

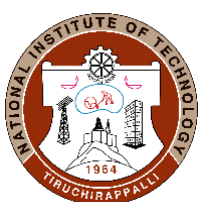


DEPARTMENT OF PHYSICS

| COURSE PLAN – PART I   |   |  |         |
|--|---|--|---------|
| Name of the programme and specialization   | B.Tech.<br>COMPUTER SCIENCE AND ENGINEERING     |  |         |
| Course Title   | PHYSICS II                                      |  |         |
| Course Code  | PHIR12  | No. of Credits                           | 2       |
| Course Code of Pre-requisite subject(s)  | NIL   |  |         |
| Session  | July 2020                                       | Section (if, applicable)                 | B       |
| Name of Faculty  | Dr. V. Vasanthi                                 | Department                               | PHYSICS |
| Official Email   | vasanthi@nitt.edu                               | Telephone No.                            | NIL     |
| Name of Course Coordinator(s) (if, applicable)   |   |  |         |
| Official E-mail  |   | Telephone No.                            |         |
| 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. Radius of curvature of lens – Newton’s Rings</li> <li>3. Dispersive power of a prism – Spectrometer.</li> <li>4. Wavelengths of white light – Spectrometer</li> <li>5. Numerical aperture of an optical fiber</li> <li>6. Photoelectric effect – Planck’s constant</li> <li>7. Field along the axis of a Circular coil</li> <li>8. Wavelength of laser using diffraction grating</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 physics.</li> </ol> |   |  |         |



| <b>MAPPING OF COs with POs</b>  |                            |  |  |
|---|----------------------------|--|--|
| <b>Course Outcomes</b><br>On completion of this course, the students will be able to  |                            |  | <b>Programme Outcomes (PO)</b><br>(Enter Numbers only) |
| 1. Know how to perform experiments to estimate the materials properties and to check their appropriateness  |                            |  | 3,7,8  |
| 2. Make experimental setup to verify certain physics concepts of wave and particle nature of light.   |                            |  | 3,4,7,8  |
| 3. Understand the light propagation in fibers, light matter interaction and use of lasers in science and engineering.   |                            |  | 3,4,5,7,8  |
| 4. Acquire knowledge, estimate and suggest materials for engineering applications.  |                            |  | 3,5,7,8  |
| <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 2020) 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   | 9 <sup>th</sup> Dec, 2020  | Introduction to Basic Instruments                    | Performing experiment in virtual lab & evaluation      |
| 2   | 16 <sup>th</sup> Dec, 2020 | Determination of rigidity modulus of a metallic wire | Performing experiment in virtual lab & evaluation      |
| 3   | 23 <sup>rd</sup> Dec, 2020 | Radius of curvature of lens – Newton’s Rings         | Performing experiment in virtual lab & evaluation      |
| 4   | 30 <sup>th</sup> Dec, 2020 | Dispersive power of a prism – Spectrometer.          | Performing experiment in virtual lab & evaluation      |
| 5   | 6 <sup>th</sup> Jan, 2021  | Wavelengths of white light – Spectrometer            | Performing experiment in virtual lab & evaluation      |
| 6   | 13 <sup>th</sup> Jan, 2021 | Numerical aperture of an optical fiber               | Performing experiment in virtual lab & evaluation      |
| 7   | 20 <sup>th</sup> Jan, 2021 | Photoelectric effect – Planck’s constant             | Performing experiment in virtual lab & evaluation      |
| 8   | 27 <sup>th</sup> Jan, 2021 | Field along the axis of a Circular coil              | Performing experiment in virtual lab & evaluation      |
| 9   | 3 <sup>rd</sup> Feb, 2021  | Wavelength of laser using diffraction grating        | Performing experiment in virtual lab & evaluation      |



|    |                            |                        |   |
|----|----------------------------|------------------------|---|
| 10 | 10 <sup>th</sup> Feb, 2021 | Compensation Practical | Performing experiment in virtual Lab & evaluation |
| 11 | 17 <sup>th</sup> Feb, 2021 | Clarifications         | Performing experiment in virtual Lab              |
| 12 | 24 <sup>th</sup> Feb, 2021 | Quiz                   | Online test                                       |

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

| S.No. | Mode of Assessment       | Week/Date                    | Duration | % Weightage |
|-------|--------------------------|------------------------------|----------|-------------|
| 1     | Assessment – I           | 23 <sup>rd</sup> Dec, 2020   | 4 Hrs.   | 15          |
| 2     | Assessment – II          | 6 <sup>th</sup> Jan, 2021    | 4 Hrs.   | 15          |
| 3     | Assessment – III         | 20 <sup>th</sup> Jan, 2021   | 4 Hrs.   | 15          |
| 4     | Assessment – IV          | 3 <sup>rd</sup> Feb, 2021    | 4 Hrs.   | 15          |
| CPA   | Compensation Assessment* | 10 <sup>th</sup> Feb, 2021   | 4 Hrs.   | 15          |
| 5     | Quiz                     | 24 <sup>th</sup> Feb, 2021   | 1hr      | 10          |
| 6     | Final Assesment          | 8-24 <sup>th</sup> Mar. 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 ([vasanthi@nitt.edu](mailto:vasanthi@nitt.edu)) and phone/mobile (9443650539).

**COMPENSATION ASSESSMENT POLICY**

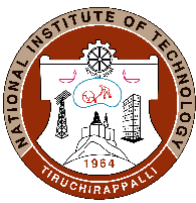
- It is a practical examination with duration of 04 Hrs. Appropriate weightage will be calculated.

**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**

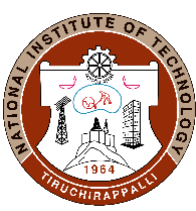
1. Physics Laboratory Manual, Department of Physics, National Institute of Technology Tiruchirappalli (2018).
2. Practical Physics, R.K. Shukla, Anchal Srivastava, New age international (2011).
3. B.Sc. Practical Physics, C.L Arora, S. Chand & Co. (2012).

**FOR APPROVAL**

**Course Faculty**  
Dr. V. Vasanthi

**CC- Chairperson**  
Dr. Rajeswari Sridar

**HOD** 01/01/2021  
Dr. Rajeswari Sridar



**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 |             | 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.