



NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF METALLURGICAL AND MATERIALS
ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY-TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Name of the programme and specialization	M.TECH. WELDING ENGINEERING		
Course Title	Joining of Materials - I		
Course Code	MT 603	No. of Credits	3
Course Code of Pre-requisite subject(s)	Nil		
Session	July 2022	Section (if, applicable)	NA
Name of Faculty	Mr. Lanka.dinesh & Mr. Virendra Ahirwar	Department	MME
Official Email	<u>412120003@nitt.edu</u> <u>412121003@nitt.edu</u>	Telephone No.	8019871098 9753348295
Name of Course Coordinator(s) (if, applicable)	NA		
Official E-mail		Telephone No.	
Course Type (please tick appropriately)	<input checked="" type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
Syllabus (approved in BoS)			
<p>Classification of welding processes; Gas welding; Arc welding; arc physics, power source characteristics</p> <p>Manual metal arc welding: Concepts, types of electrodes and their applications, Gas tungsten arc welding: Concepts, processes and applications ; gas metal arc welding, Concepts, processes and applications, types of metal transfer, CO₂ welding, , pulsed and synergic MIG welding, FCAW.</p> <p>Submerged arc welding, advantages and limitations, process variables and their effects, significance of flux-metal combination, modern developments, narrow gap submerged arc welding, applications; electro slag and electro gas welding.</p>			



Plasma welding; Concepts, processes and applications, keyhole and puddle-in mode of operation, low current and high current plasma arc welding and their applications; Magnetically impelled arc butt (MIAB) welding

Resistance welding, Concepts, types and applications, Flash butt welding, Stud welding and under water welding

COURSE OBJECTIVES

Understand the various manual and automated welding processes available. Gain knowledge of the concepts, operating procedures, applications, advantages and limitations of various welding processes

MAPPING OF COs with POs

Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
1. Identify and list a broad classification of the various welding processes	1, 7
2. Explain the various manual metal arc welding processes and their Applications.	3, 10,
3. Explain the process, advantages, limitations and practical applications of Submerged Arc Welding, Electro slag and Electro gas welding	4, 8, 11
4. Explain the concepts, various operating procedures and applications of Plasma Welding and magnetically impelled arc butt (MIAB) welding	1, 2, 11
5. Explain the concepts and applications of various types of Resistance welding processes including Flash Butt welding, Stud Welding and Under water welding	5, 6, 12

COURSE PLAN – PART II

COURSE OVERVIEW

The Course discuss in detail about the different types of welding and their importance in the real world applications

COURSE TEACHING AND LEARNING ACTIVITIES

(Add more rows)

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	I-IV	Classification of welding processes; Gas welding; Arc welding; arc physics, power source characteristics	Class room lectures



2	V-VII	Manual metal arc welding Gas tungsten arc welding Gas metal arc welding Types of metal transfer, CO ₂ welding, pulsed and FCAW	Class room lectures
3	VIII-IX	Submerged arc welding electro slag and electro gas welding	
4	X-XI	Plasma welding Magnetically impelled arc butt (MIAB) welding	
5	XII-XIV	Resistance welding Flash butt welding, Stud welding and under water welding	
6	XV	Presentations	

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Class Test -1	Oct 2 nd Week	60	20
2	Class Test -2	Nov 3 rd Week	60	20
3	Assignment-1	Nov 1 st Week		10
4	Presentations	Dec 1 st Week		10
CPA	Compensation Assessment*	Dec 2 nd Week	60	20
5	Final Assessment *	Dec 3 rd Week	120	40

***mandatory; refer to guidelines on page 4**

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

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

COURSE POLICY (Preferred mode of correspondence with students, compensation assessment to be specified)



MODE OF CORRESPONDENCE (email/ phone etc)

Email/Mobile/Class room

COMPENSATION ASSESSMENT POLICY

It will be given during Dec 3rd week as per academic schedule, for those who are absent on genuine grounds for any one of the Cycle Tests

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- 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.



ACADEMIC DISHONESTY & PLAGIARISM

- 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, IF ANY

The Course faculty is available for consultation at any time. Students can also contact him at any time through whatsapp or phone call or by mail

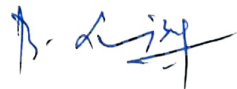
FOR APPROVAL


(L. DINESH)

(Virendra A.)

Course Faculty
Mr. Lanka Dinesh
Mr. Virendra Ahirwar



CC-Chairperson
Dr. K. Sivaprasad



HOD
Dr. B. Ravisankar



Guidelines

- a) The number of assessments for any theory course shall range from 4 to 6.
- b) Every theory 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.
- d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G.
2018	2017	2016	2015	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

- 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.