GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN MECHANICAL ENGINEERING

SEMESTER- VI

Subject Name: Fabrication Technology (Elective –I)
Subject Code: 2361915

Sr. No.	Subject Content	Hrs.
1	**INTRODUCTION.** 1.1 Know the objectives of learning this subject. 1.2 Need, Scope & importance of Fabrication Technology (FT) in industries. 1.3 Need of attitude, knowledge & skill required for application of FT. 1.4 Distinguish between fabrication work and manufacturing process. 1.5 Fabrication processes-types, features, merits and demerits and applications. 1.6 Fabrication materials-types, their standards (BIS, JIS, EN, ASME, ASTM, etc..) their methods of designations, properties, applications (for coded and non coded practices) and selection criteria. 1.7 Consumables-types: classification: features; standards their codes, designation method, applications and selection criteria. 1.6 Weldability-concept, meaning, definition and factors affecting it and its importance. 1.7 Power source-classification, advantages, limitations,features, applications & selection criteria.(Introductory). **Note** : Question/s to select/justify codes, materials, power source, etc. of given data (application type) of 5-6 marks out of total 70.	6
2	**FABRICATION DRAWING INTERPRETATION.** 2.1 Welding symbols & their different standards. (Including BIS/ASME etc.) 2.2 Piping symbol & their different standards (including BIS/ASME etc.) 2.3 Structural drawing- features & interpretation. 2.4 Process equipment drawings-features & interpretation.	4
3	**ADVANCE WELDING AND CUTTING PROCESSES.** 3.1 Advance Welding processes-types, definitions, working, principle, variables/parameters, power source, tools, equipments, consumables, applications and selection criteria. (This includes MMAW, SAW,MIG, FCAW, TIG, RESISTANCE, PLASMA, LASER, BEAM, ELECTRO BEAM, UNDER WATER, and other in trend.) 3.2 Cutting processes-types, working, features, applications and selection criteria. **Note** : Question/s to select/justify process/es and specify parameters etc. of given data (application type) of 10- 12 marks out of total 70.	

4	**EDGE PREPARATION.** 4.1 Edge preparation-need and advantages, types, methods & applications. 4.2 Types of welded joint, their applications. 4.3 Equipments/machines used for edge preparation, their working & features. 4.4 Set up, fit up and alignment of pressure vessels.	3
5	**INSPECTION, TESTING AND QUALITY CONTROL.** 5.1 Common weld defects, their causes and remedies; 5.2 Codes used in fabrication work (such as ASME, TEMA, BIS, etc.)-importance, use 5.3 Weld quality-concept, meaning, definition, importance and factors affecting it. 5.4 Modes of inspection of weld work. 5.5 Testing methods-types, features, standards, working, applications & selection criteria. 5.6 Quality control for fabrication work-need, importance, approach & advantages. 5.7 Third party inspection- concept, need, and agencies. **Note** : Question/s to select/justify testing method for given requirements (application type) of 5-6 marks out of total 70.	8
6	**WELDING METALLURGY.** 6.1 Welding Metallurgy & its analysis. 6.2 Preheating-need, method, application. 6.3 Post heating-need, method, application. 6.4 Post weld heat treatment-need, methods, applications, and selection criteria. 6.5 Welding heat flow diagram-concept, importance, applications. 6.6 Thermal distortion-concept, meaning, definition, causes,effect and types. 6.7 Methods and equipments used to control thermal distortion. 6.8 Methods of relieving thermal stresses. **Note** : Question/s to select/justify method of give data (application type) of 5-6 marks out of total 70.	7
7	**SURFACE FINISHING AND COATING.** 7.1 Surface finishing on weld part-need, importance, methods & procedure. 7.2 Surface coating-need, benefits, methods and procedures.	4
8	**WELDING SAFETY.** 8.1 Need 8.2 Precautions and measures. 8.3 Safety norms for welding applications.	2
	Total	42

Notes:

A. FOR STUDENTS.

a. It is advised that student download this copy of syllabus and plan to achieve the objectives of learning this subject.

B. FOR PAPER SETTER/MODERATOR.

a. Refer GTU syllabus and do not take reference of previous TEB question papers.
b. Ask the questions from each topic having marks weightage proportionate to hours allotted to that topic.
c. Optional questions must be asked from the same topic. That is weightage of compulsory attendance part of questions will be equal to proportionate to hours allotted to each topic.
d. Marks ratio of knowledge: comprehension: application types questions must be 30:30:40.
e. Submit solution / answer keys along with distribution of marks in each question for the paper being submitted.

Reference Books:

1. Basic Welding and fabrication	W.Kenoyen Pitman
2. Welding and Welding Technology	Richared L. Littlo Mc. Grawffiee Book Co.
3. Modern Welding Technology	Howard B Cary Prentic Hall Inc.
4. Welding Processes & Procedures	Learl love ---do---
5. Modern welding	Althouse Trunquist The Good Heart Hillcox Co. Inc.
6. Arc Welding theory and Practice	Raymold J. Sacks Affiliated Cast West press Post Ltd., New Dehli

Additional Reference Books:

1. Metals hand Book Vol. 6	Welding & Brazing American Society for Metals
2. Metal cutting science & Production Technology	K.C.Jain & L. N. Agrawal Khanna Publi.Dehli
3. Repairs of Industrial Equipment	G.Pechlias MIR Publishers