

ENGINEERING WORKSHOP

Course Code: 22ES11EW

L T P C

1 0 4 3

Note: Part A is common to all branches and Part B is specific to the respective branch.

PART-A

(Common to all branches)

(Any SIX exercises with at least ONE from each section to be carried out)

Course Outcomes:

At the end of this course, the student will be able to

CO1: Demonstrate Wood working and Sheet metal working skills (L3)

CO2: Demonstrate Fitting trade and House wiring skills (L3)

CO3: Demonstrate 3-D Printing and Engraving skills (L3)

Wood working:

1. Preparation of half – lap joint using wooden pieces
2. Preparation of Mortise and Tenon joint using wooden pieces

Sheet metal working:

1. Preparation of a tapered tray using sheet metal
2. Preparation of a conical funnel using sheet metal

Fitting:

1. Preparation of a V-fit using mild steel pieces
2. Preparation of a semi-circular fit using mild steel pieces

House wiring:

1. Wiring of two bulbs in Parallel and Series
2. Wiring to control a lamp with two-way switches
3. Wiring to control a fluorescent tube light with one-way switch

Modern manufacturing methods:

1. Manufacture of components by 3-D Printing
2. Engraving / Cutting with laser beam

PART-B

For CIVIL ENGINEERING

(Any six experiments should be carried out)

CO4: Construct a brick wall with English and Flemish bond (L3)

CO5: Illustrate assembling of a pipeline as per the piping layout using pipes and accessories (L3)

CO6: Show the building plan in the field by using chain / tape and other accessories (L3)

List of Experiments /Activities:

1. Masonry works hands-on practice for different types of bonds in brick masonry.
2. Demonstration on installation of simple sanitary fittings and fixtures like Tap, T-joint, Elbow bend, Threading, etc..
3. Finding the discharge and velocity in a water pipeline.
4. Hands-on practice of assembling of truss elements to form the truss (King post or Queen post truss).
5. Hands-on practice for assembling of single cover / double cover bolted butt joint.
6. Preparing a model (Bridge/ Tank / Truss, etc.) using wood/ aluminum.
7. Setting out of a single room building as per the given building plan.
8. Computation of Centre of gravity and Moment of inertia of a given rolled steel section by actual measurements.

References:

1. Rangawala, *Engineering Materials, Materials Science*, 43rd Edition, Charotar Publishing house, 2019.
2. Punmia, B.C., Ashok K Jain, Arun, K. Jain, *Building Construction*, 11th Edition, Laxmi Publications (P) Ltd., 2017.
3. Mimi Das Saika, Bargab Mohan Das, Madan Mohan Das, *Elements of Civil Engineering*, 1st Edition, PHI Learning Private Limited, 2011.
4. Varghese, P.C., *Building Materials*, 2nd Edition, Prentice- Hall Publication, 2015.