

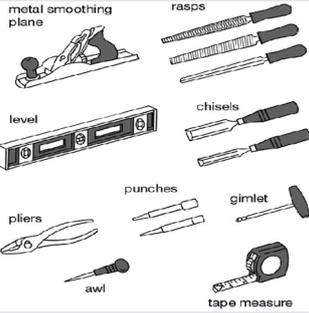
21ME103 WORKSHOP

Hours Per Week :

L	T	P	C
1	-	2	2

Total Hours :

L	T	P
15	-	30



Source:

<http://woodtech.weebly.com>

COURSE DESCRIPTION AND OBJECTIVES:

This course deals with different workshop trades and tools and also introduction of CNC machines. The objective of this course is to provide hands on experience in carpentry, fitting, tinsmith, black smithy, house wiring and welding.

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	Understand various advance machine tools and its components.
2	Identify various tools connected to the carpentry, fitting, tinsmith, black smithy, house wiring and welding.
3	Fabricate different models using workshop trades.
4	Develop methodology as per specifications of the product.

SKILLS:

- ✓ *Understand the concepts of making various wooden joints for house hold purpose.*
- ✓ *Design and develop various sheet metal products.*
- ✓ *Fabricate various agriculture tools by using forging technique.*
- ✓ *Create products by using different trades for Industrial applications.*

UNIT - I **L-3**

ENGINEERING MATERIALS: Introduction, Classification, Ferrous and non ferrous metals and alloys; Physical, Electrical, Optical and mechanical properties.

UNIT - II **L-3**

CARPENTRY: Introduction, Classification of wood; Marking tools, Measuring tools, Holding tools, Cutting tools and supporting tools, Classification of joints, Safety precautions.

UNIT - III **L-3**

FITTING: Introduction, Vices, Try square, Files, Hacksaw.

TINSMITHY: Introduction, Metals used in sheet metal work, Classification of tools.

UNIT - IV **L-3**

FORGING: Introduction, Tools and equipment used in forging, Smith's forge or hearth.

HOUSE WIRING: Concepts of basic electricity, Single phase and three phase circuits, Knowledge of different electrical wirings - Residential, Offices, Hospitals, Godowns.

UNIT - V **L-3**

WELDING: Concepts of welding, Arc welding, Gas welding, Soldering and Brazing.

CNC: Introduction, Components of CNC, Types of CNC systems.

ACTIVITIES:

- o To make wooden joints like Mortise and Tenon joint, T-lap Joint which are used to prepare a wooden furniture.
- o To prepare metal joints and metal sheet products like V-Joint and trays by using mild steel flats and Galvanised iron sheets.
- o Trials on electrical circuit connections.

LABORATORY EXPERIMENTS**LIST OF EXPERIMENTS****TOTAL HOURS: 30**

1. Fabrication of Mortise and Tenon joint using carpentry tools.
2. Fabrication of T-lap joint using carpentry tools.
3. Fabrication of V-fit using fitting tools.
4. Fabrication of U-fit using fitting tools.
5. Fabrication of truncated cylinder using tinsmithy tools.
6. Fabrication of square tray using tinsmithy tools.
7. Forging of S shape using blacksmithy technique.
8. Forging of square to round cross section using blacksmithy technique.
9. Performance of 1 lamp controlled by one way switch using house wiring.
10. Performance of 2 lamp controlled by one way switch using house wiring.
11. Demonstration of CNC and welding operations.

TEXT BOOKS:

1. S. K. Hazra Choudhury, "Elements of Work Shop Technology", 11th edition, Media Promoters, 1997.
2. Venkatachalapathy, V. S, "First year Engineering Workshop Practice", Ramalinga Publications, 2014.

REFERENCE BOOKS:

1. T. V. Gopal, T.Kumar and G. Murali, "A first Course on Workshop Practice: Theory, Practice and Work Book", Suma Publication, 2005.
2. K. V. N. Pakirappa, "Workshop Technology", 5th edition, Radiant Publishing House, 2011.