



EnTech.	1	Semester	1/2	Teaching Scheme				Evaluation Scheme	
Subject Name	Manufacturing Practices and Workshop			L	T	P	Credits	CCE	SEE
Subject Code	BTME22105			-	-	2	1	25	25
Type of course	Engineering Science Course (ESC)			CCE : Continuous and Comprehensive Evaluation SEE : Semester End Evaluation					
Prerequisite	No prerequisites								
Rationale	This course introduces first-year engineering students to fundamental workshop and manufacturing processes essential for all engineering disciplines. It covers practical skills in fitting, carpentry, welding, plumbing, and machine shop tools. This hands-on experience bridges the gap between theory and real-world applications, fostering a multidisciplinary approach to problem-solving.								

Course Outcomes (COs): At the end of the course, students will be able to		Marks % Weightage
CO-1	Recall workshop safety norms and basic tools.	20
CO-2	Explain the fundamentals of various manufacturing processes.	20
CO-3	Practice basic fitting, carpentry, and plumbing operations.	20
CO-4	Examine fabrication and joining techniques.	15
CO-5	Develop simple plastic molded and sheet metal components.	15
CO-6	Create additive manufacturing models for prototyping.	10

Course Contents		
Unit	Content	Tentative Teaching Hours
1.	<b>Introduction:</b> Importance of manufacturing practices and workshop, general safety norms in workshop, use of personal protective equipment (PPE), introduction to hand tools, power tools, cutting tools and machine tool.	2
2.	<b>Fitting:</b> Introduction to fitting, fitting tools, work holding devices, measuring tools marking tools, method of marking, cutting tools and finishing tools.	4





Unit	Content	Tentative Teaching Hours
3.	<b>Carpentry:</b> Introduction to carpentry, materials used in carpentry, timber, classification of wood, different methods of seasoning, tools for wood working, marking and measuring tool, holding tools, cutting tools.	4
4.	<b>Plumbing:</b> Introduction to plumbing, pipes and pipes material, types of pipe joints, valves.	4
5.	<b>Tin smithy:</b> Introduction to tin smithy, types of sheet metal joints and applications, use of sheet and wire gauge, tin smithy tools and sheet metal operations.	4
6.	<b>Fabrication:</b> Introduction to fabrication methods, mechanical joining (bolts, screws and rivets), adhesive bonding, welding, brazing and soldering.	4
7.	<b>Plastic Molding:</b> Types of plastic, advantage of plastics, application of plastic, plastic molding methods.	4
8.	<b>Additive Manufacturing:</b> Introduction to additive manufacturing process and its advantage, application of additive manufacturing process, 3D printing and prototyping technology.	4

**List of Practicals:**

1. Fitting Practice: prepare a metal job using fitting tools.
2. Carpentry Practice: prepare a wooden job using carpentry tools.
3. Tin Smithy Practice: prepare rectangular tray using tin smithy tools.
4. Fabrication of a simple welded joint (butt joint/lap joint).
5. Plumbing Practice: preparation of plumbing circuit using different pipe fittings.
6. Fabrication of a simple assembled component using different joining technique.
7. Demonstration of plastic molding process.
8. Demonstration of 3D printing technology.



**Suggested Specification Table of Marks as per Revised Bloom's Taxonomy**

% Distribution of Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	20	50	0	0	10

Legends: **R**: Remembrance, **U**: Understanding; **A**: Application, **N**: Analyze, **E**: Evaluate, **C**: Create and above Levels

**Recommended Reference Books**

1. Veeranna D. Kenchakkanavar, Workshop / Manufacturing Practices, Khanna Book Publishing, 2021.
2. Raghuvanshi B.S, Workshop Technology Vol. 1 and 2, Dhanpat Rai & Sons, 2015.
3. Hajra Choudhury S.K., Hajra Choudhury A.K. and Nirjhar Roy S.K., Elements of Workshop Technology, Vol. I and II, Media promoters and publishers private limited, 2008 and 2010.
4. W A J Chapman, Workshop Technology 1, CBS, New Delhi, 2001.
5. H S Bawa, Workshop Practices, Tata McGraw-Hill, 2001.

**Mapping of Course Outcomes (CO's) with Program Outcomes (PO's)**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	1	1	1	1	-	2	3	1	1	-	-	2
CO-2	3	2	2	2	2	1	1	2	1	1	2	2
CO-3	3	1	3	1	2	2	1	1	2	1	1	2
CO-4	3	2	3	1	1	2	1	1	2	1	1	1
CO-5	2	1	2	1	2	1	2	2	2	-	1	1
CO-6	3	3	2	2	3	1	2	3	2	1	2	1

**Major Equipment and Accessories**

Workbenches, measuring instruments, marking tools, bench vices, hacksaws, files, chisels, drilling machines, hand saws, chisels, planers, clamps, wood drilling tools, pipe cutters, threading tools, wrenches, sheet metal cutting tools, bending tools, riveting tools, wire gauges, arc welding machine, injection molding machines, 3D printer.

