

**DIPLOMA PROGRAMME IN  
MECHANICAL ENGINEERING (FABRICATION TECHNOLOGY)**

**1. SALIENT FEATURES**

- 1) Name of the Programme : Diploma Programme in **Mechanical Engineering (Fabrication Technology)**
- 2) Duration of the Programme : Three years (Six Semesters)
- 3) Entry Qualification : Matriculation or equivalent as prescribed by State Board of Technical Education, **Haryana**
- 4) Intake : 40
- 5) Pattern of the Programme : Semester Pattern
- 6) Ratio between theory and Practical classes : 50 : 50 (Approx.)

**7) Industrial Training:**

Six weeks of industrial training is included after IV semester during summer vacation. Internal assessment out of 50 marks and external assessment out of another 50 marks will be added in 5<sup>th</sup> semester. Total marks allotted to industrial training will be 100.

Distribution of Marks:

- Daily diary and reports of training - 50 Marks
- Viva Voce (External) - 50 Marks

**8) Student Centred Activities:**

Student Centred Activities will comprise of co-curricular activities like extension lectures, library studies, games, hobby clubs e.g. photography, painting, singing, seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities, Civil Defence/Disaster Management activities etc.

## **2. EMPLOYMENT OPPORTUNITIES FOR DIPLOMA HOLDERS IN MECHANICAL ENGINEERING (FABRICATION TECHNOLOGY)**

A number of job opportunities exist in the field of fabrication of pressure vessels, heat exchangers, shells, dished ends, agitators, dryers etc. Job opportunities for piping engineers, erection engineers, estimation engineers etc are ample in addition to starting one's own enterprise.

After successful completion of diploma in Mechanical Engineering (Fabrication Technology), employment avenues are available in following industrial sectors:

- Fabrication Industry (Quality Control Engineer)
- Automobile Industry (Production Engineer)
- Piping & Forging Industry (Supervisor)
- Shipping Yard (Fabrication Engineer)
- Small scale Industry (As an Entrepreneur)
- NDT firms (Inspection Engineer)
- Contracting firm (Site Supervisor)
- Plastic and Composite Industry (Supervisor)
- Process Industry (Erection Engineer)

### **3. COMPETENCY PROFILE OF A DIPLOMA HOLDER IN MECHANICAL ENGINEERING (FABRICATION TECHNOLOGY)**

Keeping in mind the employment opportunities, a diploma holder in Mechanical Engineering (Fabrication Technology) should possess following competencies:

1. Competency in preparing drawings and skills in reading and interpreting drawings.
2. Understanding about various forms, characteristics, testing, usage and standards of various types of materials used in Fabrication.
3. Well versed with various fabrication processes and related equipment.
4. Skills in making use of computers for different types of applications in the field of Fabrication Technology.
5. Knowledge and skills regarding various measuring instruments, process instrumentation, and inspection techniques.
6. Understanding regarding procedures for installation, erection, layout, testing and maintenance of machines/equipment.
7. Competencies in preparing material schedules, manpower schedules and process schedules.
8. Knowledge and skills in the operation and maintenance of various plant facilities like material handling equipment/machines, compressors, pumps, boilers and power generation equipment/machines.
9. Knowledge and skills to maintain suitable records of production and services, analyse operational efficiency and cause of waste and take remedial action.
10. Competencies in carrying out work study, knowledge of plant layout and material handling especially movement of material on the shop floor and understanding of various elements of production, planning and control and QC tools.
11. Competencies in problem solving in various functional areas, may it be prototype, development, diagnostic and faultfinding or repair and maintenance of plant and equipment.
12. Knowledge and skills in communication, interpersonal relations and basic skills in management.
13. Understanding regarding labour management and awareness regarding Laws and Acts related to labour welfare, safety and pollution control.

14. Appreciation regarding leadership, team building and coordinated functioning for achieving desired targets.
15. Continued learning skills for problem solving.
16. Competencies in conducting survey and collection of feedback data from customers/users regarding performance of products and preparation of test/survey reports, their analysis and presentation.
17. Knowledge and skills in applied sciences so as to develop scientific temper, and their applications in technology subjects and as a foundation for continued learning.

#### 4. DERIVING CURRICULUM AREAS FROM COMPETENCY PROFILE

Sr. No.	Competency	Curriculum Area
i)	Competency in preparing drawings and skills in reading and interpreting drawings	<ul style="list-style-type: none"> <li>▪ Engineering drawing</li> <li>▪ Machine drawing</li> </ul>
ii)	Understanding about various forms, characteristics, testing, usage and standards of various types of materials used in Fabrication industry.	<ul style="list-style-type: none"> <li>▪ Materials and Metallurgy</li> </ul>
iii)	Well versed with various fabrication processes and related equipment.	<ul style="list-style-type: none"> <li>▪ Workshop Technology</li> <li>▪ Workshop Practice</li> <li>▪ CNC Machines and Automation</li> <li>▪ Fabrication Processes</li> </ul>
iv)	Skills in making use of computers for different types of applications in the field of Fabrication Technology.	<ul style="list-style-type: none"> <li>▪ Computer Applications in Fabrication Technology</li> <li>▪ CIM</li> </ul>
v)	Knowledge and skills regarding various measuring instruments, process instrumentation, and inspection techniques.	<ul style="list-style-type: none"> <li>▪ Inspection and Quality Control</li> </ul>
vi)	Understanding regarding procedures for installation, erection, layout, testing and maintenance of machines/equipment.	<ul style="list-style-type: none"> <li>▪ Installation, testing and maintenance</li> </ul>
vii)	Competencies in preparing material schedules, manpower schedules and process schedules.	<ul style="list-style-type: none"> <li>▪ Industrial Engineering</li> </ul>
viii)	Knowledge and skills in the operation and maintenance of various plant facilities like material handling equipment/machines, compressors, pumps, boilers and power generation equipment/machines.	<ul style="list-style-type: none"> <li>▪ Principles of Thermal Engineering</li> <li>▪ Industrial Engineering</li> </ul>
ix)	Knowledge and skills to maintain suitable records of production and services analyse operational efficiency and cause of waste and take remedial action.	<ul style="list-style-type: none"> <li>▪ Industrial Engineering</li> </ul>

x)	Competencies in carrying out work study, knowledge of plant layout and material handling especially movement of material on the shop floor and understanding of various elements of production, planning and control and QC tools.	<ul style="list-style-type: none"> <li>▪ Industrial Engineering</li> </ul>
xi)	Competencies in problem solving in various functional areas, may it be prototype, development, diagnostic and faultfinding or repair and maintenance of plant and equipment.	<ul style="list-style-type: none"> <li>▪ Project Work</li> <li>▪ Industrial Training</li> </ul>
xii)	Knowledge and skills in communication, interpersonal relations and basic skills in management.	<ul style="list-style-type: none"> <li>▪ Communication Skills</li> <li>▪ Industrial Management</li> </ul>
xiii)	Understanding regarding labour management and awareness regarding Laws and Acts related to labour welfare, safety and pollution control.	<ul style="list-style-type: none"> <li>▪ Industrial Management</li> </ul>
xiv)	Appreciation regarding leadership, team building and coordinated functioning for achieving desired targets.	<ul style="list-style-type: none"> <li>▪ Industrial Management</li> </ul>
xv)	Continued learning skills for problem solving.	<ul style="list-style-type: none"> <li>▪ Project Work</li> <li>▪ Extra Curricular Activities</li> </ul>
xvi)	Competencies in conducting survey and collection of feedback data from customers/users regarding performance of products and preparation of test/survey reports, their analysis and presentation.	<ul style="list-style-type: none"> <li>▪ Industrial Management</li> </ul>
xvii)	Knowledge and skills in applied sciences so as to develop scientific temper, and their applications in technology subjects and as a foundation for continued learning.	<ul style="list-style-type: none"> <li>▪ Applied Physics</li> <li>▪ Applied Chemistry</li> <li>▪ Applied Mathematics</li> </ul>

## **5. ABSTRACT OF CURRICULUM AREAS**

Following is the abstract of curriculum areas:

### **1. General Studies**

Communication skills  
Basics of Information Technology  
Entrepreneurship development and Management

### **1. Applied Science**

Applied Physics  
Applied Chemistry  
Applied Mathematics

### **2. Basic Courses in Engineering/Technology**

Applied Mechanics  
Engineering Drawing  
Industrial Hydraulic and Pneumatics  
Basics of Electrical and Electronics Engineering.  
Principles of Thermal Engineering  
General Workshop Practice

### **3. Applied Courses in Engineering/Technology**

Materials and Metallurgy  
Strength of Materials  
Workshop Technology  
Fabrication Processes  
Machine Drawing  
Computer Applications in Fabrication Technology  
Machine Design and Drawing  
Theory of Machines  
CNC Machines and Automation  
Industrial Engineering  
Automobile Engineering  
Inspection and Quality Control  
Installation, Testing, and Maintenance  
Industrial Management  
CIM  
Workshop Practice  
Project Work  
Industrial Training.

## 6. HORIZONTAL AND VERTICAL ORGANIZATION

Sr. No.	Subjects	Distribution in Hours in Various Semesters					
		I	II	III	IV	V	VI
1.	Communication Skills	5	5	-	-	-	-
2.	Applied Physics	6	5	-	-	-	-
3.	Applied Chemistry	4	4	-	-	-	-
4.	Applied Mathematics	5	5	-	-	-	-
5.	Engineering Drawing	6	6	-	-	-	-
6.	Basics of IT	4	-	-	-	-	-
7.	Applied Mechanics	-	5	-	-	-	-
8.	General Workshop Practice	6	6	-	-	-	-
9.	Strength of Materials	-	-	6	-	-	-
10.	Industrial Hydraulics and Pneumatics	-	-	-	6	-	-
11.	Basics of Electrical & Eltx. Engineering	-	-	5	-	-	-
12.	Workshop Technology	-	-	3	3	3	-
13.	Workshop Practice	-	-	9	9	9	-
14.	Machine Drawing	-	-	6	-	-	-
15.	Computer Applications in Fabrication Technology	-	-	-	4	-	-
16.	Principles of Thermal Engg.	-	-	6	-	-	-
17.	Materials & Metallurgy	-	-	-	5	-	-
18.	Theory of Machines	-	-	-	-	4	-
19.	Machine Design & Drawing	-	-	-	6	-	-
20.	Fabrication Processes	-	-	-	5	6	-
21.	Industrial Engineering	-	-	-	-	4	-
22.	CNC Machines & Automation	-	-	-	-	3	-
23.	CIM	-	-	-	-	6	-
24.	Automobile Engineering	-	-	-	-	-	5
25.	Inspection and Quality Control	-	-	-	-	-	5
26.	Industrial Management	-	-	-	-	-	3
27.	Entrepreneurship Development & Management	-	-	-	-	-	3
28.	Installation, Testing and Maintenance	-	-	-	-	-	7
29.	Project work	-	-	-	-	-	12
30.	Student Centred activities	4	4	5	2	5	5
	Total	40	40	40	40	40	40