Dr. R. B. Anand		
Official E-mail	rbanand@nitt.edu	Telephone No.	9488890164
Course Type (please tick appropriately)	<input checked="" type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
<b>Syllabus (approved in BoS)</b>			
<b>Laboratory Experiments</b>			
<ol style="list-style-type: none"> <li>1. Determination of rigidity modulus of a metallic wire</li> <li>2. Wavelength of laser using diffraction grating</li> <li>3. Dispersive power of a prism – Spectrometer.</li> <li>4. Radius of curvature of lens – Newton’s Rings</li> <li>5. Numerical aperture of an optical fiber</li> <li>6. Field along the axis of a Circular coil</li> <li>7. Wavelengths of white light – Spectrometer</li> <li>8. Calibration of Voltmeter – Potentiometer</li> </ol>			
<b>COURSE OBJECTIVES</b>			
<ol style="list-style-type: none"> <li>1. To introduce the spirit of experiments to verify physics concepts such as reflection, refraction, diffraction and interference on light matter interaction.</li> <li>2. To perform experiments to estimate the materials properties and to check their suitability in science and engineering.</li> <li>3. To familiarize physics concepts and to design instruments and experimental set up for better and accurate measurements.</li> <li>4. To teach and apply knowledge to measure and verify the values of certain constants in</li> </ol>			



physics.	
<b>MAPPING OF COs with POs</b>	
<b>Course Outcomes</b> On completion of this course, the students will be able to	<b>Programme Outcomes (PO)</b> (Enter Numbers only)
1. Know how to calibrate a galvanometer and convert it into a current and voltmeters.	<b>1,2,3,4,5,7,8</b>
2. Make experimental setup to verify certain physics concepts of wave and particle nature of light.	<b>1,2,3,4,5,8</b>
3. Understand the light propagation in fibers, light matter interaction and use of lasers in science and engineering.	<b>1,3,5,8,9</b>
4. Acquire knowledge, estimate and suggest materials for engineering applications.	<b>1,2,3,4,5,6,7,8,10</b>

<b>COURSE PLAN – PART II</b>			
<b>COURSE OVERVIEW</b>			
<ul style="list-style-type: none"> <li>• Physics-II (Code: PHIR12) is a laboratory course offered in the first year to all branches of undergraduate engineering students.</li> <li>• The course carries 2 credits.</li> <li>• In the first semester (July 2019) all students of circuit branches undergo this course.</li> </ul>			
<b>COURSE TEACHING AND LEARNING ACTIVITIES</b>			( Add more rows)
<b>S.No.</b>	<b>Week/Contact Hours</b>	<b>Topic</b>	<b>Mode of Delivery</b>
1.	1 <sup>st</sup> Week	<ul style="list-style-type: none"> <li>○ Wavelengths of white light – Spectrometer.</li> <li>○ Wavelength of laser using diffraction grating.</li> <li>○ Dispersive power of a prism – Spectrometer.</li> <li>○ Radius of curvature of lens- Newton’s Rings</li> </ul>	Demonstration, vlab training & clarifications
2.	2 <sup>nd</sup> Week	Experiment – 1	Performing experiment via vlab & evaluation
3.	3 <sup>rd</sup> Week	Experiment – 2	Performing experiment via vlab & evaluation
4.	4 <sup>th</sup> Week	Experiment – 3	Performing experiment via vlab & evaluation
5.	5 <sup>th</sup> Week	Experiment – 4	Performing experiment via vlab & evaluation



6.	6 <sup>th</sup> Week	Experiment – 5	Performing experiment via vlab & evaluation
7.	7 <sup>th</sup> Week	Experiment -6	Performing experiment via vlab & evaluation
8.	8 <sup>th</sup> Week	Experiment – 7	Performing experiment via vlab & evaluation
9.	9 <sup>th</sup> Week	Experiment – 8	Performing experiment via vlab & evaluation
10.	10 <sup>th</sup> Week	Clarifications & Compensation Practical	Performing experiment via vlab & evaluation
11.	11 <sup>th</sup> Week	Clarifications & Compensation Practical	Performing experiment via vlab & evaluation

**COURSE ASSESSMENT METHODS** (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assessment – I	3 <sup>rd</sup> Week	4 Hrs.	15
2	Assessment – II	5 <sup>th</sup> Week	4 Hrs.	15
3	Assessment – III	7 <sup>th</sup> Week	4 Hrs.	15
4	Assessment – IV	9 <sup>th</sup> Week	4 Hrs.	15
5	Quiz	10 <sup>th</sup> Week	1 hr	10
5	Final Assesment	2 <sup>nd</sup> to 15 <sup>th</sup> July 2021	4 Hrs.	30

**\*Mandatory; refer to guidelines on page 5**

**COURSE EXIT SURVEY**

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

- Conduct the viva-voce for every experiment at the end of each practical class.
- Performance in the assessment methods.



- Questionnaire about the effectiveness of the experience, experiments, and the knowledge gained.
- Final assessment could be an experiment followed viva-voce on the theory and practice of the given experiment etc.,

**COURSE POLICY** (including compensation assessment to be specified)

**MODE OF CORRESPONDENCE (email/ phone etc)**

- Both e-mail ([nilavarasi@nitt.edu](mailto:nilavarasi@nitt.edu)) and phone/mobile (9486467634/9788368882).

**COMPENSATION ASSESSMENT POLICY**

- It is a practical examination with duration of 04 Hrs. Appropriate weightage will be calculated.

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

- At least 75% attendance in each course is mandatory.
- 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.

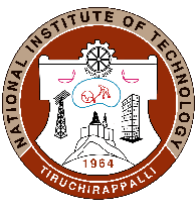
**ACADEMIC DISHONESTY & PLAGIARISM**

- 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.

**ADDITIONAL INFORMATION, IF ANY**

**Books for References**

1. Physics Laboratory Manual, Department of Physics, National Institute of Technology Tiruchirappalli (2018).



2. Practical Physics, R.K. Shukla, Anchal Srivastava, New age international (2011).

3. B.Sc. Practical Physics, C.L Arora, S. Chand & Co. (2012).

**FOR APPROVAL**

Course Faculty

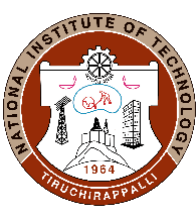
**Dr. K. Nilavarasi**

CC- Chairperson

**Dr. R. B. Anand**

HOD

**Dr. AR Veerappan**



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