NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE OUTLINE			
Course Title	**PRIR15- INTRODUCTION TO PRODUCTION ENGINEERING (BRANCH SPECIFIC COURSE)**		
Course Code	**PRIR15**	**No. of Credits**	**2**
Department	**Production Engineering**	**Faculty**	Pranith Kumar Reddy
Pre-requisites Course Code	**NIL**		
Course Coordinator(s)	**Dr. M.Duraiselvam**		
Other Course Teacher(s)/Tutor(s) E-mail	pranith@nitt.edu	Telephone No.	9998809151
Course Type	☑ **Core course** ☐ **Elective course**		

COURSE OVERVIEW

This course will provide the sequence of manufacturing at the simple level in mechanical, industrial, and manufacturing engineering. It also provides significant coverage of engineering materials such as metals, ceramics, polymers, and composite materials, production systems. It includes recent developments of manufacturing processes in addition to the traditional processes.

COURSE OBJECTIVES

- To study the various manufacturing techniques and philosophies required to meet contemporary Industrial demands.
- To learn various non traditional machining process.
- To acquire fundamentals of materials and its classifications.
- To understand the production planning, product design and development concepts.

COURSE OUTCOMES (CO)

Course Outcomes	**Aligned Programme Outcomes (PO)**
1. Classify various manufacturing techniques, materials and philosophies required to meet contemporary Industrial demands	1,5
2. Summarize the suitable application of the aforementioned knowledge acquired	1,2,3,5,6,8,11
3. Explain and exhibit the responsibilities of a Production Engineer towards societal safety & welfare and the pivotal role of its implications during his/her professional career/practice	1,2,3,4,5,6,7,8,9,10,11

COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	**Week**	**Topic**	**Mode of Delivery**
1	Week 1	Casting process, Green sand molding, Various casting techniques & defects	PPT, Chalk Board
2	Week 2	Welding process, Fusion Welding & its types, Solid State Welding & its types, welding defects	PPT, Chalk Board
3	Week 3	Metal Forming- forging, rolling, Metal Forming- drawing, extrusion	PPT, Chalk Board
4	Week 4	Machining and various cutting processes, Abrasive jet machining and its applications	PPT, Chalk Board
5	Week 5	Water jet machining and its applications, Electrochemical machining and its applications	PPT, Chalk Board
6	Week 6	Electric discharge machining, Laser beam machining and its applications	PPT, Chalk Board
7	Week 7	Electron beam machining and its applications, Powder Metallurgy- classification, applications	PPT, Chalk Board
8	Week 8	Cycle test 1	
9	Week 9	Introduction to materials, classification, Ferrous materials, Non-ferrous Materials	PPT, Chalk Board
10	Week 10	Ceramics, Polymers, Composites & applications	PPT, Chalk Board
11	Week 11	Computer Aided Design (CAD), Computer Aided Manufacturing (CAM)	PPT, Chalk Board
12	Week 12	Computer Integrated Manufacturing (CIM), Rapid Prototyping- technologies, Various phases of Product Development	PPT, Chalk Board
13	Week 13	Production planning, Production control	PPT, Chalk Board
14	Week 14	Cycle test 2	

15	Week 15	Plant layout & its classifications, Inventory Control	PPT, Chalk Board
16	Week 16	Quality control, Supply Chain Management	PPT, Chalk Board
17	Week 17	End Semester Examination	

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cycle Test 1	Week 8	1 hour	20
2	Cycle Test 2	Week 14	1 hour	20
3	Assignments -2	Week 7&13	-	10
4	Final Examination	Week 17	3 hour	50
	Total		3 hour	100

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

1. *E.Paul De Garmo, J.J.Black, Ronald A. Kohser, Materials and Processes in Manufacturing, 10th edition, PHI, 2008.*
2. *P.C.Sharma, A Text Book of Production Engineering, S.Chand and Company Limited, 2008*
3. *B.Mahadevan, Operations management, second edition, Pearson Education India, 2010.*

ADDITIONAL COURSE INFORMATION

The faculty is available for consultation at times as per the intimation given by the faculty.

FOR APPROVAL

Course Faculty	CC-Chairperson	HOD