Course Number and Name
BCM2L1 - BASIC CIVIL & MECHANICAL ENGINEERING PRACTICES LAB

Credits and Contact Hours
1 & 30

Course Coordinator’s Name
Mr Karthik

Course Description
It provides exposure to the students with hands on experience on various basic Civil & Mechanical Engineering practices.

Prerequisites
Nil

Co-requisites
Basic Civil and Basic Mechanical Engineering

Required, elective, or Selected elective (as per Table 5-1)
Required

Course Outcomes (COs)

CO1: Learn Basic concepts
CO2: Students will get exposure regarding pipe connection for pumps & turbines and to study the joint used in roofs, doors, windows and furniture.
CO3: Students will get exposure regarding smithy, foundry operations and in latest welding operations such as TIG, MIG, CO2, spot welding etc.,
CO4: Students will get hands on experience on basic welding techniques, machining and sheet metal works.
CO5: Students will get hands on experience on basic machining techniques
CO6: Students will get hands on experience on basic sheet metal techniques

Student Outcomes (SOs) from Criterion 3 covered by this Course

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List of Topics Covered

LIST OF EXPERIMENTS

I. CIVIL ENGINEERING PRACTICE Buildings:
Study of plumbing and carpentry components of residential and industrial buildings. Safety aspects.

Plumbing Works:

a) Study of pipeline joints, its location and functions: valves, taps, couplings, unions, reducers, elbows in household fittings.
b) Study of pipe connections requirements for pumps and turbines.
c) Preparation of plumbing line sketches for water supply and sewage works.

e) Demonstration of plumbing requirements of high-rise buildings.

Carpentry using Hand tools and Power tools:

a) Study of the joints in roofs, doors, windows and furniture.
b) Hands-on-exercise: Wood work, joints by sawing, planning and cutting. c) Preparation of half joints, Mortise and Tenon joints.

II. MECHANICAL ENGINEERING PRACTICE

Welding:
Preparation of butt joints, lap joints and tee joints by arc welding.

Basic Machining:

a) Simple Turning and Taper turning
b) Drilling Practice

Sheet Metal Work:

a) Forming & Bending:
b) Model making – Trays, funnels, etc.
c) Different type of joints.
d) Preparation of air-conditioning ducts.

Machine assembly practice:

a) Assembling, dismantling and Study of centrifugal pump
b) Assembling, dismantling and Study of air conditioner
c) Assembling, dismantling and Study of lathe.

Moulding:

a) Moulding Operations like gear and step cone pulley etc

Fitting:

a) Fitting Exercises – Preparation of square fitting and vee-Fitting models.

Demonstration:

a) Smithy Operations, Upsetting, Swaging, Setting down and bending. Example – Exercise-Production of hexagonal headed bolt.