

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

| COURSE OUTLINE TEMPLATE | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------|--------------|
| Course Title | Design and Selection of Materials | | |
| Course Code | MTOE13 | No. of Credits | 03 |
| Department | MME | Faculty | B.Ravisankar |
| Pre-requisites Course Code | Nil | | |
| Course Coordinator(s) (if, applicable) | NA | | |
| Other Course Teacher(s)/Tutor(s) E-mail | Not applicable | Telephone No. | 3460 |
| Course Type | Open Elective | | |
| COURSE OVERVIEW | | | |
| <p>This course is mainly meant for the students who are interested in acquiring knowledge in the field of selection of materials for the designed engineering component. It deals with basic structure/guidelines for the selection of materials and process with few case studies and for specific applications</p> | | | |
| COURSE OBJECTIVES | | | |
| <p>To know different types of materials and properties and to select better materials for different applications</p> | | | |
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| COURSE OUTCOMES (CO) | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course Outcomes | | | Aligned Programme Outcomes (PO) |
| Understand types of materials and properties Know different methods for materials selection Selection of materials for Specific engineering applications | | | <p>The Metallurgical and Materials Engineering graduates are capable to apply knowledge of mathematics, science and engineering</p> <p>The Metallurgical and Materials Engineering graduates are capable to design and conduct experiments, as well as to analyze and interpret data</p> <p>The Metallurgical and Materials Engineering graduates are capable to identify, formulate and solve engineering problems.</p> <p>The Metallurgical and Materials Engineering graduates have the understanding of professional and ethical responsibility.</p> |
| COURSE TEACHING AND LEARNING ACTIVITIES | | | |
| S.No. | Week | Topic | Mode of Delivery |
| 1. | I-III | Technologically important properties of materials | Class room lecture with both chalk & talk and power point+ guest lectures |
| 2. | IV-V | Types of design, design tools and Materials data | |
| 3. | VI-VII | Methodology for selection of materials | |
| 4. | VIII-IX | Methodology for selection of Processes | |
| 5. | X-XII | Case studies | |
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| COURSE ASSESSMENT METHODS | | | | |
|----------------------------------|-------------------------------------------------|------------------|-----------------|--------------------|
| S.No. | Mode of Assessment | Week/Date | Duration | % Weightage |
| 1 | Tutorial – I | II | 45 mins | 20 |
| 2 | Tutorial – II | IV | 45 mins | 20 |
| 3 | Tutorial – III (for those who missed tutorials) | VI | 45 mins | |
| 4 | Assignment/Seminar | IX | --- | 20 |
| 5 | End semester exam | XIV | 3 h | 40 |

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

1. M.F.Ashby, “ *Materials Selection in Mechanical Design*’ – Third edition, Elsevier publishers, Oxford, 2005.
2. GladiusLewis, “*Selection of Engineering Materials*”, Prentice Hall Inc, New Jersey, USA, 1995.
3. Charles.J.A. and Crane,F.A.A., “*Selection and Use of Engineering Materials*”, Butterworths, London, 1989

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

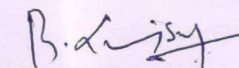
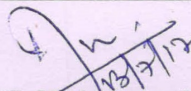

The exit survey will be assessed based on the questionnaire prepared by the class teacher and expected attainment is 75% on 1-10 scal basis

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

The students are expected to attend 75% of the class. The OD/Medical reasons (if not genuine) will not be accepted for exemption. The tutorials are announced suddenly without prior notification. The poor case of attendants loose the marks awarded for tutorials which take care of academic honesty. Plagiarism will be checked for assignments. There is **No Reassessment** practice. Students who had score less than 75% attendance and fail grade in the course has to appear for FA or Redo the course.

ADDITIONAL COURSE INFORMATION

The Course faculty is available for consultation at any time. Students can also contact him at any time through phone or by mail. The phone number and mail id will be given to the students at the beginning of the course

| FOR SENATE’S CONSIDERATION | | |
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|  (Course Faculty) Dr.B.Ravisankar 12 July 2019 |  (CC-Chairperson) Dr.S.Jerome |  HoD-MME Dr.S.P.Kumaresh Babu |

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