ANNEXURE

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU

DIPLOMA IN ENGINEERING / TECHNOLOGY SYLLABUS

**N-SCHEME**

(Implements from the Academic year 2019-2020 onwards)

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

Subject Code : **40028**

Semester : II

Subject Title : WORKSHOP PRACTICE

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

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

**TOPICS AND ALLOCATION OF HOURS**

|  |  |  |
| --- | --- | --- |
| **Sl.No.** | **Sections** | **Time (Hrs)** |
| 1 | Fitting Section | 15 Hrs. |
| 2 | Wiring Section | 15 Hrs. |
| 3 | Plumbing Section | 15 Hrs. |

**RATIONALE:**

* Workshop practice is a basic subject for all branches of Diploma Engineering and Technology.
* This subject is planned to familiar with the basic tools and measuring instruments in general workshop.
* To understand and familiar with the shop floor practices and safety procedures.
* The fitting section is focused on the metal works such as marking, cutting, filing, drilling, tapping operations.
* The wiring section is aimed to understand the basic wiring, wiring standards, conventions and basic circuits.
* The plumbing section is to handle the basic plumbing tools and practices. The importance and various methods of rain water harvesting to improve the ground water level.
* The subject is planned to include sufficient practices which would help the students to understand the principles of basic industrial and domestic applications.

**40028 WORKSHOP PRACTICE**

**1. FITTING SECTION 15 HRS.**

**Objective:**

At the end of this course, the students will able to

Know basic workshop processes and general safety precautions inside the shop.

Read and interpret job drawings.

Identify, select and use various marking, measuring, cutting and filing tools.

Different fitting operation like marking, cutting, filing, drilling, tapping etc.

Able to operate drilling machine and work holding devices.

Produce jobs as per specified dimensions and inspect the job.

**Skills:**

* Ability to read job drawing
* Ability to identify and select proper material, tools, equipment and machine.
* Ability to set tools, work piece, and machines for desired operations.
* Ability to use safety equipment and follow safety procedures during operations.
* Ability to complete job as per job drawing in allotted time.
* Ability to inspect the job for confirming desired dimensions and shape.
* Ability to acquire hands-on experience

**Exercises**

**Note: Practices should be given to cover all the operations. All the students should be given sufficient practice to do the above exercises for the board practical examinations. Importance should be given for the dimensions.**

**Exercise 1** Raw material: 75 mm X 50 mm X 5 mm thick M.S. flat

All Dimensions are in mm

**Exercise 2** Raw material: 75 mm X 50 mm X 5 mm thick M.S. flat

All Dimensions are in mm

**Exercise 3** Raw material: 75 mm X 50 mm X 5 mm thick M.S. flat

All Dimensions are in mm

**2. WIRING SECTION 15 HRS**

**Objective:**

At the end of this course, the students will able to

Identify, select and use various wires and colour codes.

Adopt safety practices while working with power supply.

Able to know about the basic tools and measuring equipment.

To understand the importance of earthing.

Identify and make use of different electrical fittings and accessories.

Read and understand circuit diagram and symbols.

Practice simple wiring based on the circuit.

Ability to use multimeter for measurements.

**Skills:**

* Ability to read circuit diagram.
* Ability to identify and select proper wires and tools.
* Ability to follow safety procedures during work.
* Ability to complete connections as per circuit in allotted time.
* Ability to check the connections and measure the voltage.
* Ability to acquire hands-on experience

**Exercises**

**Note: Students should draw the circuit diagram and collect the components according to their requirement. The connections should be done by the student in a board and checked with power supply. Suitable safety precautions should be made accordingly.**

**Exercise 4:**

Connect the LED bulb, Tube light and One plug point socket with individual switch control in a board.

**Exercise 5:**

Connect two lamps in series and parallel with switch control in a board.

**Exercise 6:**

Connect staircase wiring for a LED bulb using two-way switches in a board.

**Exercise 7:**

Connect a LED bulb using EB supply and UPS supply in a board using changeover switch. Check the AC and DC Voltage using multimeter.

**3. PLUMBING SECTION 15 HRS**

**Objective:**

Identify, select and use various plumbing tools and components

To install pipes and accessories.

To repair or replace components in case of water leakages.

To make use of GI and PVC pipes, pipe fittings and accessories.

To know about different plumbing layouts and pipe joints.

Pipe threading using standard die sets.

**Skills:**

* Ability to read layout diagram.
* Ability to identify and select proper pipes, accessories and tools.
* Ability to follow safety procedures during work.
* Ability to complete connections as per layout in allotted time.
* Ability to check the leakages in connections.
* Ability to acquire hands-on experience

**Exercises**

**Note: Students should draw the block diagram and collect the components according to their requirement. The connections should be done by the student and checked with water supply. Suitable provisions (Board / Stand) should be made to fix the components accordingly.**

**Exercise 8:**

Install a sink / wash basin with tap using PVC pipe and accessories such as gate valve, bend / elbow, tee, coupling, water meter etc... with draining system.

**Exercise 9:**

Provide the hot water tap connection from the water heater using GI pipe with required fittings. Form threads for connecting pipes.

**Exercise 10:**

Lay pipes to collect rain water from various types of roof and install rain water harvesting system.

**40028 WORKSHOP PRACTICE**

**BOARD EXAMINATION**

**Note:**

1. The students should be given proper training in all the sections. All the exercises should be completed. The students should maintain observation and record notebook for the concerned trades and submit during the Board Practical Examinations.
2. Any two exercises should be given for examination. One exercise from fitting and another exercise from either wiring or plumbing.
3. All exercises should be given in the question paper and students are allowed to select by lot. No fixed time allotted for each section and students have liberty to do the examination for 3 Hrs.
4. Required instruments / equipment / tools should be available for each batch strength as prescribed during examination.
5. The external examiner should verify the availability of the equipment for the batch strength before the commencement of Practical Examination.

##### **DETAILED ALLOCATION OF MARKS**

###### **Board Practical Examination: 100 Marks**

|  |  |  |
| --- | --- | --- |
| **Description** | | **Mark Allotted** |
| **Fitting Section** | |  |
| Marking & Cutting | | 10 |
| Filing / Dimensions | | 30 |
| Finish | | 10 |
| **Wiring Section** | **Plumbing Section** |  |
| Procedure / Circuit diagram | Procedure / Layout | 15 |
| Connection / Checking | Connection / Checking | 20 |
| Result / Finish | Result / Finish | 10 |
| Viva voce | | 5 |
| **Total Marks** | | **100** |

###### **Internal Assessment: 25 Marks**

|  |  |
| --- | --- |
| **Content** | **Mark Allotted** |
| Observation | 10 |
| Record | 10 |
| Attendance | 5 |
| **Total Marks** | **25** |