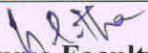




NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

This course outline template acts as a guide for writing your course outline. As every course is different, please feel free to amend the template/ format to suit your requirements.

COURSE OUTLINE			
Course Title & Code	Special Steels and Cast Irons & MTPE02		
Programme Semester &	B.Tech & V	No. of Credits	03
Department	MME	Faculty	Mrs. G. Kavitha
Pre - requisites Course Code	MTPC18		
Course Coordinator(s) (if, applicable)	Dr. S. Jerome		
Other Course Teacher(s)/Tutor(s) E-mail	<u>kavi@nitt.edu</u>	Telephone No.	9952884059
Course Type	<input checked="" type="checkbox"/> Elective course <input type="checkbox"/> Core course		
COURSE OVERVIEW			
The purpose of the course to understand the types of special steels and its processing techniques as well as the application of the steels and cast irons in day- to- day life.			
COURSE OBJECTIVES			
To become familiar with a wide array of ferrous alloys including carbon steels, special steels and Cast-in.			
COURSE OUTCOMES (CO)			
Course Outcomes	Aligned Programme Outcomes (PO)		
1. Understand major types of special steels such as HSLA, TRIP, Dualand Tool steels and cast-irons	1, 5		
2. Know the processing techniques of specials steels and cast-irons	1, 2, 5		
3. Selection of Special steels and cast-irons for specific engineering application.	1, 2, 5, 11		
COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week	Topic	Mode of Delivery
1	1 st & 2 nd Week	Definition of high strength steels, problems in developing high strength steels; discussion on	Chalk & Talk

		fracture toughness; HSLA steels, principle of microalloying and thermomechanical processing; importance of fine grained	
2	3 rd & 4 th Week	Phase diagrams, composition, properties and applications of ferritic, austenitic, martensitic, duplex and precipitation hardenable stainless steels	Chalk & Talk
3	5 th Week	Assessment I (Written Test)	
4	6 th & 7 th Week	Dual phase steels, TRIP steels, maraging steels, metallurgical advantages, heat treatment, properties and applications	Chalk & Talk
5	8 th & 9 th Week	Tool steels; classification, composition, and application, constitution diagram of high speed steels, special problems in heat treatment of tool steels	Chalk & Talk
6	10 th Week	Assessment -II (Written Test)	
7	11 th and 12 th Week	Types of cast irons - grey, SG, white, malleable; austempered ductile iron; alloy cast irons, Ni hard, high silicon cast irons, heat resistant cast irons- high chrome cast iron- structure, property and engineering applications	Chalk & Talk
8	12 th Week	Assessment III ((Retest)	
9	13 th Week	Assessment IV (End Semester)	

COURSE ASSESSMENT METHODS				
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assessment I (Written Test)	5 th Week	1 Hr	20%
2	Assessment II (Written Test)	10 th Week	1 Hr	20%
4	Assignment			10%
5	Assessment IV (End Semester)	13 th Week	3 Hrs	50%
ESSENTIAL READINGS : Textbooks, reference books Website addresses, journals, etc				
1. Leslie W. C., 'The Physical Metallurgy of Steels', McGraw Hill, 1982 2. Pickering P. B., 'Physical Metallurgy and the Design of Steels', Applied Science Publishers, 1983				
COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)				
1. The exit survey will be assessed based on the questionnaire prepared by the Institute/class teacher and the expected attainment to be greater 75%. The feedback collected from students by the Institute is to be informed to the teacher to improve the course in future semesters. 2. Students can meet the faculty at any stage in the course duration in case he/she find difficulty in understanding the concepts				
COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)				
1.Examination				
a) Students who have missed the Assessment I and II or both can register the Assessment III examination which shall be conducted after the completion of the Assessment II and before the end semester examination. b) Assessment III shall be conducted for weightage of 20% comprising the syllabus of both first and second Assessment. c) Students should submit the assignment on the assigned topic related to this course. Weightage to the assignment would be zero for the case of the students not submitting the assignment before the prescribed date. d) The students are expected to attend all the classes except for medical reasons. Minimum attendance of 75% (including the concession for on-duty and medical reasons) is required for writing the semester examination. e) The grading policy will be followed and the passing minimum marks will be fixed based on Institute guidelines. The passing mark and the grading will be assigned as per institute norms. The passing mark and the grading will be assigned as per institute norms.				
ADDITIONAL COURSE INFORMATION				
Nil				
FOR SENATE'S CONSIDERATION				
 Course Faculty G. Kavitha		 CC-Chairperson Dr. S. Jerome	 HOD Dr. S. P. Kumares Babu	