

## **MANUFACTURING TECHNOLOGY LAB**

### **Description of the Laboratory:**

Manufacturing technology laboratory is aimed at providing an introduction to the importance of fundamental principles of manufacturing technology and common processes used in industries for manufacturing the components in a controlled manner. The emphasis throughout the laboratory course will be on understanding the basic features of the processes rather than details of constructions of common practices in manufacturing or acquiring skills in the application of moulding, casting, welding and sand testing equipment. This lab will demonstrate practical knowledge to the students for making mould with the help of various patterns and also provide fundamental knowledge on the use of arc/gas welding, sheet metal forming processes.

### **List of Experiments:**

#### **1. Foundry**

- Determination of grain fineness number of sand using sieve shaker.
- Determination of moisture content, clay content, permeability of moulding sand.
- Design and making a solid pattern using wood turn lathe.
- Preparation of green sand moulding arrangement and metal casing of solid pattern.
- Preparation of green sand moulding arrangement and metal casing of split pattern.
- Preparation of green sand moulding arrangement of hollow pipe/ T bent using core.

#### **2. Welding**

- Exercises in welding lap joint and butt joint using arc welding process.
- Exercises in welding lap joint and butt joint using gas welding process.
- Exercises in welding lap joint by TIG and MIG welding process.
- Exercises in welding butt joint by spot welding process.
- Exercises in Metal cutting practice by gas cutting process.
- Exercises in brazing, braze welding and soldering.
- Simulation of welding.

#### **3. SHEET METAL WORK**

- Blanking and Piercing operation using fly press machine.
- Deep drawing and Extrusion operation using hydraulic press.
- Bending operation using bending machine.
- Simulation of sheet metal process.

#### 4. Plastic Moulding

- Making a component using injection moulding machine.
- Making a component using blow moulding machine.
- Making a component using compression moulding machine.
- Simulation of casting.

#### List of Equipment:

- Hydraulic Press
- Tilting Furnace
- Tig Welding
- Fly Press
- Spot Welding Machine
- Universal Strength Machine
- Wood Turning Lathe
- Sand Siever
- Blow Moulding Machine
- Arc Welding Machine
- Die for Hydraulic Press
- Injection Moulding Machine
- Die for Fly Press
- Rapid Moisture Tester

**Photographs of the Lab/Equipment:**



Overview of Manufacturing Technology Lab



Flypress and Hydraulic Press



**Blow Moulding Machine**



**Injection Moulding Machine, Spot Welding Machine**



**Arc Welding Machine**



**Student Performing Welding Experiments**



Wood Turning Lathe