

COURSE TITLE	MANUFACTURING PROCESS I
COURSE CODE	01ME2303
COURSE CREDITS	2

Objective:

- 1 Able to identify and select proper tool, process and conventional machines for different components and materials.
- 2 Understanding of basic application of machine tools for metal removing processes.

Course Outcomes: After completion of this course, student will be able to:

- 1 Apply working principles of conventional machine tools to perform machining operations.
- 2 Analyze the suitability of different machine tools and operations for given manufacturing tasks.
- 3 Evaluate and select appropriate machine tools, cutting tools, and accessories for specific job requirements.
- 4 Analyze conventional machining operations for performance and effectiveness.
- 5 Develop and analyze the machining sequence required to produce a component as per drawing.

Pre-requisite of course: Knowledge of Workshop

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	4	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
Total Hours		

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	LATHE Introduction – Types of Machines, Various components, its functions, working principle, Tooling–Attachments and accessories, its functions, working principle Operation – Various Operations, tools, preparation required for operations, Operation – Various Operations, tools, preparation required for operations, 4. Selection and Specification – Specification, Quotations, detailing and analysis, 5. Economy – Calculations like MRR/Cutting Rate, Time etc., Prepare the given job as per the drawing using Lathe Machine., Dismantle & mantle the Head Stock Attachment., Dismantle & mantle the Tail Stock Attachment., Dismantle & mantle the carriage assembly.	14
2	MILLING Introduction – Types of Machines, Various components, its functions, working principle, .Tooling–Attachments and accessories, its functions, working principle, Operation – Various Operations, tools, preparation required for operations, Selection and Specification Specification, Quotations, detailing and analysis, Economy – Calculations like MRR/Cutting Rate, Time etc, Prepare the given job as per the drawing using Milling Machine., Dismantle & mantle the Indexing Attachment., Dismantle & mantle the Rack Cutting Attachment., Dismantle & mantle the Slotting Attachment.	14
3	SHAPER Introduction – Types of Machines, Various components, its functions, working principle, Tooling–Attachment sand accessories, its functions, working principle, Operation – Various Operations, tools, preparation required for operations, Selection and Specification – Specification, Quotations, detailing and analysis, Economy – Calculations like MRR/Cutting Rate, Time etc., Prepare the given job as per the drawing using Shaper Machine.	8
4	DRILLING 1. Introduction – Types of Machines, Various components, its functions, working principle, 2. Tooling–Attachmentsandaccessories, its functions, working principle, 3. Operation – VariousOperations, tools, preparation required for operations, 4. Selection and Specification – Specification, Quotations, detailing and analysis, 5. Economy – Calculations like MRR/Cutting Rate, Time etc., Prepare the given job as per the drawing using Drilling Machine.	8

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
5	GRINDING Introduction – Types of Machines, Various components, its functions, working principle, Tooling–Attachments and accessories, its functions, working principle, Operation – Various Operations, tools, preparation required for operations, Selection and Specification – Specification, Quotations, detailing and analysis, Economy – Calculations like MRR/Cutting Rate, Time etc., Remove and attach the sub assembly on a given machine.	10
Total Hours		54

Textbook :

- 1 Elements of Workshop Technology: Manufacturing Process, S K Hajra Chaudhry, Media Promoters and Publishers PVT Ltd, 1978
- 2 A Text book of Workshop technology, R S Khurmi, S Chand, 2021

References:

- 1 A Course on Worksop Technology, A Course on Worksop Technology, B S Raghuvanshi, Dhanpat Rai and company, 2015
- 2 Production Technology,, Production Technology,, R K Jain, S Chand, 1999
- 3 Production Technology, Production Technology, HMT, HMT, 2003
- 4 Manufacturing Technology, Manufacturing Technology, PC Sharma , S Chand, 2015
- 5 Workshop Technology, Workshop Technology, V K Manchanda, King India Publication, 2012

Suggested Theory Distribution:

The suggested theory distribution as per Bloom’s taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
10.00	15.00	35.00	20.00	20.00	0.00

Instructional Method:

- 1 Students are taught with the help of videos, case studies and practicals in workshop

Supplementary Resources:

- 1 <https://www.udemy.com/course/introduction-to-manufacturing-processes/>
- 2 <https://www.edx.org/course/fundamentals-of-manufacturing-processes>