NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE OUTLINE TEMPLATE			
Course Title	Manufacturing Processes		
Course Code	MT 665	**No. of Credits**	03
Department	MME	**Faculty**	B.Ravisankar
Pre-requisites Course Code	Nil		
Course Coordinator(s) (if, applicable)	B.Ravisankar		
Other Course Teacher(s)/Tutor(s) E-mail	Not applicable	**Telephone No.**	3460
Course Type	**Elective course**		

COURSE OVERVIEW

This course is mainly meant for the students who are all opting M.Tech after their PG degree in Science (or) applied science to have an overview knowledge on processes useful for manufacturing components. This may not be required for students from engineering back ground but if the students wants to acquire more knowledge on manufacturing process, they can opt the subject. It involves industrial visits apart from class room teaching and guest lectures.

This course is intended mainly to intended for the students joining PG engineering programme with science background. There is no pre requsite to register for the course.

COURSE OBJECTIVES

To know the fundamental concepts of various manufacturing processes and its applications and limitations with respect to industries.

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)
1. Know the selection of materials for various applications 2. Know the fundamental concepts of metal casting, melting techniques and its limitations 3. Know the weldability concepts with respect to different materials and various welding process such as pressure and non-pressure welding 4. Know the machinability concepts and economics of machining 5. Know the concepts of various metal forming techniques and its applications and limitations regarding the manufacture of various wrought products 6. Know the powder metallurgy concepts of powder production, sintering and nano materials processing techniques 7. Develop an overall knowledge of the selection of suitable manufacturing technique to produce a product 8. Know the basic concepts of rapid prototyping and near-net-shape processing.	Materials Science and Engineering post graduates are attaining knowledge of materials and their science & Engineering Materials Science and Engineering post graduates are talented to formulate and analyse the engineering data. Materials Science and Engineering post graduates can recognize classify and solve engineering problem. Materials Science and Engineering post graduates have skills in locating and applying modern tools to resolve the complex engineering problems

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week	Topic	Mode of Delivery
1.	I-III	Introduction and casting processes	Class room teaching + Industrial visit + guest lecture + exposure to facilities available at NITT
2.	IV-V	Materials joining processes	
3.	VI-VII	Metal forming methods	
4.	VIII-IX	Powder metallurgy processes	
5.	X-XII	Un conventional processes	

COURSE ASSESSMENT METHODS				
S.No.	**Mode of Assessment**	**Week/Date**	**Duration**	**% Weightage**
1	Two assignments and seminar based on industrial visits	II, IV	---	20
2	Two tests based on guest lectures. The papers are valuated by the teacher in consultation with guest spearker	V,VII	1 h (each test)	20
3	Attendance	XII	---	10
4	End semester exam based on class room teaching	XII	3 h	50

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

1. Dieter G. E., 'Mechanical Metallurgy', 3rd Edition, McGraw Hill, 1988
2. Rao, P.N, 'Manufacturing Technology', Tata McGraw Hill, 1996.
3. Kalpakjian, S, 'Manufacturing Engineering and Technology', 3rd Edition, Addison-Wesly, 1995.
4. Parmer R. S., 'Welding Engineering and Technology', Khanna Publishers, 1997
5. Cary, Howard, "Morden Welding Technology', prentice Hall, 1998
6. Heine, Loper and Rosenthal, "Principles of Metal Casting", Tata McGraw Hill Publishing Co,1995
7. Flinn RA., "Fundamental Metal Casting"., Addison-Wesley,1963.
8. John R.Brown, "FOSECO Ferrous Foundry Man's Hand Book", Butterworth, 2000.
9. ASM Hand Book, Vol. 15, Casting, ASM Hand Book Committee, 1998.
10. John R.Brown, "FOSECO Non Ferrous Foundry Man's Hand Book", Butterworth, 2000.
11. Murphy,A.J.,Ed.,"Non Ferrous Foundry Metallurgy",Pergamon,USA,1984

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%
COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)
The students are expected to attend at least 75% of the class. No attendance concession will be given for on duty or for medical reasons. Plagiarism will be checked for assignments.
ADDITIONAL COURSE INFORMATION
The Course Coordinator 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