Engineering Workshop

(For Civil, ME, IT, CSE (AI & ML) and CSE (DS) branches)

Course Code	23ES1251	Year	I	Semester	II
Course Category	Engineering Science	Branch	CE	Course Type	Lab
Credits	1.5	L-T-P	0-0-3	Prerequisites	Nil
Continuous Internal Evaluation	30	Semester End Evaluation	70	Total Marks	100

Upon successful completion of the course, the student will be able to

	Course Outcomes	Skill	Level	Expt. No
CO1	Identify workshop tools and their operational capabilities.	Apply	L3	1-9
CO2	Practice on manufacturing of components using workshop trades including fitting, carpentry, foundry, plumbing and welding	Apply	L3	2,3,4,6,7, 8
CO3	Apply fitting operations in various applications	Apply	L3	4
CO4	Apply basic electrical engineering knowledge for House Wiring Practice	Apply	L3	5

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3: High, 2: Medium, 1: Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3					2			3	2		2	3	2
CO2	3		2			2			3	2		2	3	2
CO3	3		2			2			3	2		2	3	2
CO4	3		2			2			3	2		2	3	2

Syllabus

Expt. No.	Contents	Mapped CO's
1	Demonstration: Safety practices and precautions to be observed in workshop.	**CO1**
2	**Wood Working:** Familiarity with different types of woods and tools used in wood working and make following joints. a) Half – Lap joint b) Mortise and Tenon joint c) Corner Dovetail joint or Bridle joint	**CO1, CO2**
3	**Sheet Metal Working:** Familiarity with different types of tools used in sheet metal working, Developments of following sheet metal job from GI sheets. a) Tapered tray b) Conical funnel c) Elbow pipe d) Brazing	**CO1, CO2**

4	**Fitting:** Familiarity with different types of tools used in fitting and do the following fitting exercises a) V-fit b) Dovetail fit c) Semi-circular fit d) Bicycle tire puncture and change of two-wheeler tire	**CO1, CO2 CO3**
5	**Electrical Wiring:** Familiarity with different types of basic electrical circuits and make the following connections. a) Parallel and series b) Two-way switch c) Godown lighting d) Tube light e) Three phase motor f) Soldering of wires	**CO1, CO4**
6	**Foundry Trade:** Demonstration and practice on Moulding tools and processes, Preparation of Green Sand Moulds for given Patterns..	**CO1, CO2**
7	**Welding Shop:** Demonstration and practice on Arc Welding and Gas welding. Preparation of Lap joint and Butt joint	**CO1, CO2**
8	**Plumbing:** Demonstration and practice of Plumbing tools, Preparation of Pipe joints with coupling for same diameter and with reducer for different diameters.	**CO1, CO2**
9	**Basic repairs of Two-wheeler vehicle** – Demonstration of working of two-wheeler vehicle and its repairs.	**CO1**

Learning Resources
Text Books
1. Basic Workshop Technology: Manufacturing Process, Felix W.; Independently Published,2019. Workshop Processes, Practices and Materials; Bruce J. Black, Routledge publishers, 5th Edn. 2015. 2. A Course in Workshop Technology Vol I. & II, B.S. Raghuwanshi, Dhanpath Rai & Co., 2015 & 2017.
Reference Books
1. Elements of Workshop Technology, Vol. I by S. K. Hajra Choudhury & Others, Media Promoters and Publishers, Mumbai. 2007, 14th edition 2. Workshop Practice by H. S. Bawa, Tata-McGraw Hill, 2004. 3. Wiring Estimating, Costing and Contracting; Soni P.M. & Upadhyay P.A.; Atul Prakashan, 2021-22.