NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE OUTLINE				
Course Title	**Physics - I**			
Course Code	**PH101**	**No. of Credits**	**3 (2 credit theory+1 credit lab)**	
Department	**Physics**	**Faculty**	**Dr. K. Prakash**	
Pre-requisites Course Code	**Nil**			
Course Coordinator(s) (if, applicable)	**Dr. S. Manivannan** **Dr. N. V. Giridharan**			
Other Course Teacher(s)/Tutor(s) E-mail	**Details with first year coordinator office**	**Telephone No.**	**9025534324**	
Course Type	☒ **Core course** ☐ ~~**Elective course**~~			

COURSE OVERVIEW

The Physics-I course is offered in the first semester to all the branches of engineering. The subject has a weightage of 2 credit theory and 1 credit practical lab weightage.

COURSE OBJECTIVES

- **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.	➢ Obtain in-depth 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, power point presentations, Class room discussions.**
2.	**Next 2-3 weeks**	**Unit II: Fiber Optics**	**Lectures, power point presentations, Class room discussions.**
3.	**2-3 weeks**	**Unit-III: Acoustics**	**Lectures, power point presentations, Class room discussions.**
4.	**2-3 weeks**	**Unit-IV: Crystallography**	**Lectures, power point presentations, Class room discussions.**
5.	**2-3 weeks**	**Unit-V: Magnetic materials, conductors and superconductors**	**Lectures, power point presentations, Class room discussions.**

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**	**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 %**
	No separate semester exam for laboratory **Each lab session carries equal weightage** **Theory weigtage: 2/3** **Practicals weightage : 1/3** **A student has to score a minimum of 40 % marks to get a pass**			

ESSENTIAL READINGS : Textbooks, reference books, Website addresses, journals, etc

1. *A text book of Engineering Physics, M.N. Avadhanulu and P.G. Kshirsagar, S. Chand and Company, New Delhi (2009).*
2. *Engineering Physics, R.K. Gaur and S.L. Gupta, Dhanpat Rai Publications (P) Ltd., 8th edn., New Delhi (2001).*
3. *Laser Fundamentals, William T. Silfvast, 2nd edn, Cambridge University press, New York (2004)*
4. *Fundamentals of Physics, 6th Edition, D. Halliday, R. Resnick and J. Walker, John Wiley and Sons, New York (2001).*
5. *Introduction to Solid State Physics,7th Edn, Charles Kittel, Wiley, Delhi (2007).*
6. *http://www.doitpoms.ac.uk/*
7. *http://vlab.co.in/index.php*

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

- Performance in the assessment methods
- 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.
- 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.
- A student has to score a minimum of 40 % marks to get a pass.
- Those who fail in the course can appear for the supplementary exam. The marks including laboratory and internal marks shall be considered till his programme duration.
- The total marks will be for 100 % including the theory and lab put together, of which 2 part will be for the theory and 1 part will be for the laboratory.
- 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 lecture materials such as notes, video lectures shall be displayed in NIT-T moodle or piazza.com in few cases. 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 _____ CC-Chairperson _____

HOD _____ 4/8/16.