

DEPARTMENT OF PRODUCTION ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI




COURSE PLAN – PART I			
Name of the programme and specialization	B.Tech Production Engineering		
Course Title	Casting and Welding Technology		
Course Code	PRPC11	No. of Credits	03
Course Code of Pre-requisite subject(s)	Basic Concepts of Physics	Basic Concepts of Chemistry	Introduction to Production Processes
Session	July 2018	Section (if, applicable)	A, B
Name of Faculty	Dr. P. Sathiya Dr. D. Lenin Singaravelu	Department	Production Engineering
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Name of Course Coordinator(s) (if, applicable)	-		
E-mail		Telephone No.	
Course Type	<input checked="" type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
Syllabus (approved in BoS)			
Yes. Approved.			
COURSE OBJECTIVES			
<p>To spotlight the fundamental concepts of manufacturing processes.</p> <p>To make the students understand how the different components in the present scenerio are manufactured with the help of casting and welding</p> <p>To aid the students in determing the input parameters in casting and welding processes for controlling the product quality</p>			
COURSE OUTCOMES (CO)			
Course Outcomes			Aligned Programme Outcomes (PO)
1. Summarize the fundamentals in patterns, cores sand properties and molding, including special techniques and CAD/CAM applications			PO1, PO2, PO3, PO11

2. Understand various casting techniques, heat treatments, defects and inspections	
3. Design a casting with metallurgical, design and economic consideration	
4. understand the different types of welding and analysed the parameters that influences welding	
5. understand the application of various welding processes	

COURSE PLAN – PART II			
COURSE OVERVIEW			
<p>Casting and Welding technology explains the basic concepts of two vital manufacturing processes viz. casting and welding. The first two units covers the basics about casting processes, the next three about the welding processes.</p> <p>This course elaborates the types, pros and cons, applications associated with each type of casting and welding processes. The information given in this course will help the students in selecting suitable types of welding and casting process for a particular material by understanding the problems encountered with different welding and casting processes.</p>			
COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week	Topic	Mode of Delivery
1	1	Introduction to manufacturing processes, casting introduction, core making	PPT/Chalk and Talk
2	2, 3	Types of casting- centrifugal casting, investment casting, continuous casting, low pressure casting	
3	4,5	Melting and quality control of various steels and non-ferrous alloys, casting defects	
4	6,7	Inspection and testing of castings, manufacturing of cast iron	
DESCRIPTIVE ASSESSMENT-1			
5	8	Arc Welding power sources, different arc welding processes	
6	9	Solid welding process, brazing and adhesive bonding	

7	10	Metal surfacing and spraying thermal cutting processes	PPT/Chalk and Talk	
8	11	Welding of advanced materials, welding of plastics, A-TIG/hot wire TIG welding		
9	12	Types of joint configuration and welding position		
10	13	Design of weldments and joints		
DESCRIPTIVE ASSESSMENT-2				
11	14	Inspection and testing of welding	PPT/Chalk and Talk	
IN CLASS ASSIGNMENT				
12	15	Special welding processes	PPT/Chalk and Talk	
COMPENSATION ASSESSMENT				
DESCRIPTIVE SEMESTER				
COURSE ASSESSMENT METHODS (shall range from 4 to 6)				
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	DESCRIPTIVE ASSESSMENT-1	End of 5 weeks	1 hour	20%
2	DESCRIPTIVE ASSESSMENT-2	End of 10 weeks	1 hour	20%
3	In class Assignment	End of 11 weeks	1.5 hours	10%
4	Compensation Assessment* CPA	End of 12 weeks	1 hour	20%

5	Final Assessment *	End of Semester	3 hours	50%
*mandatory; refer to guidelines on page 4				
COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)				
At the end of the semester students will give feedback online (MIS) about the various aspects of course handling like communication, clarity in delivery the technical concepts etc., Suggestions are also obtained from the students				
COURSE POLICY (preferred mode of correspondence with students, compensation assessment policy to be specified)				
<u>MODE OF CORRESPONDENCE (email/ phone etc)</u>				
The course faculty is available for discussions in the department after class hours. Students can interact with the faculty via email (psathiya@nitt.edu , dlenin@nitt.edu) or via office telephone number during the college working hours and days.				
<u>COMPENSATION ASSESSMENT POLICY</u>				
Students absent for any of the continuous assessments due to genuine reasons are permitted to attend the compensation assessment. If students didn't attend both of the assessments (due to genuine reasons and proper proof) then compensation assessment will be held for 20 marks.				
<u>ATTENDANCE POLICY</u> (A uniform attendance policy as specified below shall be followed)				
<ul style="list-style-type: none"> ➤ At least 75% attendance in each course is mandatory. ➤ A maximum of 10% shall be allowed under On Duty (OD) category. ➤ Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade. 				
<u>ACADEMIC DISHONESTY & PLAGIARISM</u>				
<ul style="list-style-type: none"> ➤ Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty. ➤ Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark. ➤ The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office. 				
The above policy against academic dishonesty shall be applicable for all the				

programmes.
ADDITIONAL INFORMATION
Some real time case examples related to casting and welding will be discussed. Mock quiz and group discussions will also be done to strengthen the students problem solving and handling abilities.
FOR APPROVAL
<p>1. </p> <p>2.  C. S. T. S. N. L.</p> <p>Course Faculty _____ CC-Chairperson _____ HOD </p>

Guidelines:

- a) The number of assessments for a course shall range from 4 to 6.
- b) Every course shall have a final assessment on the entire syllabus with at least 30% weightage.
- c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered. Details of compensation assessment to be specified by faculty.
- d) The passing minimum shall be as per the regulations.
- e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.