WORKSHOP PRACTICE

Periods / Week: 06Total Periods: 90

| End Examination | : 100 marks |
|-----------------|-------------|
| Sessional | : 50 marks |
| Total | : 150 marks |

Practical Examination – 4 Hours

Topic Wise distribution of periods :

| SI. No. | Topics | Periods |
|---------|-------------------------------|---------|
| 1. | Fitting Shop | 24 |
| 2. | Sheet Metal | 18 |
| 3. | Welding Shop | 24 |
| 4 | Turning Shop | 21 |
| 5. | Exposure to CNC Milling/Lathe | 03 |
| | TOTAL : | 90 |

PERFORMANCE OBJECTIVES :

- 1. To demonstrate safely practice in various shops of the workshop.
- 2. To select suitable tools & equipment in the following shops.
 - (a) Fitting.
 - (b) Sheet Metal.
 - (c) Welding (Gas & Electrical).
 - (d) Turning
- 3. To select suitable materials for different process in the above shops.
- 4. To demonstrate the different processes adopted in the above shops.
- 5. To finish the jobs within stipulated time and with accuracy as per specifications.

COURSE CONTENT

1.0 Fitting Shop :

- 1.1 Demonstrate safety practices in the fitting shop.
- 1.2 Select suitable holding & clamping devices for fitting jobs.
- 1.3 Select suitable tools like-files, vice, chisels, punch, scriber, hammers, surface plate, V- block, try square, caliper etc.
- 1.4 Demonstrate the following operations: Sawing, Chipping, Fitting, craping, grinding, marking, reaming, tapping, drilling & external threading (by using die).
- 1.5 Introduction of chipping, demonstration on chipping & it's applications.
- 1.6 Description, demonstration & practice of simple operation of hack saw straight & angular cutting.
- 1.7 Introduction & use of measuring tools used in fitting shop like steel rule, measuring tape, outside micrometer, vernier caliper & vernier height gauge .
- 1.8 Description & Demonstration & practice of thread cutting using taps & dies.
 Job: Cutting & fitting practice on a square of 50mm X50mmX8mm MS flat.
 Job: Angular cutting practice of 45 degree (on the above job)
 Job: Preparation of stud (to cut external threads) with the help of dies (mm or BSW)

Job: H-fitting in the mild steel (ms) square.

Job: Prepare one job on male female fitting.

2.0. Sheet Metal:

- 2.1 Demonstrate safety practices in sheet metal shop.
- 2.2 Prepare surface development for the jobs according to the drawing.
- 2.3 Cut M.S. and G.P. sheets according to the surface development / drawing using standard sheet metal cutting tools.
- 2.4 Select hand tools for sheet metal work.
- 2.5 Demonstrate the process of metal clamp joining and reveted joining of sheet metals.

Job: Making of sheet metal joints

- Job: Prepare a sheet metal tray or a funnel
- Job: Prepare a sheet metal job involving rolling, shearing, creasing, bending & cornering

Job: Prepare a lap riveting joint.

3.0 Welding Shop :

- 3.1 Introduction.
- 3.2 Safety precautions in welding, safety equipments & it's application in welding shop.
- 3.3 Introduction to welding, type of welding, common materials that can be welded, introduction to gas welding equipment, types of flame, adjustment of flame, applications of gas welding. Welding tools & safety precautions.
- 3.4 Introduction to electric arc welding (AC & DC), practice in setting current & voltage for striking proper arc, precautions while using electric arc welding. Applications of arc welding, Introduction to polarity & their use.
- 3.5 Demonstrate & use of the different tools used in the welding shop with sketches. Hand shield, helmet, clipping hammer, gloves, welding lead, connectors, aprons, goggles, etc.

3.6 Demonstrate of welding defects & various types of joints & end preparation.Job: Preparation of lap joint by arc welding rod.

Job: Preparation of Tee joint by arc welding

Job: Preparation of single V or double V butt joint by electric arc welding

Job: Brazing practice. Use of Spelt or (on MS sheet pieces)

Job: Gas welding practice on worn-out & broken parts.

4.0 TURNING SHOP:

- 4.1 Introduction
- 4.2 Safety precaution & safety equipments.
- 4.3 Various marking, measuring, cutting, holding tools.
- 4.4 Demonstration of different parts of a lathe demonstration on centering & turning operation in a group of 06 students.

Job: plain turning, taper turning & grooving practices on round bar.

5.0 EXPOSURE TO THE C.N.C MILLING/LATHE MACHINE

Reference Books:

- 1. Workshop Technology by S. K. Hajara Choudhry, Media Promoters Publishers, New Delhi
- 2. Workshop Technology by B. S. Raghubanshi , Dhanpat Rai and Sons, New Delhi
- 3. Workshop Technology by H. S. Bawa TMH
- 4. Workshop Familiarization- E. Wilkinson
- 5. Sheet metal shop practice- Bruce & Meyer
- 6. A Text book of Workshop Technology by R.S.Khurmi & J. K. Gupta (S.Chand)

NOTES:

- 1. Work, Progress book should be maintained continuously.
- 2. The roll numbers of the students must be punched on each job.
- 3. The turning shop job should be done by students maximum 06 students in a group.