

## ENGINEERING WORKSHOP

Common to ECE, CSE, IT, CSE(AI&ML) & CSE(DS) Branches

**21ME107ES/21ME207ES**

**L T P C**

**0 0 3 1.5**

**Pre-requisites:** Practical skill

### **Course Objectives:**

- 1.To Study different hand-operated power tools, uses and their demonstration.
- 2.To gain a good basic working knowledge required for the production of various engineering products.
- 3.To provide hands-on experience about the use of different engineering materials, tools, equipment, and processes that are common in the engineering field.
- 4.To develop the right attitude, teamwork, precision, and safety at the workplace.
- 5.It explains the construction, function, use, and application of different working tools, equipment, and machines.
- 6.To study commonly used carpentry joints.
- 7.To have practical exposure to various welding and joining processes.
- 8.Identify and use marking out tools, hand tools, measuring equipment, and to work to prescribed tolerances.

**Course Outcomes:** At the end of the course, the student will be able

to:

CO 1: Study and practice on machine tools and their operations

CO 2: Practice on manufacturing of components using workshop trades including plumbing, carpentry, foundry, house wiring, and welding.

CO 3: Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.

CO 4: Apply basic electrical engineering knowledge for house wiring practice.

### **1.TRADES FOR EXERCISES:**

**At least two exercises from each trade:**

- I. Carpentry–(T-Lap Joint, Dove tail Joint, Mortise & Tenon Joint, Corner lap joint)
- II. Tin-Smithy–(Square Tin, Rectangular Tray & Conical Funnel, Open scoop)
- III. Foundry–(Preparation of Green Sand Mould using Single-Piece and Split Pattern)
- IV. Welding Practice–(Arc Welding & Gas Welding, Tig welding)
- V. House-wiring–(Parallel & Series, One-way switch, Two-way Switch, and Tube Light)

**2. TRADES FOR DEMONSTRATION & EXPOSURE:**

- I. Plumbing
- II. Machine Shop
- III. Metal Cutting (Air Plasma)
- IV. Power tools in construction and Wood Working
- V. Fitting—(V-Fit, Dove tail fit & Semi-circular fit)
- VI. Black Smithy—(Round to Square, Fan Hook, and S-Hook)

**TEXTBOOKS:**

- 1. B.L. Juneja, Workshop Practice, 1<sup>st</sup> Edition, Cengage, 2019
- 2. K. Venugopal, Workshop Manual, Anuradha, 2012<sup>th</sup> edition.

**REFERENCES:**

- 1. P. Kannaiah, K.L. Narayana, Workshop Manual, SciTech, August 2015.
- 2. VenkatReddy, Workshop Manual, BSP, 6<sup>th</sup> Edition.