

6. Course Title: Basic Workshop Practice-I

Basic Workshop Practice

1st and 2nd semester for all branches Course code Ws -101, Ws- 201

There are 12 nos of shop out of which 6 shops are to be completed in each semester.

Total Marks 150 in each semester (Viva includes 50 , Sessional 100 in each semester)

Total Contact hours 90 in each semester

Course Content

1. Carpentry shop (12hrs)(Theory and Practice)

- 1.1 Introduction with the shop
- 1.2 Various structure of wood and types of wood
- 1.3 Different types of tools , machine and accessories used in Carpentry shop
- 1.4 Safety Precautions in workshop

Details of Practical Contents(3+3 hrs)

Demo of different wood working tools and machines

Demo of different wood working processes

Simple joints like T joints

One simple utility job so that it helps the institution also like name plate, switch boards etc.

2. Fitting Shop(12hrs) (Theory and Practice)

- 2.1 Introduction with the fitting shop
- 2.2 Various marking . measuring, cutting, holding and striking tools
- 2.3 Different Operations like chipping, filing, marking drilling etc.
- 2.4 Working principle of drilling machine, lapping dies etc

Details of Practical Contents(3+3 hrs)

Demo of different fitting tools and machines and power tools

Demo of different processes in fitting shop

Squaring of a rectangular metal piece

One simple utility job so that it helps the institution

3. Plumbing Shop (12hrs) (Theory and Practice)

- 3.1 Introduction
- 3.2 Various marking , measuring ,cutting, holding and striking tools
- 3.3 Different G.I. Pipes, PVC pipes, flexible pipes used in practice
- 3.4 GI pipes, PVC pipes fittings and accessories adhesive solvents, pipe layout

Details of Practical Contents (3+3 hrs)

Demo of Different Plumbing tools
Demo of Different operations
Cutting thread , using socket , elbow and tee etc.
Prepare a nipple of 6 inch or a 12 inch
Advised to prepare utility job

4. **RCC shop (12hrs)(Theory and Practice)**

- 4.1 Common Materials used in RCC shop
- 4.2 Various tools and equipment used in RCC shop
- 4.3 Different types of bonds and their details
- 4.4 Bending and binding of MS rods in RCC structures(cap., hook, crank up bar)
- 4.5 Lay out of Building Plinth

Details of Practical Contents(3+3 hrs)

Demo on binding of the RCC structure
Demo of reinforced cement concrete beam or slab with given proportion, curing process for floor, wall on RCC castings
Tiles fitting with special surface made in floors, modern bathrooms

5. **Painting Shop (12hrs)(Theory and Practice)**

- 5.1 Introduction
- 5.2 Various tools and equipment, machines used in Painting shop
- 5.3 Preparation of Ingratiation of paint
- 5.4 Types of Resin and its uses
- 5.5 Preparation of Varnishes and uses
- 5.6 Safety and precautions to be taken

Details of Practical Contents(3+3 hrs)

To prepare a wooden surface for painting , apply wooden surface and polish the other side
To prepare metal surface for painting , apply primer and paint the same
To prepare a metal surface for spray painting, 1st spray primer and paint the same by spray painting gun and compressor system

6. **Welding Shop (12hrs) (Theory and Practice)**

- 6.1 Introduction
- 6.2 Types of Welding, Arc Welding, Gas Welding, Gas Cutting
- 6.3 Welding of dissimilar materials, selection of welding rod material, size of rod and work piece
- 6.4 Different types of flames
- 6.5 Elementary symbolic Representation
- 6.6 Safety and precautions

Details of Practical Contents(3+3 hrs)

Demo of different welding tools and machines
Demo of Arc Welding, Gas Welding, Gas Cutter and rebuilding of broken parts with welding

Any one Composite job involving lap joint welding process from the following utility job like grill, door, window frame, supporting frames etc.

7. Machine Shop(12hrs)(Theory and Practice)

- 7.1 Introduction
- 7.2 Study of Different types of Lathe machine , grinding Machine, shaping machine, Drilling machine,
- 7.3 Study of Different types of hand tools and machine tools and parts
- 7.4 Safety & precautions

Details of Practical Contents(3+3 hrs)

Demo of different machines and their operations
Slot cutting by shaping machine (Horizontal and vertical)
The Preferably prepare a utility job

8. Turning shop(12hrs)(Theory and Practice)

- 8.1 Introduction
- 8.2 Various marking, measuring, cutting, holding, and string tools
- 8.3 Working principle of Drilling machine, tapping, dies, its uses
- 8.4 Safety precautions

Details of Practical Contents(3+3 hrs)

Demo of lathe machine, drilling machine
One job related to plane and taper turning , threading and knurling
One job related to drilling and tapping

9. Blacksmithy shop(12hrs)(Theory and Practice)

- 9.1 Introduction
- 9.2 Study of different processes involved in blacksmithy shop
- 9.3 Study of forging, hammering tools and their uses
- 9.4 Study of anvils its parts
- 9.5 Safety precautions

Details of Practical Contents(3+3 hrs)

Demo of different processes in black smithy
One job related to forging
One job related to cold working process
Preferably utility jobs to be prepared

10. Electrical Shop(12hrs)(Theory and Practice)

- 10.1 Introduction
- 10.2 Various terms and instruments used in electrical wiring
- 10.3 Study of different tools used in simple house wiring

10.4 Difference between ac and dc line

10.5 Safety precautions

Details of Practical Contents(3+3 hrs)

Demo of simple house wiring and use of tools

One job related to simple house wiring

Fittings of cut outs, fuses and other simple fittings etc.

Difference between Single phase wiring and three phase wiring

11. Pattern making shop(12hrs)(Theory and Practice)

11.1 Introduction

11.2 Tools used in Pattern making shop

11.3 Various Processes performed in the shop

11.4 Material used in the shop

11.5 Process of Casting

11.6 Study of pattern, its types

11.7 Cope, drag, risers etc

11.8 Green sand moulding etc

Details of Practical Contents(3+3 hrs)

Demo of pattern making

Different types of allowances provided

One job for pattern making from wood(so that students can practically prepare in moulding shop

12. Moulding Shop(12hrs)(Theory and Practice)

12.1 Introduction

12.2 Materials used in moulding process

12.3 Tools used in moulding shop

12.4 Terms related with cope and drag , Green sand moulding etc.

12.5 Different types of moulding

12.6 Moulding sand composition and its properties

12.7 Safety precaution

Details of Practical Contents(3+3 hrs)

Demo of various moulding process like in moulding machine, casting

One job related to moulding preferably which is prepared in pattern making

With low melting point materials like wax etc. so that student can practically understand the moulding process.

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