FOUNDRY AND FORGING LAB
B.E, III Semester, Mechanical Engineering
[As per Choice Based Credit System (CBCS) scheme]

Course Code	17MEL38A / 48A	CIE Marks	40
Number of Lecture Hours/Week	03 (1 Hour Instruction + 2 Hours Laboratory)	SEE Marks	60
RBT Levels	L1, L2, L3	Exam Hours	03

Credits – 02

Course Objectives:

- **To provide an insight into different sand preparation and foundry equipment.**
- **To provide an insight into different forging tools and equipment.**
- **To provide training to students to enhance their practical skills.**
- **To practically demonstrate precautions to be taken during casting and hot working.**
- **To develop team qualities and ethical principles.**

PART-A

1. **Testing of Molding sand and Core sand**

   Preparation of sand specimens and conduction of the following tests:

   1. Compression, Shear and Tensile tests on Universal Sand Testing Machine.
   2. Permeability test
   3. Sieve Analysis to find Grain Fineness Number(GFN) of Base Sand
   4. Clay content determination in Base Sand.

PART-B

2. **Foundry Practice**

   1. Use of foundry tools and other equipment's.
   2. Preparation of molding sand mixture.
   3. Preparation of green sand molds using two molding boxes kept ready for pouring.
      - Using patterns (Single piece pattern and Split pattern)
      - Without patterns.
      - Incorporating core in the mold. (Core boxes).
      - Preparation of one casting (Aluminum or cast iron-Demonstration only)

PART C

3. **Forging Operations :**

Use of forging tools and other equipment's

- Calculation of length of the raw material required to prepare the model considering scale losses.
- Preparing minimum three forged models involving upsetting, drawing and bending operations.
- Demonstration of forging model using Power Hammer.

Course outcomes:

Students will be able to

- **Demonstrate various skills of sand preparation, molding.**
- **Demonstrate various skills of forging operations.**
- **Work as a team keeping up ethical principles.**

Scheme of Examination:

One question is to be set from Part-A 30 Marks

One question is to be set from either Part-B or Part-C50 Marks

Viva – Voce 20 Marks

Total 100 Marks

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