

WORKSHOP / MANUFACTURING PRACTICES LABORATORY

I Semester: ME CSE IT AE								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
AMEB01	Foundation	L	T	P	C	CIA	SEE	Total
		-	-	3	1.5	30	70	100
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 48			Total Classes: 48			
<p>COURSE OBJECTIVES: The course should enable the students to: I. Identify and use of tools, types of joints in carpentry, fitting, tin smithy and plumbing operations. II. Understand of electrical wiring and components. III. Observation of the function of lathe, shaper, drilling, boring, milling, grinding machines.</p> <p>COURSE OUTCOMES (COs): CO 1 : Explain different basic operations performed on lathe, drilling, grinding, milling, shaper machines. CO 2 : Understand the different parts of the CNC turning, drilling, milling machines etc. CO 3 : Identify the different joints used in carpentry, tin smithy, black smithy and fitting. CO 4 : Apply the basic drawing for circuit diagrams used in house wiring. CO 5 : Identify the different types of welding, moulding, glass cutting methods.</p> <p>COURSE LEARNING OUTCOMES (CLOs): The students should enable to: 1. To identify different Tools required for Wood working. 2. Familiarize the students to different cutting fluids. 3. Use of Cutting tools required for Metal working in the Fitting work. 4. Prepare Students for development of surfaces using the theory of Engineering Drawing and application of the same to the Tin Smithy. 5. Need for heating of the Mild Steel and to understand the Hot Working of the metals in Black Smithy. 6. To prepare circuit diagrams for house working for Series and Parallel Connection. 7. Understand the circuit connections for One Bulb connected with two way switches i.e., Stair Case connections. 8. To prepare Mould preparation and demonstration Casting Process. 9. Exposure for different types of solid state welding and other welding practices viz Arc welding, Gas welding, Brazing, Soldering etc . 10. Introduce Students with new technology manufacturing practices like 3D Printing. 11. Familiarize the students with the introduction of conventional machine tools like Lathe, Milling, Drilling etc. 12. Demonstrate Manufacturing practices on CNC Machine tools.</p>								
LIST OF EXPERIMENTS								
WEEK - 1	MACHINE SHOP-TURNING AND OTHER MACHINES							
Batch I: Working on central lathe and shaping machine. Batch II: Working on drilling, grinding machines.								

WEEK - 2	MACHINE SHOP-MILLING AND OTHER MACHINES
Batch I: Working on milling machine. Batch II: Working on milling and shaping machine.	
WEEK - 3	ADVANCED MACHINE SHOP
Batch I: Working on CNC Turning machines. Batch II: Working on CNC Vertical Drill Tap Center.	
WEEK - 4	FITTING
Batch I: Make a straight fit and straight fit for given dimensions. Batch II: Make a square fit for straight fit for given sizes.	
WEEK - 5	CARPENTRY-I
Batch I: Preparation of lap joint as per given dimensions. Batch II: Preparation of dove tail joint as per given taper angle	
WEEK - 6	CARPENTRY-II
Batch I: Preparation of dove tail joint as per given taper angle. Batch II: Preparation of lap joint as per given dimensions.	
WEEK - 7	ELECTRICAL AND ELECTRONICS
Batch I : Make an electrical connection to demonstrate domestic voltage and current sharing. Batch II: Make an electrical connection to control one bulb with two switches-stair case connection.	
WEEK - 8	WELDING
Batch I: Arc welding & Gas Welding. Batch II: Gas welding & Arc Welding.	
WEEK - 9	MOULD PREPARATION
Batch I: Prepare a wheel flange mould using a given wooden pattern. Batch II: Prepare a bearing housing using an aluminum pattern.	
WEEK - 10	MOULD PREPARATION
Batch I: Prepare a bearing housing using an aluminum pattern. Batch II: Prepare a wheel flange mould using a given wooden pattern.	
WEEK - 11	BLACKSMITHY- I, TINSMITHY- I
Batch I: Prepare S-bend & J-bend for given MS rod using open hearth furnace. Batch II: Prepare the development of a surface and make a rectangular tray and a round tin.	
WEEK - 12	TINSMITHY- I, BLACKSMITHY- I
Batch I: Prepare the development of a surface and make a rectangular tray and a round tin. Batch II: Prepare S-bend & J-bend of given MS rod using open hearth furnace.	

WEEK - 13	PLASTIC MOULDING, INJECTION MOULDING, GLASS CUTTING
Batch I: Plastic Moulding and Glass cutting. Batch II: Plastic Moulding and Glass cutting.	
WEEK - 14	BLOW MOULDING
Batch I& II: Blow Moulding.	
Text Books:	
<ol style="list-style-type: none"> 1 Hajra Choudhury S.K., Hajra Choudhury A.K. and Nirjhar Roy S.K., “Elements of Workshop Technology”, Vol. I 2008 and Vol. II 2010, Media promoters and publishers private limited, Mumbai. 2 Kalpakjian S, Steven S. Schmid, “Manufacturing Engineering and Technology”, Pearson Education India Edition, 4th Edition, 2002. 	
Reference Books:	
<ol style="list-style-type: none"> 1 Gowri P. Hariharan, A. Suresh Babu,” Manufacturing Technology – I”, Pearson Education, 2008. 2 Roy A. Lindberg, “Processes and Materials of Manufacture”, Prentice Hall India, 4th Edition, 1998. 3 Rao P.N., “Manufacturing Technology”, Vol. I and Vol. II, Tata McGraw-Hill House, 2017. 	
Web References:	
<ol style="list-style-type: none"> 1 https://www.iare.ac.in 	

Prepared by:

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