

COURSE TITLE	: WORKSHOP PRACTICE-III
COURSE CODE	: 318
COURSE CATEGORY	: B
PERIODS/WEEK	: 6
PERIODS/SEMESTER	: 108
CREDITS	: 4

TIME SCHEDULE

<u>BATCH</u>	<u>TOPIC</u>	<u>PERIODS</u>
I	1. Machine Shop	54
	2. Fitting	54

Total		108
II	1. Sheet Metal and Aluminum Fabrication	54
	2. Welding	54

Total		108

Note: For third semester workshop practice, divide the students into two batches (I&II)
 First batch should practice 1.M/C shop and 2.Fitting.The 2nd batch should practice
 1. Sheet metal and aluminum fabrication and 2.Welding.

In the fourth semester interchange the batches

CONTENT OUTLINE

1 .Machine Shop

Understand safety precautions

1.1 Lathe work

1.1.1 Familiarization with lathes- principal parts, work holding device, measuring instruments, accessories & attachments

1.1.2 Plain turning to the given accuracy - Practice with Precision measuring devices - use of digital vernier and Micrometer

1.1.3 Taper turning

1.1.4 Form turning (ball and curve)

1.1.5 Combination of above operations (taper , ball and curve)

1.2. Work on shaper

1.2.1 Familiarize with the parts, accessories and attachments.

1.2.2 Simple operations on Shaper (Planing)

1.2.3 Shaping of a rectangular block

1.2.4 Shaping a 'V' in a rectangular block

1.3. Work on drilling machine

1.3.1 Familiarization of drilling machine parts

1.3.2 Marking and drilling holes

1.3.3 Boring and counter boring

1.3.4 Reaming

1.3.5 Combination works

2. Fitting Practice

2.1 Study of measuring gauges-dial gauges, feeler gauges, thread gauges

2.2 Working from a given blue print exercises involving marking filing, drilling, reaming and tapping to an accuracy of 0.02mm (T- joint, V-joint, Single dovetail joint)

3. Sheet Metal & Aluminium fabrication

3.1 Understand safety precautions.

3.2 Familiarization of sheet metal tools – scribers, dividers, trammel points, set square, punches – prick punches, centre punches – hand Grover, rivet, chisels, hammers, riveting hammers, ball peen hammers – mallet, snip shears, pliers, hand seamers (tongs) files, stakes.

Measuring instruments in sheet metal - folding rule, common rule, steel circumference rule, vernier calipers, micrometer, combination set,

Thickness gauges – Plate gauge.

3.3 Sheet metal operations – piercing, punching, parting, notching, perforating, slotting, blanking,

lancing and cutting off.

3.4 Practice work

3.4.1 Sheet cutting, development, folding, bending and pipe bending, making right angle, soldering, brazing and riveting,

3.4.2 Making tray, oil can and bucket.

3.5 Aluminium Fabrication

3.5.1 Aluminium fabrication and its scope

3.5.2 Tools – different types of files, hacksaw, screw driver, hammer, drill bits etc

3.5.3 Measuring tools – steel tape, try square, bevel square, combination set etc.

3.5.4 Practice work – cutting, filing, drilling with hand drill, making key holes, making of different types of joints such as straight joints, corner joints, out joint with different aluminium sections.

4. Welding

4.1 Safety precautions

4.2 Study of various tools and equipments used in the welding shop for both arc welding and gas welding.

4.3 Practice work

4.3.1. D.C. arc welding

4.3.2. A.C. arc welding

4.3.3. Gas welding

4.4.4. Horizontal, flat, vertical and over head welding

4.4.5. Edge preparation of welded joint such as V, double V.

4.4.6. Pipe welding – linear and round

4.4.7. Flame cutting

REFERENCE

1. Workshop Manual by P.Kannaiah & K.L.Narayana, Scitech Publications