

ANNEXURE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU
DIPLOMA IN ENGINEERING / TECHNOLOGY SYLLABUS
M-SCHEME
(Implements from the Academic year 2015-2016 onwards)

Course Name : All branches of Diploma in Engineering and Technology and Special Programmes except DMOP, HMCT and film & TV.

Subject Code : 30018

Semester : I Semester

Subject Title : **WORKSHOP PRACTICE**

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Marks			
WORKSHOP PRACTICE	3	45	Internal Assessment	Board Examination	Total	3 Hrs.
			25	75	100	

RATIONALE:

Workshop practice is a basic subject for all branches of Diploma Engineering and Technology. This subject is aimed at providing basic understanding of the fundamentals of practical sections; mainly planning, marking, cutting, filing, wiring connections, standards & conventions of wiring, the tools, the use of measuring instruments in engineering applications and plumbing tools and practices.

The topics covered are based on the syllabus for Diploma studies in engineering. The subject is planned to include sufficient practices which would help the student to understand the principles of manufacturing.

OBJECTIVES:

At the end of the practice, the students will be able to,

- Acquire skills in basic engineering practice.
- Identify the hand tools and instruments.
- Study and use measuring instruments.
- Practical skills in the fitting, plumbing and wiring trades.

30018 WORKSHOP PRACTICE

1. FITTING SECTION

15 HRS.

- General safety precaution inside the workshop.
- Study about first aid.
- Study of hand tools
- Study of instruments- Calipers -Scale – Vernier caliper – Vernier height gauge.
- Marking and punching practice.
- Hacksaw cutting practice.
- Filing and fitting practice.
- Drilling and tapping practice.

Exercises

Raw material: 3mm thick M.S. flat

1. Single piece cutting and filing
2. L-Joint
3. V-Joint
4. Drilling and tapping (Four drills and Two with Taps) **Raw material:** 10mm thick M.S. flat

Note: Practices should be given to cover the above area. At the end, the students should be able to do the above exercises for the board practical examinations. Students should mention the variations in the dimensions of their exercises.

2. WIRING

15 HRS

- Study about the safety measures in wiring.
- Study of tools.
- Study about the earthing.
- Identify different electrical fitting and accessories.
- Identify the types of wires with colour code.
- Identify the symbols in circuit diagram.
- Practice simple wiring.
- Uses of multimeter.

Exercises

1. One lamp controlled by one-way switch – measure and check the voltage and current using multimeter.

2. Two lamps connected in series - measure and check the voltage and current using multimeter.
3. Two lamps connected in parallel - measure and check the voltage and current using multimeter.
4. Staircase wiring.

Note: Students should draw the circuit diagram and collect the components according to their requirement. Only components should be given to the students. The connection should be given from the main switch. Suitable safety precautions should be made before connections.

3. PLUMBING

15 HRS

- Plumbing is the skilled trade of working with pipes, tubing and plumbing fixtures for drinking water systems and the drainage of waste.
- The plumbing industry is a basic and substantial part of every developed economy due to the need for clean water, and proper collection and transport of wastes.
- Plumbing also refers to a system of pipes and fixtures installed in a building for the distribution of potable water and the removal of waterborne wastes.
- Plumbing is usually distinguished from water and sewage systems, in that a plumbing system serves one building, while water and sewage systems serve a group of buildings or a city.
- To install pipes and fixtures.
- To repair or replace all kinds of leaks.
- Use personal protective equipments.

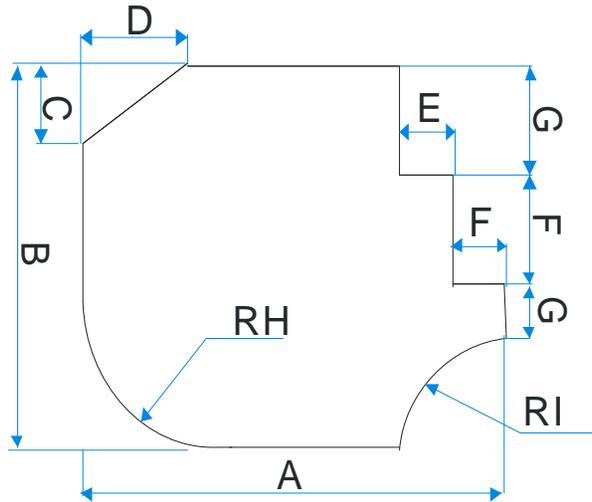
Exercises

1. Install a sink / washbasin with tap using different PVC/GI pipe accessories such as bend, tee and gate valve.
2. Cutting, bending and external threading of GI pipes using Die.
3. Repair a leakage in the water tap and fix water meter.
4. Lay pipes to install rain water harvesting.

The students should be given training in all the sections. All the exercises should be completed. The students should maintain record notebook for the concerned trades and submit during the Board Practical Examinations.

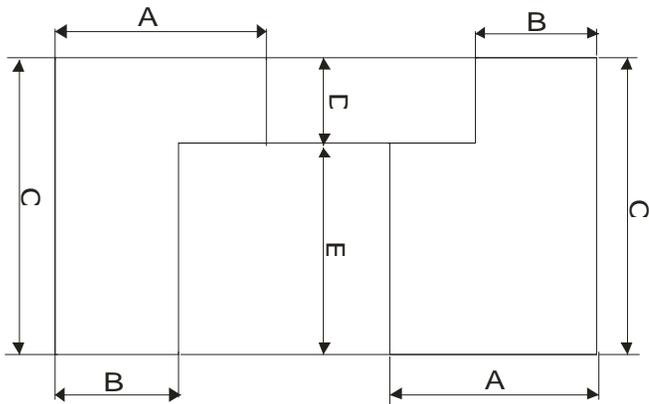
FITTING EXERCISE

1. Single piece cutting and filing



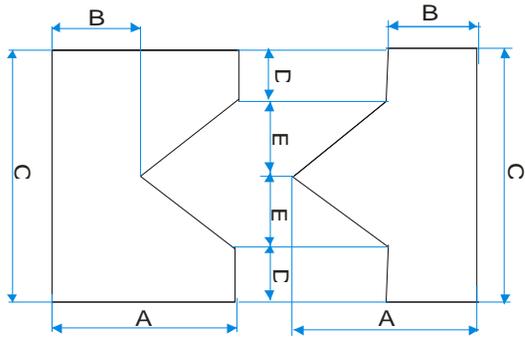
Sl.No	PART NAME	ACTUAL	OBTAINED	VARIATION
1	A			
2	B			
3	C			
4	D			
5	E			
6	F			
7	G			
8	R H			
9	R I			

2. L-Joint



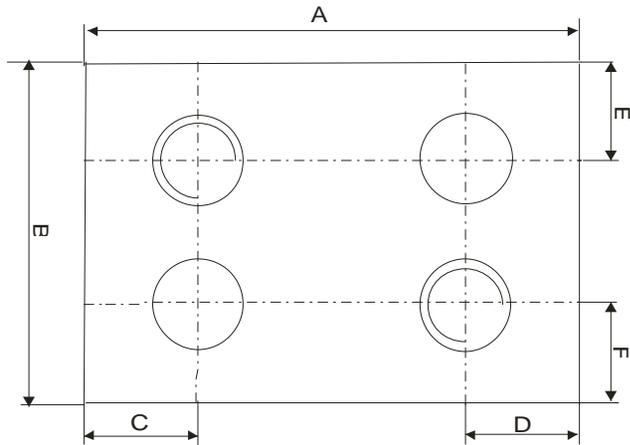
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1	A			
2	B			
3	C			
4	D			
5	E			

3. V-Joint



SI.No	PART NAME	ACTUAL	OBTAINED	VARIATION
1	A			
2	B			
3	C			
4	D			
5	E			

4. Drilling and tapping (Four drills and Two with Taps)



SI.No	PART NAME	ACTUAL	OBTAINED	VARIATION
1	A			
2	B			
3	C			
4	D			
5	E			
6	F			
7	Dia			
8	Tapping			

30018 WORKSHOP PRACTICE

BOARD EXAMINATION

Note: Any two exercises should be carried out for examination. Fitting is compulsory any one exercise form wiring or plumbing. All the exercises should be given in the question paper and students are allowed to select by a lot. **Students should have liberty to do the examination for 3 Hrs. No fixed time for each trade. The number of instrument / equipment facility should be available for each batch strength during examination.**

		Max. Marks
Fitting (Compulsory)		35
Marking & Cutting	- 10	
Filing / Dimensions	- 20	
Joint / Finish	- 5	
Wiring		35
Circuit diagram	- 15	
Connection / Checking	- 15	
Result	- 5	
	(OR)	
Plumbing		35
Preparation of material	- 15	
Connection / Testing	- 15	
Result	- 5	
Viva-voce		5
TOTAL		75
Internal Marks		25
Observation	- 10	
Record	- 10	
Attendance	- 5	
Total	- 25	

LIST OF EQUIPMENTS REQUIRED

NAME OF THE BRANCH / COURSE FIRST YEAR BASIC ENGINEERING
SEMESTER I SEMESTER
NAME OF THE LABORATORY WORKSHOP PRACTICE – FITTING SECTION

S.No	LIST OF THE EQUIPMENTS	QUANTITY REQUIRED
1.	Power Hacksaw / bar cut machine	1 No.
2.	Hand shearing machine	1 No.
3.	Surface plate	5 Nos.
4.	Anvil	5 Nos.
5.	Drilling machine	3 Nos.
6.	Calipers (Inside / odd leg / outside)	10 Nos each.
7.	Vernier caliper	5 Nos
8.	Vernier Height Gauge	2 Nos.
9.	Bench vice fitted on the table	30 Nos.
10.	Hand hacksaw Frame	30 Nos.
11.	Flat rough / smooth file	30 Nos. each
12.	Try angular file	30 Nos.
13.	Half round file	30 Nos.
14.	Try square	30 Nos.
15.	Steel rule	30 Nos.
16.	Scriber	30 Nos.
17.	Square file	10 Nos.
18.	Round file	10 Nos.
19.	Dot punch / Center punch / Prick punch	Sufficient quantity
20.	Hammer	Sufficient quantity
21.	Drill Bit (Required size)	Sufficient quantity
22.	Tap set (Required size)	Sufficient quantity
23.	Tap wrench	Sufficient quantity

**NAME OF THE BRANCH / COURSE
SEMESTER**

FIRST YEAR BASIC ENGINEERING
I SEMESTER

NAME OF THE LABORATORY

WORKSHOP PRACTICE – **WIRING SECTION**

S.No	LIST OF THE EQUIPMENTS	QUANTITY REQUIRED
1.	Cutting pliers (insulated)	15 Nos.
2.	Wire Cutter	10 Nos.
3.	Screw driver (Insulated)	15 Nos.
4.	250V Line Tester	15 Nos.
5.	Wiring board (Wood)	15 Nos.
6.	Screw driver set	5 Nos.
7.	Hammer	5 Nos.
8.	Poker	5 Nos.
9.	Multi meter	5 Nos.
10.	Wires	Sufficient quantity
11.	Bulbs (CFL/LED)	Sufficient quantity
12.	Tube light set	Sufficient quantity
13.	Holder	Sufficient quantity
14.	Connectors	Sufficient quantity
15.	Switches (One way / Two way)	Sufficient quantity

NAME OF THE BRANCH / COURSE FIRST YEAR BASIC ENGINEERING
SEMESTER I SEMESTER
NAME OF THE LABORATORY WORKSHOP PRACTICE – PLUMBING SECTION

S.No LIST OF THE EQUIPMENTS QUANTITY REQUIRED

1. HAND-OPERATED BENDING TOOL	2 Nos.
2. SPIRIT LEVEL	5 Nos.
3. TRY SQUARE	5 Nos.
4. MEASURING TAPE	5 Nos.
5. HAND DRILLING MACHINE	2 Nos.
6. HACKSAW FRAME WITH BLADE	5 Nos.
7. JUNIOR HACKSAW FRAME	5 Nos.
8. PIPE/TUBE CUTTER	2 Nos.
9. WATER METER	5 Nos.
10. CUTTING PLIER	5 Nos.
11. GRIP PLIER	5 Nos.
12. SLIP JOINT PLIER	5 Nos.
13. SCREW DRIVER	5 Nos.
14. D/E SPANNER (6 to 32 mm)	2 Sets
15. BOX SPANNER (6 to 32 mm)	2 Sets
16. JUMPER BIT	5 Nos.
17. FLAT CHISEL	5 Nos.
18. SLEDGE HAMMER	5 Nos.
19. PIPE VICE	2 Nos.
20. PIPE DIE SETS (Various sizes)	5 Nos.
21. PIPE WRENCH	5 Nos.
22. SHIFTING SPANNER	5 Nos.
23. WIRE BRUSH	5 Nos.
24. Personal protective equipments	Sufficient quantity
25. TEFFLON TAPE / SOLUTION	Sufficient quantity
26. EMERY SHEET (Various sizes)	Sufficient quantity
27. GI Pipes & Accessories	Sufficient quantity
28. PVC pipes & Accessories	Sufficient quantity
29. OTHER CONSUMABLES	Sufficient quantity