

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE OUTLINE TEMPLATE			
Course Title	Physics - I		
Course Code	PHIR11	No. of Credits	3 (2 credit theory+1 credit lab)
Department	Physics	Faculty	Dr. R. Justin Joseyphus
Pre-requisites Course Code	Nil		
Course Coordinator(s) (if, applicable)	Dr. N. V. Giridharan Dr. S. Manivannan		
Other Course Teacher(s)/Tutor(s) E-mail	rjustinj@nitt.edu	Telephone No.	3610
Course Type	<input type="checkbox"/> X Core course	<input type="checkbox"/>	Elective course
COURSE OVERVIEW			
The Physics- I course is offered in the first semester to all the branches of engineering. The subject has 2 credit theory and 1 credit lab weightage.			
COURSE OBJECTIVES			
<ul style="list-style-type: none"> • To make a bridge between the Physics in school and engineering courses. • To introduce the basic concepts of modern science like Photonics, • Engineering applications of acoustics, fundamentals of crystal physics and materials science. 			

COURSE OUTCOMES (CO)			
Course Outcomes		Aligned Programme Outcomes (PO)	
The student will be able to 1. Understand many modern devices and technologies based on lasers and optical fibers. 2. Appreciate various material properties which are used in engineering applications and devices. 3. Identify the cause of reverberations in buildings 4. Analyze the crystal structure of materials 5. Decide on suitable materials for engineering applications		<ul style="list-style-type: none"> ➤ Obtain indepth knowledge on important Physics concepts ➤ Carry out independent research work in interdisciplinary areas ➤ Interact with professionals in related areas ➤ Communicate ideas and learn new technologies 	
COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week	Topic	Mode of Delivery
1.	First 2-3 weeks	Unit-I : Lasers	Lectures and discussions .
2.	2-3 weeks	Unit II: Fiber Optics	Lectures and discussions.
3.	2-3 weeks	Unit-III: Acoustics	Lectures and discussions .
4.	2-3 weeks	Unit-IV: Crystallography	Lectures, presentation/seminars
5.	2-3 weeks	Unit-V: conductor, magnetic and superconducting materials	Lectures, power point/ discussion

COURSE ASSESSMENT METHODS				
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1.	Quiz- I	On completion of Unit-I	30 min	10 %
2.	Mid semester exam	Upto Units-III (around Oct end)	90 min	30 %
4.	Quiz – II/Seminar	On completion of Unit – IV	30 min	10 %
5.	Semester exam	As per regular timetable	180 min	50 %
			Total	100 %
6.	Practicals	5 experiments	3 h x 5	100 %
	Each lab session carries equal weightage			
	Theory weightage: 2/3 Practicals weightage : 1/3			
ESSENTIAL READINGS : Textbooks, reference books Website addresses, journals, etc				
<ol style="list-style-type: none"> 1. <i>A text book of Engineering Physics, M.N. Avadhanulu and P.G. Kshirsagar, S. Chand and Company, New Delhi (2009).</i> 2. <i>Engineering Physics, R.K. Gaur and S.L. Gupta, Dhanpat Rai Publications (P) Ltd., 8th edn., New Delhi (2001).</i> 3. <i>Laser Fundamentals, William T. Silfvast, 2nd edn, Cambridge University press, New York (2004)</i> 4. <i>Fundamentals of Physics, 6th Edition, D. Halliday, R. Resnick and J. Walker, John Wiley and Sons, New York (2001).</i> 5. <i>Introduction to Solid State Physics, 7th Edn, Charles Kittel, Wiley, Delhi (2007).</i> 				

COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)

- Questionnaire about the effectiveness of the delivery method, topics and the knowledge gained

COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)

- 75 % attendance is mandatory. . Exemption due to ill health/on-duty/unavoidable circumstances allowed. Those who have lack of attendance have to redo the course and the grade shall be awarded as per institute norms.
- Those who indulge in malpractice such as copying, plagiarism shall have to redo the course.
- Those who are absent for any of the assessment tests on genuine grounds shall be given an opportunity only once for the retest with the prior permission of the concerned faculty member and Head of Physics Department. The retest shall be conducted before the end semester exam and the portions will be upto Unit IV.
- The marks for laboratory sessions shall be awarded based on independent experiments, observation, accuracy, etc.
- The pass mark and supplementary exam shall be as per institute norms
- The total marks will be for 100 % including the theory and lab put together.
- Any misbehavior, indiscipline in the classroom/laboratory/exam hall will be dealt with seriously. In the worst case, the departmental disciplinary committee is empowered to debar the student from the course.

ADDITIONAL COURSE INFORMATION

The teachers can be contacted through phone or in person for clarifications by the student on a mutually convenient time.

FOR SENATE'S CONSIDERATION

Course Faculty R. John Joseph CC-Chairperson N.V. d
28/7/24
HOD M. Sopalakrishna