

# GUJARAT TECHNOLOGICAL UNIVERSITY

## DIPLOMA IN FABRICATION TECHNOLOGY

### SEMESTER: V

Subject Name: **Welding Metallurgy (Practice)**

Experience No.	Description of Laboratory Experience
1	<b>Demonstration &amp; Study (Report/Observation Writing):</b> <ol style="list-style-type: none"> <li>Welding process <ul style="list-style-type: none"> <li>Arc welding <ul style="list-style-type: none"> <li>Transformer</li> <li>Generator</li> <li>Rectifier</li> </ul> </li> <li>TIG, MIG, FCAW</li> </ul> </li> <li>Study the process in detail and prepare parameters slip <ul style="list-style-type: none"> <li>Experiment <ul style="list-style-type: none"> <li>Y-groove test</li> <li>Lee-high test</li> <li>CTS test</li> <li>Jomming test</li> <li>Ferrite measurement</li> </ul> </li> </ul> </li> </ol>
2	<b>Job Preparation ( Write Sequence and Parameters of Operation):</b> <ol style="list-style-type: none"> <li>Prepare a job of : <ul style="list-style-type: none"> <li>Carbon steel           02</li> <li>Stainless steel       01</li> <li>Aluminum           01</li> <li>Cast iron           01</li> </ul> </li> </ol>
3	<b>Seminar &amp; Presentation &amp; Group Discussion:</b> <ol style="list-style-type: none"> <li>Prepare a Seminar Using Power Point Presentation/Transparencies on The Topic Covered in Syllabus/Beyond The Syllabus</li> <li>Give 10 minutes Presentation</li> <li>Group Discussion</li> </ol>
4	Preparation of Models, Charts, Quiz Competition & Slogans(Group/Individual)
5	<b>Industrial Visit:</b> <p>Term Work content of Industrial Visit Report Should Also Include Following</p> <ol style="list-style-type: none"> <li>Brief Detail of Industry Visited</li> <li>Type, location, product, rough lay-out, Human resource etc. of industry</li> <li>Details, Description, Broad Specification of machinery/Process Observed</li> </ol>

	d) Safety Norms and Precautions observed e) Student on Observation on Industrial Environment, Culture and Attitude f) Any Other Detail/Observation asked by accompanying faculty. 1. Industrial visit of Structural Fabrication Industry
6	<b>Sheet &amp; Sketch Work:</b> <ol style="list-style-type: none"> <li>1. IC diagram w.r.t. welding</li> <li>2. TTT diagram w.r.t. welding</li> <li>3. Schaffeler diagram</li> <li>4. Delong diagram</li> <li>5. Phase diagram</li> </ol>
7	<b>Report Writing:</b> <ol style="list-style-type: none"> <li>1. Prepare report on effect of heat on weld quality ( pre-heating, post-heating, PWHT, DHT</li> <li>2. Factor affecting selection of consumable and give suitable examples</li> <li>3. Types of distortion and preventive measures</li> <li>4. Examples and calculations</li> <li>5. Prepare report on WPS, WPQ, PQR.</li> <li>6. Weld defects causes and remedies</li> <li>7. Distortion causes and remedies</li> </ol>
8	<b>Beyond Syllabus Activities (Develop Creative &amp; Innovative Ideas Among Students):</b> <p>Display article, information, sketch, under knowledge zone(K-Zone), inspiration zone(I- Zone) &amp; Creative zone(C-zone)</p>
9	<b>Literature Survey:</b> <ol style="list-style-type: none"> <li>1. Library assignment</li> <li>2. Internet surfing</li> <li>3. Refer product pamphlets</li> <li>4. Technical magazines</li> </ol>
10.	<b>Shop Talk:</b> <ol style="list-style-type: none"> <li>1 Ten minutes presentation on shop floor/Laboratory during the presentation of job/laboratory experience by the students</li> </ol>
11.	<b>Audio Visual Aids:</b> <ol style="list-style-type: none"> <li>1 Prepare audio cassette</li> <li>2 Photograph lab manual</li> <li>3 Technical video download</li> </ol>
12.	<b>Paper Solutions:</b> <ol style="list-style-type: none"> <li>1 Write a paper solution of last five examination papers</li> </ol>

13.	<b>School Within School:</b> <ol style="list-style-type: none"> <li>1. Guiding / Sharing / Mentoring the know-how by meritorious students to lower performing students</li> </ol>
14	<b>Self Learning:</b> <ol style="list-style-type: none"> <li>1. Contact with field expert, seniors, alumni and get further know-how individually or in a group.</li> <li>2. Read related book / magazine / article / literature and share the content</li> </ol>

### **Notes:**

1. Term work report content of each experience should also include following.
  - a) Experience description/ data and objective.
  - b) A skill which is/are expected to be developed in student after competition of experience.
  - c) Drawing of experience / set up with labels / nomenclature to carry out the experience.
  - d) The specification of machine / equipment / devices / tools / instruments/items / elements which is / are used to carry out and to check experience.
  - e) Process parameters / set up settings values applied to carry out experience
  - f) Steps / process description to execute the experience.
  - g) Observation
  - h) Information on resented machine / equipment / devices / tools/ instrument/ item available. In market to carry out the experience.
  - i) Special / additional notes or remarks.
2. Term work report of student of regular more should exclude distance learning manual, photocopy, printed content, etc. focus should be on developing the term work as original efforts of student.
3. Term work content of industrial visit report should also include following
  - a) Brief detail of industry visited
  - b) Type, location, product, rough layout, human resource, etc of industry.
  - c) Details, description and broads specification of machinery / process observed.
  - d) Safety norms and precautions observed
  - e) Student on observation on industrial environment, culture and attitude
  - f) Any other detail /observation asked by accompanying faculty.
4. Term work also include experience logbook duly certified by subject teacher.