ENGINEERING WORKSHOP

(Common to All branches of Engineering)

<table>
<tr><td>Course Category</td><td>Engineering Science</td><td>Credits</td><td>1.5</td></tr>
<tr><td>Course type</td><td>Practical</td><td>Lecture- Tutorial-Practical</td><td>0-0- 3</td></tr>
<tr><td>Pre-requisite:</td><td>No Prerequisite</td><td>Sessional Evaluation:
External Exam Evaluation:
Total Marks:</td><td>30
70
100</td></tr>
<tr><td>Course Objectives</td><td colspan="3">Students undergoing this course are expected to learn:
To familiarize students with wood working, sheet metal operations, fitting and electrical house wiring skills</td></tr>
<tr><td rowspan="4">Course Outcomes</td><td colspan="3">After completing the course, the student will be able to:</td></tr>
<tr><td>CO1</td><td colspan="2">Identify workshop tools and their operational capabilities.</td></tr>
<tr><td>CO2</td><td colspan="2">Practice on manufacturing of components using workshop trades including fitting, carpentry, foundry and welding.</td></tr>
<tr><td>CO3</td><td colspan="2">Apply fitting operations in various applications.</td></tr>
<tr><td></td><td>CO4</td><td colspan="2">Apply basic electrical engineering knowledge for House Wiring Practice</td></tr>
<tr><td>Course Content</td><td colspan="3">SYLLABUS

1. Demonstration: Safety practices and precautions to be observed in workshop.
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
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
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 tyre
5. Electrical Wiring: Familiarity with differenttypes of basic electrical</td></tr>
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	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 6. Foundry Trade: Demonstration and practice on Moulding tools and processes, Preparation of Green Sand Moulds for given Patterns. 7. Welding Shop: Demonstration and practice on Arc Welding and Gas welding. Preparation of Lap joint and Butt joint. 8. Plumbing: Demonstration and practice of Plumbing tools, Preparation of Pipe joints with coupling for same diameter and with reducer for different diameters.
Text Books & Reference Books:	**Textbooks:** **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.

Contribution of Course Outcomes towards achievement of Program Outcomes (3-High, 2-Medium, 1-Low)

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