

Course Number and Name													
BCMIL1 – BASIC CIVIL & MECHANICAL ENGINEERING PRACTICES LABORATORY													
Credits and Contact Hours													
1&30													
Course Coordinator's Name													
Mr.Saravanan													
Text Books and References													
REFERENCES:													
1. K. Jeyachandran, S. Nararajan & S. Balasubramanian, "A Primer on Engineering Practices Laboratory", Anuradha Publications, (2007).													
2. T.Jeyapooan, M. Saravanapandian & S. Pranitha, "Engineering Practices Lab Manual", Vikas Publishing House Pvt. Ltd. (2006)													
3. H. S. Bawa, "Workshop Practice", Tata McGraw-Hill Publishing Company Limited, (2007).													
4. A. Rajendra Prasad & P. M. M. S Sarma, "Workshop Practice", Sree Sai Publication, (2002).													
5. P. Kannaiah & K.L. Narayana, "Manual on Workshop Practice", Scitech Publication, (1999).													
Course Description													
To provide exposure to the students with hands on experience on various basic Civil & Mechanical Engineering practices.													
Prerequisites							Co-requisites						
Basic Civil and Mechanical Engineering							Nil						
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's.												
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													
	COs/SOs	a	b	c	d	e	f	g	h	i	j	k	l
	CO1	H	L										
	CO2				H								
	CO3					H	L	L					
	CO4		H				M		L			H	
	CO5		H				M		L			H	
	CO6		H				M		L			H	

LIST OF EXPERIMENTS

I. CIVIL ENGINEERING PRACTICE

Buildings:

- a) Study of plumbing and carpentry components of residential and industrial buildings. Safety aspects.

Plumbing Works:

- a) Study of pipe line 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.
- d) Hands-on-exercise: Basic pipe connection of PVC pipes & G.I. Pipes–Mixed pipe material connection–Pipe connections with different joining components.
- e) Demonstration of plumbing requirements of high-rise buildings.

Carpentry using Hand tools and Powertools:

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

II MECHANICAL ENGINEERING PRACTICE

Welding:

- a) Preparation of butt joints, lap joints and tee joints by arc welding

Basic Machining:

- a) Simple Turning and Taper turning
- b) Drilling Practice

Sheet Metalwork:

- a) Forming & Bending:
- b) Model making–Trays, funnels, etc.
- c) Different type of joints
- d) Preparation of air-conditioning ducts
- e) Preparation of butt joints, lap joints and tee joints by arc welding

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 mould preparation for 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.
- b) Gas welding.