

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma in Fabrication Technology

Semester : 4

Subject Name: Welding technology - 2

Sr. No.	Course Content
1.	GAS TUNGSTEN ARC WELDING (G.T.A.W) 1.1 Definition. 1.2 Principle and Operation. 1.3 Basic and Typical Equipment. 1.4 Selection of Shielding Gas for TIG. 1.5 Inert gases. 1.6 Arc welding Process. 1.7 Welding Skill and Practices. 1.8 Tungsten Electrode. 1.9 TIG Welding Processes. 1.10 Pulsed, TIG welding, semi automatic TIG welding. 1.11 Mechanized on automatic TIG welding. 1.12 Joint design 1.13 Base metal welding. 1.14 Advantages, limitation and application. 1.15 Automatic pulse TIG tube plate welder. 1.16 Filler metal for TIG. 1.17 Process parameters & its effects
2.	PLASMA ARC WELDING (PAW) 2.1 Plasma arc operator. 2.2 Plasma arc properties. 2.3 Plasma arc equipment. 2.4 Plasma arc start. 2.5 Procedure and tech. 2.6 Micro plasma arc welding. 2.7 Application of plasma arc. 2.8 Filler metal for plasma arc welding. 2.9 Process parameters & its effects
3.	METAL INERT GAS / ACTIVE GAS WELDING (MIG & CO₂) (G.M.A.W) 3.1 Definition. 3.2 Principle of operation. 3.3 Metal transfer. 3.4 Shielding gases. 3.5 Process parameters & its effects. 3.6 Welding procedure. 3.7 Pulsed MIG 3.8 Gap welding. 3.9 Twisted arc welding. 3.10 Plasma MIG welding. 3.11 Advantage, limitation & application.

4.	FLUX CORED ARC WELDING. (F.C.A.W) 4.1 Definition and concept. 4.2 Equipment. 4.3 Shielding gases. 4.4 Self shielded fluxed cored wire. 4.5 Standards on fluxed cored wire. 4.6 Process parameters and its effects. 4.7 Welding procedure. 4.8 Advantage, limitation & application.
5.	SPECIAL WELDING PROCESS 5.1 Definition, principle, equipment, process parameters, advantage, limitation & application. 5.2 Laser Beam Welding. (LBW) 5.3 Electron Beam Welding. (EBW) 5.4 Ultrasonic welding. 5.5 Underwater welding. 5.6 Explosive welding. 5.7 Stud welding.
6.	WELDING DEFECTS & DISTORTION 6.1 Classification & types of welding defects. 6.2 Causes of defects & distortion. 6.3 Remedies of defects & distortion
7.	W.P.S, W.P.Q & P.Q.R. AS PER A.S.M.E. Sec IX 7.1 Definition. 7.2 Variable types and its effects. 7.3 F-number. 7.4 P-number. 7.5 A-number. 7.6 Application.
8.	WELDING APPLICATIONS 8.1 Structural. 8.2 Vertical storage tanks. 8.3 Pressure vessel. 8.4 Piping and pipe lines. 8.5 Power generating plants. 8.6 Chemicals plants. 8.7 Ships. 8.8 Railways. 8.9 Automotives. 8.10 Machinery construction. 8.11 Process plant.
9.	MECHANISED ARC WELDING 9.1 Standard devices • Welding Tractor • Side beam carriage • Column & Boom • Weld Seamer • Universal Positioner 9.2 Mechanized welding

10.	WEDING SAFETY
10.1	Safety in welding
10.2	Safety Norms as per standard OHSAS/EHS
10.3	Quantitative risk assessment
10.4	Safety Inspection & follow up
10.5	Accident investigation, analysis & recommendation of preventive measures.

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Sr.No.	BOOK NAME	AUTHOR
1.	Welding Technology	O.P.Khanna
2.	Welding Process	R.S. Parmar
3.	Welding Technology	V.M.Radhakrishnan
4.	Arc Welding Theory & Practice	Nadkarni
5.	Principle Of Welding Technology	L.M. Gourd Edward Publisher
6.	ISI Hand Book For MAW For Welder	Published By BIS
7.	Manufacturing Technology	P.N. Rao