**NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Title** | | | **ELECTROMAGNETIC THEORY** | | | | | | | | | |
| **Course Code** | | | **PH654** | | | **No. of Credits** | | | **4** | | | |
| **Department** | | | **Physics** | | | **Faculty** | | | **Dr. M.C. Santhosh Kumar** | | | |
| **Pre-requisites**  **Course Code** | | | **-NIL-** | | | | | | | | | |
| **Course Coordinator(s)**  **(if, applicable)** | | |  | | | | | | | | | |
| **Course**  **Teacher(s)/Tutor(s)**  **E-mail** | | | **santhoshmc@nitt.edu** | | | | **Telephone No.** | | | | | **04312503611** |
| **Course Type** | | | **☑ Core course Elective course** | | | | | | | | | |
| **COURSE OVERVIEW** | | | | | | | | | | | | |
| This course deals with the fundamentals of electricity and magnetism. During the course the candidate will understand the inevitable union of electricity, magnetism and optics as a sigle thoery electrodynamics. The importance of Maxwells equations and propagation of waves will be discussed in free space and bound regions. | | | | | | | | | | | | |
| **COURSE OBJECTIVES** | | | | | | | | | | | | |
| To understand the nature of electric and magnetic force fields and the intricate connection between them. | | | | | | | | | | | | |
| **COURSE OUTCOMES (CO)** | | | | | | | | | | | | |
| **Course Outcomes** | | | | | | | | **Aligned Programme Outcomes (PO)** | | | | |
| On successful completion of this course, students would be able to  1.Electrostatic force and electric field  2.Magnetostatic field and applications  3.Maxwells equations and the propagation of waves in free space and in different media. | | | | | | | | The student will be able to appreciate the fundamental physics of electricity and magnetism and its applications in various applications. | | | | |
| **COURSE TEACHING AND LEARNING ACTIVITIES** | | | | | | | | | | | | |
| **S.No.** | **Week** | **Topic** | | | | | | | | | **Mode of Delivery** | |
| **1** | 1-3  4-6  7-9  10-12  13-15 | Electrostatics  Magnetostatics  Maxwell’s Equations  Electromagnetic Waves  Waves in Bounded Region | | | | | | | | | Conventional/PPT  Conventional/PPT  Conventional  Conventional  Conventional | |
| **COURSE ASSESSMENT METHODS** | | | | | | | | | | | | |
| **S.No.** | **Mode of Assessment** | | | **Week/Date** | **Duration** | | | | | **% Weightage** | | |
| 1  2  3  4  5 | Quiz-I  Cycle Test-I  Cycle Test-II  Quiz-II  Final Exam | | | 4th week  6th week  11th week  13th Week  16th Week | 30 Minutes  1 Hour  1 Hour  30 Minutes  3 Hours | | | | | 5%  20%  20%  5%  50% | | |
| **ESSENTIAL READINGS : Textbooks, reference books Website addresses, journals, etc** | | | | | | | | | | | | |
| **Text Books & Reference Books::**  1. D. J. Griffiths, Introduction to Electrodynamics, Prentice Hall of India, 3nd edition (1999).  2. J.R. Reitz., F.J. Milford and R.W. Christy, Foundations of Electromagnetic Theory, 4th edition, Pearson (2010).  3.J.D. Jackson, Classical Electrodynamics, Wiley-India, 3rd edition (2011).  4. E.C. Jordon and K.G. Balmain, Electromagnetic Waves and Radiating Systems, 2nd edition, Prentice Hall of India (1998).  5. W. Greiner, Classical Electrodynamics, 3rd edition, Springer (2010).  6. L.D. Landau and E.M. Lifshitz, Electrodynamics of Continuous Media, 2nd edition, Elsevier (2008). | | | | | | | | | | | | |
| **COURSE EXIT SURVEY** | | | | | | | | | | | | |
| Feedback from the students will be collected after 15th week :on knowledge gained, subjects relevant to the course, methodology adopted, aspect of improvement, whether the topics fulfill the course outcome and program outcome. | | | | | | | | | | | | |
| **COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)** | | | | | | | | | | | | |
| **Attendance : 75% Mandatory** | | | | | | | | | | | | |
| **ADDITIONAL COURSE INFORMATION** | | | | | | | | | | | | |
| The faculty member is available for consultation in the evenings. Queries may also be emailed to directly at santhoshmc@nitt.edu | | | | | | | | | | | | |
| **FOR SENATE’S CONSIDERATION** | | | | | | | | | | | | |
| **Course Faculty \_\_\_\_\_\_\_\_\_\_ CC-Chairperson \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ HOD \_\_\_\_\_\_\_\_\_\_\_** | | | | | | | | | | | | |