**NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI**

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| **Course Title** | **COMPUTATIONAL TECHNIQUES** |
| **Course Code** | **PH674** | **No. of Credits** | **3** |
| **Department** | **Physics** | **Faculty** | **Dr. M. Ashok** |
| **Pre-requisites****Course Code** | **-NIL-** |
| **Course Coordinator(s)****(if, applicable)** |  |
| **Course****Teacher(s)/Tutor(s)****E-mail** | **ashokm@nitt.edu** | **Telephone No.** | **04312503610** |
| **Course Type** |  **Core course ☑ Elective course**  |
| **COURSE OVERVIEW** |
| **Fundamental of ultrasonic waves and its usage in the NDT. Methods of calibration of instrument and evaluation of signals**  |
| **COURSE OBJECTIVES** |
| **To introduce Programming tools in C language, MATLAB and LABView which will be useful for further research studies.**  |
| **COURSE OUTCOMES (CO)** |
| **Course Outcomes** | **Aligned Programme Outcomes (PO)** |
| 1. **Familiarize with the computational tools available in MATLAB, LabVIEW and**

**COMSOL for variety of physical problems.**1. **Model the structural behavior using various simulation tools.**
 | **Knowledge on computational tech** |
| **COURSE TEACHING AND LEARNING ACTIVITIES** |
| **S.No.** | **Week** | **Topic** | **Mode of Delivery** |
| **1** | **1-3****4-6****7-9****10-12****13-15** | **C programming****Introduction to MATLAB****Applications of MATLAB****Introduction to LABVIEW****Modeling Approaches** | **Conventional****Conventional/PPT****Flip class with video** **Flip class with ppt****Flip class with practical** |
| **COURSE ASSESSMENT METHODS** |
| **S.No.** | **Mode of Assessment** | **Week/Date** | **Duration** | **% Weightage** |
| **1****2****3****4** | **Cycle Test****Practical Test****Assignment****Final Exam** | **6th week****9th week****4th and 8th week****Practical and Theory** |  **1 hour** **3 Hours****3+3 Hours** |  **20%** **20%****10%****25%+25%** |
| **ESSENTIAL READINGS : Textbooks, reference books Website addresses, journals, etc** |
| **Text Books & Reference Books::****1. S. Chandra, Applications of Numerical Techniques with C, Narosa Publishing House Pvt. Limited, (2006).****2. R. Pratap, Getting Started with MATLAB: A Quick Introduction for Scientist and** **Engineers, Oxford University Press, (2010).****3. K. L. Ashley, Analog Electronics with LabVIEW, Prentice Hall Professional, 2003.****4. T. R. Chandrupatla and A. D. Belegundu, Introduction to Finite Elements in Engineering, Prentice Hall, 4thedition, (2011).** **Website addresses :** www.mathworks.com,ni.com, |
| **COURSE EXIT SURVEY**  |
| **Feedback from the student after 9th week :on knowledge gained, subjects relevant to the course, methodology adopted, aspect of improvement. Whether the topics fulfil the course outcome and program outcome.** |
| **COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)** |
| **Attendance : not mandatory ( no attendance register will be maintained since these students are gate students and they get fellowship based on their attendance in department office )****Whereas the evaluation pattern will be stringent in all the mode of assessments. Extra chances will be given to the students not appeared ( with medical or official reason) in any mode of assessments 1-3 with little more stringent evaluation.**  |
| **ADDITIONAL COURSE INFORMATION** |
| The Course Coordinator is available for consultation at times that are displayed on the coordinator’s office notice board. Queries may also be emailed to the Course Coordinator directly at ashokm@nitt.edu  |
| **FOR SENATE’S CONSIDERATION** |
| **Course Faculty \_\_\_\_\_\_\_\_\_\_ CC-Chairperson \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ HOD \_\_\_\_\_\_\_\_\_\_\_\_** |