**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 : **40026**

Semester : II Semester

Subject Title : **ENGINEERING PHYSICS - II PRACTICAL**

**TEACHING AND SCHEME OF EXAMINATION**

Number of weeks per semester: 15 weeks

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Subject | Instructions | | Examination | | | |
| ENGINEEERING PHYSICS - II PRACTICAL | Hours / Week | Hours / Semester | Marks | | | Duration |
| 2 Hrs. | 30 Hrs. | Internal Assessment | Board Examination | Total |
| 25 | 100 | 100 | 3 Hrs. |

**RATIONALE:**

In Diploma level Engineering education skill development plays a vital role. The skill development can be achieved by on hand experience in handling various instruments, apparatus and equipment. This is accomplished by doing engineering related experiments in practical classes in various laboratories.

GUIDELINES:

All the Eight experiments given in the list of experiments should be completed and given for the end semester practical examination.

* In order to develop best skills in handling Instruments/Equipment and taking readings in the practical classes, every two students should be provided with a separate experimental setup for doing experiments in the laboratory.
* The external examiners are requested to ensure that a single experimental question should not be given to more than four students while admitting a batch of 30 students during Board Examinations.

**40026 ENGINEERING PHYSICS - II PRACTICAL**

**LIST OF EXPERIMENTS WITH OBJECTIVES:**

1. REFRACTIVE INDEX

To determine the refractive index of a transparent liquid (water) using travelling Microscope.

2. SPECTROMETER.

To measure the angle of the prism using Spectrometer.

3. SOLAR CELL.

To draw the V – I characteristics of the solar cell.

4. LAWS OF RESISTANCES.

To verify the laws of resistances by connecting the two given standard resistances

1. in series and
2. in parallel, using Ohm’s law.

5.JOULE’S CALORIMETER.

To determine the specific heat capacity of water.

6. COPPER VOLTAMETER.

To determine the electro chemical equivalent (e.c.e.) of copper.

7. P-N JUNCTION DIODE.

To draw the voltage – current characteristics in forward bias and to find the ‘dynamic Forward resistance’ & ‘knee voltage’ from the graph.

8. LOGIC GATES.

To find the output conditions for different combinations of the input for NOT gate and 2 inputs AND, OR, NAND & NOR logic gates, using IC chips. ( IC 7404 – NOT Gate, IC 7408 – AND Gate, IC 7432 – OR gate, IC 7400 – NAND Gate, IC 7402 – NOR Gate)

**ALLOCATION OF MARKS**

Formula & Diagram 15 marks

Tabulation with proper units 10 marks

Observation (including taking readings) 35 marks

Calculation 10 marks

Result 05 marks

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Total 75 Marks

**40026 ENGINEERING PHYSICS - II PRACTICAL**

LIST OF EQUIPMENT

1. *REFRACTIVE INDEX*

Travelling Microscope, Beaker with transparent liquid and Saw dust.

1. *SPECTROMETER*.

Spectrometer, Sodium vapour lamp, Reading lens and Glass prism

1. *SOLAR CELL*.

Solar cell Kit for drawing the V - I characteristics

1. *LAWS OF RESISTANCES*.

Battery Eliminator, key, rheostat, ammeter, voltmeter, Connecting wires and two known standard resistances.

1. *JOULE’S CALORIMETER*.

Joule’s Calorimeter, Battery eliminator, Rheostat, Key, Ammeter, voltmeter, stop clock, thermometer, digital Balance and connecting wires.

1. *COPPER VOLTAMETER*.

Copper Voltameter, Battery eliminator, Rheostat, Key, Ammeter, stop clock, digital balance, emery sheet and Connecting wires.

1. *P-N JUNCTION DIODE*.

P-N Junction Diode forward characteristics kit.

1. *LOGIC GATES*.

Logic gates testing apparatus kit with bread board for Mounting ICs and Integrated circuit chips ( IC 7404 –NOT Gate, IC 7408 – AND Gate, IC 7432 – OR gate, IC 7400 –

NAND Gate, IC 7402 – NOR Gate)

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**40026 ENGINEERING PHYSICS - II PRACTICAL**

**MODEL QUESTION PAPER**

1. Determine the refractive index of the given transparent liquid using travelling Microscope.
2. Measure the angle of the prism using Spectrometer.
3. Draw the V – I characteristics of the solar cell.
4. Verify the laws of resistances by connecting the two given standard resistances

(i) in series and (ii) in parallel, using Ohm’s law.

1. Determine the specific heat capacity of water, using Joule’s calorimeter.
2. Determine the electro chemical equivalent (e.c.e.) of copper using Copper Voltameter.
3. Draw the voltage – current characteristics of a P-N junction diode in forward bias and then find the ‘dynamic forward resistance’ & ‘knee voltage’ from the graph.
4. Find the output conditions for different combinations of the input for NOT gate and 2 inputs AND, OR, NAND & NOR logic gates using IC chips.

The college authority should ensure the safety of all the students during the lab practical

**ALLOCATION OF MARKS**

Formula & Diagram 15 marks

Tabulation with proper units 10 marks

Observation (including taking readings) 35 marks

Calculation 10 marks

Result 05 marks

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Total 75 Marks