

GOVERNMENT POLYTECHNIC, BARGRAH

DEPARTMENT OF ELECTRICAL ENGINEERING



LESION PLAN

WORKSHOP PRACTICE -1

PREPARED BY:

SHRADHA SUMAN ADDABAR

LECTURE IN MECHANICA ENGINEERING



GOVERNMENT POLYTECHNIC, BARGARH

VISION

To be a reputed polytechnic institute imparting quality technical education to produce diploma engineers with dynamic personalities and innovative competencies in the state of Odisha.

MISSION

M1:- To offer the best and advanced lab facilities adhering to the curriculum to make future engineers.

M2:- To engage highly qualified and competent faculties to make the student acquire the skillful knowledge required.

M3:- To develop an excellent teaching learning environment leading to create the best institute.

DEPT OF ELECTRICAL ENGINEERING, G.P. BARGARH

VISION

To produce Electrical Engineering professionals who can contribute for socio-economic and technological development to meet global needs.

MISSION

M1:- To strengthen academic infrastructure leading to quality professional by using modern technical tools and technologies.

M2:- To impart innovative knowledge among the students and make more industry-institution programs to make them successful professionals for serving the society.

M3:- To provide a learning environment to improve problem solving abilities, leadership abilities, ethical responsibilities and lifelong learning.

PROGRAM EDUCATIONAL OBJECTIVE (PEO)

PEO1:- To obtain basic and advanced knowledge in Electrical Engineering for employment in public/private sector organizations.

PEO2:- To encourage the students for higher studies by acquiring knowledge in the basic and emerging areas of Electrical Engineering.

PEO3:- To become entrepreneurs to showcase innovative ideas.

PEO4:- To have a well-rounded education that includes excellent communication skills, working effectively on team-based projects, ethical and social responsibilities.

Pr.3b. Workshop Practice

(1st / 2nd sem Common)

Theory: 6 Periods per Week
Total Periods: 90 Periods
Examination: 3 Hours

End Sem Exams : 100 Marks
TOTAL MARKS : 100 Marks

Objective:

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.

Topic Wise distribution of periods

Sl. 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 Machine	03
	TOTAL	90

1. 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 & Angular cutting.
- 1.5 Introduction of chipping, demonstration on chipping and its applications.
- 1.6 Description, demonstration and practice of simple operation of hack saw straight and angular cutting.
- 1.7 Introduction and use of measuring tools used in fitting shop like steel rule, measuring tape, outside micrometer, vernier caliper and vernier height gauge.
- 1.8 Description and Demonstration and practice of thread cutting using taps and dies.
Job: Cutting & fitting practice on a square of 50mm X 50mm X 8mm 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. 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 reveded joining of sheetmetals.

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. WELDING SHOP

- 3.1 Introduction.
- 3.2 Safety precautions in welding, safety equipments & its 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 arcwelding.
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. 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.

EXPOSURE TO C.N.C MILLING / LATHE MACHINE

AFTER COMPLETION OF THE COURSE THE STUDENTS WILL BE ABLE TO

C113.1	Demonstrate the different types of fitting tools and their application
C113.2	Demonstrate the sheet metal tools and different types of sheet metal jobs
C113.3	Demonstrate the welding operation and welding defect
C113.4	Demonstrate the S.C lathes and their different types of operation

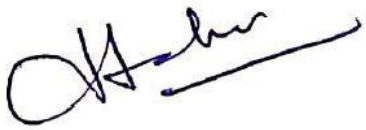
SESSION :2023-2024 COURSE CODE:TH3 SEMSETER :1 ST PERIOD/WEEK:6 TOTAL PERIOD :60		NAME OF THE FACULTY:MRS CHITTA RANJAN MEHER COURSE NAME :ELEMENT OF MECHANICAL ENGG DATE:01.08.2023 TO 30.11.2023
SL NO	DATE	
1	02.08.2023	Introduction of workshop
2	03.08.2023	Introduction of workshop
3	04.08.2023	Safety precaution in workshop
4	07.08.2023	Safety precaution in workshop
5	09.08.2023	FITTING SHOP Safety precaution of fitting shop
6	10.08.2023	Select suitable holding & clamping devices for fitting jobs.Select suitable tools like- files, vice, chisels, punch, scriber, hammers, surface plate, V-block, try square, caliper etc.
7	11.08.2023	Demonstrate the following operations: Sawing, Chipping, Fitting, Craping, Grinding, Marking, Reaming, Tapping, Drilling & Angular cutting
8	14.08.2023	Introduction of chipping, demonstration on chipping and its applications. Description, demonstration and practice of simple operation of hack saw straight and angular cutting.
9	16.08.2023	Introduction and use of measuring tools used in fitting shop like steel rule, measuring tape, outside micrometer, vernier caliper and vernier height gauge. Description and Demonstration and practice of thread cutting using taps and dies.
10	17.08.2023	Description and Demonstration and practice of thread cutting using taps and dies. Job: Cutting & fitting practice on a square of 50mm X 50mm X 8mm MS Flat.
11	18.08.2023	Job: Angular cutting practice of 45 degree (on the above job)
12	21.08.2023	Job: Preparation of stud (to cut external threads) with the help of dies (mm or BSW).
13	23.08.2023	Job: H-fitting in the mild steel (ms) square
14	24.08.2023	Job: Prepare one job on male female fitting
15	24.08.2023	Job: Prepare one job on male female fitting
16	25.08.2023	Job: Prepare one job on male female fitting
17	28.08.2023	SHEET METAL Demonstrate safety practices in sheet metal shop.
18	31.08.2023	Prepare surface development for the jobs according to the drawing
19	01.09.2023	Cut M.S and G.P. sheets according to the surface development / drawing using standard sheet metal cutting tools.
20	04.09.2023	Select hand tools for sheet metal work.
21	07.09.2023	Demonstrate the process of metal clamp joining and riveted joining of sheetmetals.

22	08.09.2023	Job: Making of sheet metal joints.
23	11.09.2023	Job: Prepare a sheet metal tray or a funnel.
24	13.09.2023	Job: Prepare a sheet metal job involving rolling, shearing, creasing, bending & cornering.
25	14.09.2023	Job: Prepare a sheet metal job involving rolling, shearing, creasing, bending & cornering.
26	15.09.2023	Job: Prepare a sheet metal job involving rolling, shearing, creasing, bending & cornering.
27	18.09.2023	Prepare a lap riveting joint.
28	21.09.2023	Prepare a lap riveting joint.
29	22.09.2023	WELDING SHOP Introduction. Safety precautions in welding, safety equipments & its application in welding shop.
30	25.09.2023	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.
31	27.09.2023	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.
32	28.09.2023	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
33	29.09.2023	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
34	04.10.2023	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.
35	05.10.2023	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.
36	06.10.2023	Demonstrate of welding defects & various types of joints & end preparation.
37	09.10.2023	Demonstrate of welding defects & various types of joints & end preparation.
38	11.10.2023	Job: Preparation of single V or double V butt joint by electric arc welding.

39	12.10.2023	Job: Preparation of single V or double V butt joint by electric arc welding.
40	13.10.2023	Job: Brazing practice. Use of Spelt or (on MS sheet pieces).
41	16.10.2023	Job: Brazing practice. Use of Spelt or (on MS sheet pieces).
42	18.10.2023	Job: Gas welding practice on worn-out & broken parts.
43	19.10.2023	Job: Gas welding practice on worn-out & broken parts.
44	20.10.2023	TURNING SHOP Introduction. Safety precaution & safety equipments.
45	30.10.2023	Introduction. Safety precaution & safety equipments.
46	01.11.2023	Various marking, measuring, cutting & holding tools.
47	02.11.2023	Various marking, measuring, cutting & holding tools.
48	03.11.2023	Demonstration of different parts of a lathe, demonstration on centering & turning operation in a group of 06 students.
49	06.11.2023	Demonstration of different parts of a lathe, demonstration on centering & turning operation in a group of 06 students.
50	08.11.2023	Job: plain turning, taper turning & grooving practices on round bar.
51	09.11.2023	Job: plain turning, taper turning & grooving practices on round bar.
52	10.11.2023	Job: plain turning, taper turning & grooving practices on round bar.
53	13.11.2023	Job: plain turning, taper turning & grooving practices on round bar.
54	15.11.2023	Job: plain turning, taper turning & grooving practices on round bar.
55	16.11.2023	Job: plain turning, taper turning & grooving practices on round bar.
56	17.11.2023	Job: plain turning, taper turning & grooving practices on round bar.
57	20.11.2023	Job: plain turning, taper turning & grooving practices on round bar.
58	21.11.2023	Job: plain turning, taper turning & grooving practices on round bar.

59	22.11.2023	EXPOSURE TO C.N.C MILLING / LATHE MACHINE
60	24.11.2023	EXPOSURE TO C.N.C MILLING / LATHE MACHINE

Chitta ranjan Meher



SIGANTURE OF FACULTY



SIGNATURE OF HOD

DEPARTMENT OF MECHANICAL ENGG