



# NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

## DEPARTMENT OF PHYSICS

COURSE PLAN – PART I			
Name of the programme and specialization	B.Tech. Electronics & Communication Engineering (ECE)		
Course Title	PHYSICS – II		
Course Code	PHIR12	No. of Credits	2
Course Code of Pre-requisite subject(s)	NIL		
Session	July 2019	Section (if, applicable)	B
Name of Faculty	Dr. Annapureddy V.	Department	PHYSICS
Official Email	annp@nitt.edu	Telephone No.	NIL
Name of Course Coordinator(s) (if, applicable)	Dr. M. Ashok Dr. Sangaranarayanan		
Official E-mail	ashokm@nitt.edu sankar@nitt.edu	Telephone No.	+91-431-2503610 +91-431-2503609
Course Type (please tick appropriately)	Core course <input checked="" type="checkbox"/> Elective course <input type="checkbox"/>		
<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 physics.</li> </ol>			



MAPPING OF COs with POs	
Course Outcomes On completion of this course, the students will be able to	Programme Outcomes (PO) (Enter Numbers only)
1. Know how to calibrate a galvanometer and convert it into a current and voltmeters.	
2. 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 OVERVIEW			
<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 all students of circuit branches undergo this course.</li> </ul>			
COURSE TEACHING AND LEARNING ACTIVITIES			( Add more rows)
S.No.	Week/Contact Hours	Topic	Mode of Delivery
1.	23 <sup>rd</sup> Aug. 2019	<ul style="list-style-type: none"> <li>Numerical aperture of an optical fiber.</li> <li>Field along the axis of a Circular coil</li> <li>Wavelengths of white light – Spectrometer.</li> <li>Calibration of Voltmeter – Potentiometer</li> </ul>	Demonstration, Hands-on training & clarifications
2.	30 <sup>th</sup> Aug. 2019	Experiment – 1	Performing experiment & evaluation
3.	6 <sup>th</sup> Sep. 2019	Experiment – 2	Performing experiment & evaluation
4.	13 <sup>th</sup> Sep.2019	Experiment – 3	Performing experiment & evaluation
5.	20 <sup>th</sup> Sep. 2019	Experiment – 4	Performing experiment & evaluation
6.	27 <sup>th</sup> Sep.2019	<ul style="list-style-type: none"> <li>Determination of rigidity modulus of a metallic wire.</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, Hands-on training & clarifications
7.	11 <sup>th</sup> Oct. 2019	Experiment – 5	Performing experiment & evaluation



## NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

8.	18 <sup>th</sup> Oct. 2019	Experiment – 6	Performing experiment & evaluation
9.	25 <sup>th</sup> Oct. 2019	Experiment – 7	Performing experiment & evaluation
10.	1 <sup>st</sup> Nov. 2019	Experiment – 8	Performing experiment & evaluation
11.	8 <sup>th</sup> Nov. 2019	Compensation Practical	Performing experiment & evaluation
12	15 <sup>th</sup> Nov. 2019	Clearing up	Performing experiment & evaluation

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

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assessment – I	6 <sup>th</sup> Sep.2019	4 Hrs.	15
2	Assessment – II	20 <sup>th</sup> Sep.2019	4 Hrs.	15
3	Assessment – III	18 <sup>th</sup> Oct.2019	4 Hrs.	15
4	Assessment – IV	1 <sup>st</sup> Nov. 2019	4 Hrs.	15
CPA	Compensation Assessment*	8 <sup>th</sup> Nov. 2019	4 Hrs.	15
5	Final Assesment	11-22 Nov. 2019	4 Hrs.	40

### **COURSE EXIT SURVEY**

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

- Conduct the viva-voce and lab record correction 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.

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

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

- Both e-mail ([annp@nitt.edu](mailto:annp@nitt.edu)) and phone/mobile (0431-250-3603).

#### **COMPENSATION ASSESSMENT POLICY**

- It is a practical examination with duration of 04 Hrs and 15% weightage only.

### **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  CC- Chairperson  HOD 