VISVESVARAYA NATIONAL INSTITUTE OF TECHNOLOGY (VNIT) NAGPUR, MS, INDIA - 44 0 010.

Offers

ONLINE/ HYBRID

CERTIFICATE COURSE

WELDING TECHNOLOGY

DR. R. V. TAIWADE
Metallurgical and Material Engg. Deptt.

DR. N. K. LAUTRE
Mechanical Engineering Deptt.

COURSE CONTENT

Theory 45 hrs.

Welding processes, Safety, SMAW, GMAW, GTAW, CMT, Robotic MIG, specifications, Electrode, Coatings, Fillers, gases, bead geometry, heat treatment, joints, etc.

Practical (Hands-on) 45 hrs.

Preparation of base material, joint groove, SMAW, GMAW, GTAW, CMT, Robotic MIG, etc.

90 HRS

start from August 2023

3 month/ 90 days

45 hrs Practicals

Course Fee: Rs 40,000 + 18% GST (4 credit course @ Rs 10,000/- per credit

Register Now!

Eligibility : Not less than 12th or ITI in any discipline

Visvesvaraya National Institute of Technology (VNIT) Nagpur, MS, India - 44 0 010.

Link:
https://vnit.ac.in/admission/#ffs-tabbed-18
Phone : +91-07122801518 | Email :
rvtaiwade@mme.vnit.ac.in OR nitin@mec.vnit.ac.in

VISVESVARAYA NATIONAL INSTITUTE OF TECHNOLOGY, NAGPUR

Format of submission of proposal for online courses

Type of online course: **Certificate**

Course Title: **Certificate Course on Welding Technology**

Offered by: **Department of Metallurgical and Material and Mechanical Engineering Jointly**

Eligibility: **XII passed/ ITI & above (as per discretion of instructors)**

Note:

1. **No course completion requirement of any type by the candidate, prior to registering for the course to be specified.**
2. **Current students of VNIT are not supposed to register for the course. The same content if required will be offered to them through normal mechanisms (DC/DE or OC courses).**

Proposed Maximum Duration: **3 months/90 Days (as per discretion of instructors)**

Total contact hours: **90 hrs** (Lecture: **45 hrs** + Tutorial: **00 hrs** + Practical: **45 hrs**)

Mode of course delivery: Hybrid / online live / online recorded/ live+ recorded: **Hybrid mode (as per discretion of instructors).**

Course Objectives:

1. To enhance the skills of students in arc welding processes, enabling them to develop proficiency and competence in the field.
2. To focus on providing practical, hands-on experience in welding techniques, meeting industrial requirements, and having a comprehensive understanding of various arc welding processes.
3. To understand setting up process parameters, conducting quality checks, identifying and rectifying welding defects, and maintaining a safe and healthy working environment.
4. To equip students with the necessary knowledge and skills to meet the requirements and demands of the industrial sector in relation to arc welding processes.

05/06/23 05/06/23

Course structure (per week equivalent):

Sr. No.	Courses (Titles)	L	T	P	Cr
1	Safety in welding, Introduction and classification of welding processes, Power sources of SMAW, GMAW, and GTAW processes, Electrode coatings and AWS designation of filler metal/electrodes, Shielding gases and their effect on weld bead geometry, Process and equipment problems, care and use of equipment, Good welding practices, Preheat, inter-pass, and post-weld heat treatment and their significance, Defects in weldments – causes, and remedies, Weld joint, Positions, Type of weld, Cold metal transfer (CMT) welding process, Robotic MIG, Introduction to welding procedure specification	45	00	00	02
2	Hands-on session on SMAW, GMAW, GTAW, CMT, and on Robotic MIG	00	00	45	02
	Total	45	00	45	04

Course fee: **Rs. 40,000 + 18% GST (Maximum 4 credits for certificate course × Rs 10,000 per credit = Rs 40,000).**

Course Contents:

Sr. No.	Topics	Hours	
1	**Safety in welding**	Theory	Practical
2	**Introduction and classification of welding processes**	03	00
3	**Power sources of SMAW, GMAW, and GTAW processes**	04	00
4	**Electrode coatings and AWS designation of filler metal/electrodes**	04	00
5	**Shielding gases and their effect on weld bead geometry**	04	00
6	**Process and equipment problems, care and use of equipment**	03	00
7	**Good welding practices**	04	00
8	**Preheat, inter-pass, and post-weld heat treatment and their significance**	04	00
9	**Defects in weldments – causes and remedies**	04	00
10	**Weld joint, Positions, Type of weld**	03	00
11	**Cold metal transfer (CMT) welding process**	04	00
12	**Robotic MIG**	04	00
13	**Introduction to welding procedure specification**	04	00
14	**Hands-on session on preparing base material and joint groove for welding**	00	08
15	**Hands-on session on SMAW**	00	07
16	**Hands-on session on GMAW**	00	08
17	**Hands-on session on GTAW**	00	07
18	**Hands-on session on CMT**	00	08
19	**Hands-on session on Robotic MIG**	00	07
	Total Hours	45	45

05/06/23

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Course Outcomes:

1. Students will gain the knowledge and skills to ensure safety, understand welding processes, use appropriate equipment, and produce high-quality weldments.
2. To explain to others the different welding processes and their classification.
3. To explain to others the importance of electrode coatings, shielding gases, common process, and equipment problems, good welding practices
4. To explain to others the preheat, inter-pass, and post-weld heat treatment, defects in weldments, different types of weld joints, positions, and welds.
5. To explain to others about Cold Metal Transfer (CMT) welding, Robotic MIG welding, and executing welding techniques.

Attendance requirement: 75% of the total designed hours.

Course Evaluation Plan: Participants' performance in knowledge exams, hands-on skill evaluations, project work, participation, and attendance will be continuously evaluated. To offer participants a clear sense of their performance levels, the following grading system will be used on a Continuous evaluation basis:

Grade	Grade Points	Description
AA	10	Outstanding
AB	9	Excellent
BB	8	Very good
BC	7	Good
CC	6	Average
CD	5	Below average
DD	4	Marginal
FF	0	Poor /Unsatisfactory / Absence from an exam
NP	Nil	Audit Pass
NF	Nil	Audit Fail
SS	Nil	Satisfactory performance in zero credit course
ZZ	Nil	Unsatisfactory performance in zero credit course
W	Nil	Insufficient attendance

Course Coordinator(s)(Name and Sign):

05/06/23 (NKL) 05/06/23

Dr. RV Taiwade (MME) & Dr. NK Lautre (MED)

Lab Coordinator(s)(Name and sign):

05/06/23 05/06/23

Dr. RV Taiwade (MME) & Dr. NK Lautre (MED)

Course Execution Coordinator (Name and Sign):

05/06/23 05/06/23

Dr. RV Taiwade (MME) & Dr. NK Lautre (MED)

Head of the Department/Center(Name and Sign):

6/6/23

Dr. Jatin G. Bhatt
Prof. & Head
Department of Metallurgical & Materials Engineering

Dr. S. B. Thombre
Prof. & Head
Department of Mechanical Engineering

Dr. S. B. THOMBRE
Professor & Head,
Deptt. of Mechanical Engineering
V.N.I.T., Nagpur-440010