

WORKSHOP/MANUFACTURING PRACTICES LABORATORY

I Semester: AE / CSE / IT/ ME II Semester: ECE / EEE / CE														
CourseCode	Category	Hours/Week			Credits	MaximumMarks								
AMEB01	Foundation	L	T	P	C	CIA	SEE	Total						
		-	-	3	1.5	30	70	100						
ContactClasses:Nil		TutorialClasses:Nil		PracticalClasses:45			TotalClasses:45							
<p><b style="color: blue;">COURSE OBJECTIVES:</p> <p>The courses should enable the students to:</p> <ol style="list-style-type: none"> I. Identify and use of tools, types of joints in carpentry, fitting, tinsmithy and plumbing operations. II. Understand of electrical wiring and components. III. Observation of the function of lathe, shaper, drilling, boring, milling, grinding machines. <p><b style="color: blue;">COURSE OUTCOMES (COs):</p> <p>CO1: Explain different basic operations performed on lathe, drilling, grinding, milling, shaper machines. CO2: Understand the different parts of the CNC turning, drilling, milling machines etc. CO3: Identify the different joints used in carpentry, tinsmithy, black smithy and fitting. CO4: Apply the basic drawing for circuit diagrams used in house wiring. CO5: Identify the different types of welding, moulding, glass cutting methods.</p> <p><b style="color: blue;">COURSE LEARNING OUTCOMES (CLOs):</p> <p>The students should enable to:</p> <ol style="list-style-type: none"> 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 ways 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 style="text-align: center; color: blue;">LIST OF EXPERIMENTS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left; color: blue;">WEEK-1 MACHINESHOP-TURNING AND OTHER MACHINES</th> </tr> <tr> <td style="width: 15%;">Batch I:</td> <td>Working on central lathe and shaping machine.</td> </tr> <tr> <td>Batch II:</td> <td>Working on drilling, grinding machines.</td> </tr> </table>									WEEK-1 MACHINESHOP-TURNING AND OTHER MACHINES		Batch I:	Working on central lathe and shaping machine.	Batch II:	Working on drilling, grinding machines.
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1 Page														

WEEK-2	MACHINESHOP-MILLINGANDOTHERMACHINES
Batch I: Workingon milling machine. BatchII: Workingonmillingandshapingmachine.	
WEEK-3	ADVANCEDMACHINESHOP
Batch I: Workingon CNCTurningmachines. Batch II: Workingon CNC Vertical DrillTap Center.	
WEEK-4	FITTING
BatchI: Make a straightfit and straightfitfor givendimensions. BatchII: Make a squarefit for straight fit for given sizes.	
WEEK-5	CARPENTRY-I
Batch I: Preparation oflapjointas per given dimensions.Batch II: Preparation of dove tailjoint as per given taper angle	
WEEK-6	CARPENTRY-II
Batch I: Preparation ofdove tailjoint as per given taper angle. Batch II: Preparation oflapjointas per given dimensions.	
WEEK-7	ELECTRICALANDELECTRONICS
Batch I: Make anelectricalconnectionto demonstratedomestic voltage and current sharing. Batch II: Make an electricalconnectionto control onebulb withtwo switches-stair case connection.	
WEEK-8	WELDING
Batch I: Arc welding& Gas Welding. Batch II: Gas welding& Arc Welding.	
WEEK-9	MOULDPREPARATION
Batch I: Preparea wheelflangemould usinga given wooden pattern. Batch II: Prepare a bearinghousingusingan aluminum pattern.	
WEEK-10	MOULDPREPARATION
BatchI: Prepare a bearinghousingusingan aluminumpattern. BatchII: Preparea wheelflange mould usinga given wooden pattern.	
WEEK-11	BLACKSMITHY-I,TINSMITHY-I
Batch I: Prepare S-bend &J-bend for given MS rod usingopen hearth furnace. Batch II: Prepare the development ofasurface and make a rectangular trayand around tin.	
WEEK-12	TINSMITHY-I,BLACKSMITHY-I
Batch I: Preparethedevelopmentof asurfaceand make a rectangular trayand around tin. Batch II: Prepare S-bend &J-bend ofgiven MSrodusingopen hearth furnace.	

WEEK-13	PLASTICMOULDING,INJECTIONMOULDING,GLASSCUTTING
Batch I: Plastic Mouldingand Glass cutting. Batch II: PlasticMouldingand Glass cutting.	
WEEK-14	BLOWMOULDING
Batch I& II: Blow Moulding.	
TextBooks:	
<ol style="list-style-type: none"> 1 Hajra ChoudhuryS.K.,Hajra ChoudhuryA.K.and NirjharRoyS.K., “Elements of Workshop Technology”, Vol. I2008 and Vol.II2010, Media promoters and publishersprivatelimited, Mumbai. 2 Kalpakjian S, Steven S. Schmid, “ManufacturingEngineeringandTechnology”, Pearson Education India Edition, 4thEdition, 2002. 	
ReferenceBooks:	
<ol style="list-style-type: none"> 1 Gowri P. Hariharan,A. Suresh Babu,”ManufacturingTechnology – I”, Pearson Education, 2008.2 RoyA. Lindberg, “Processes andMaterialsofManufacture”, Prentice Hall India, 4thEdition, 1998. 3 Rao P.N.,“ManufacturingTechnology”, Vol. Iand Vol. II, TataMcGraw-Hill House, 2017. 	
WebReferences:	
<ol style="list-style-type: none"> 1 https://www.iare.ac.in 	