**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 : **40016**

Semester : I Semester

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

**TEACHING AND SCHEME OF EXAMINATION**

Number of weeks per semester: 15 weeks

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Subject | Instructions | | Examination | | | |
| ENGINEEERING PHYSICS - I 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 giving proper hands on experience in handling of various instrument, apparatus and equipment. This is accomplished by doing engineering related experiment in practical classes in various laboratories.

**GUIDE LINES:**

1. In order to develop best skills in handling Instrument / Equipment and taking readings in the practical classes, every two students should be provided with an individual experimental setup / equipment / instrument for doing experiment in the laboratory.
2. All the experiment should be completed and given in the question paper for the board practical examination.
3. Students should maintain observation and record note book individually. The same has to be submitted for the Board Practical Examination.
4. Proper safety arrangement should be made as per the requirement

**40016- ENGINEERING PHYSICS - I PRACTICAL**

**LIST OF EXPERIMENTS WITH OBJECTIVES:**

1. MICROMETER (SCREW GAUGE).

To measure the thickness of the given irregular glass plate using micrometer. To determine the area of the glass plate using a graph sheet and to calculate the volume of the glass plate.

2. VERNIER CALIPERS.

To measure the length and diameter of the given solid cylinder using vernier caliper and to calculate the volume of the solid cylinder.

3. PARALLELOGRAM LAW.

To verify the parallelogram law using concurrent force.

4. LAMI’S THEOREM

To verify Lami’s theorem using concurrent forces.

5. COMPARISON OF VISCOSITIES

To compare the co-efficient of viscosities of two low viscous Liquids by capillary flow method.

6. STOKES’ METHOD.

To determine the coefficient of viscosity of a highly viscous liquid.

7. SONOMETER.

To determine the frequency of the given tuning fork.

8. DEFLECTION MAGNETOMETER

To compare the magnetic moments of the two bar magnets using Deflection

Magnetometer in Tan A position, by equal distance method.

**40016- ENGINEERING PHYSICS - I PRACTICAL**

**BOARD EXAMINATION**

**Note:**

1. Individual equipment should be provided for the batch strength. The same experiment should not be kept more than four students.
2. All the experiments must be given in all the batches.
3. Any one experiment should be given by lot for the Board Practical Examination.
4. The external examiner should verify the availability of the equipment for the batch strength before the commencement of Practical Examination.
5. Properly evaluated record note book should be submitted for the Board Practical Examination.

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

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

|  |  |
| --- | --- |
| **Content** | **Mark Allotted** |
| Formula, Explanation & Diagram | 15 |
| Tabulation with proper units | 15 |
| Observation (including taking readings) | 35 |
| Calculation | 20 |
| Result / Graph | 10 |
| Viva voce | 5 |
| **Total Marks** | **100** |

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

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

**40016 ENGINEERING PHYSICS – I PRACTICAL**

**LIST OF EQUIPMENT**

*1. MICROMETER (SCREW GAUGE).*

Screw gauge, graph sheet and irregular glass plate.

2. *VERNIER CALIPERS*.

Vernier Calipers and Solid Cylinder

3. PARALLELOGRAM LAW.

Vertical drawing board, two Z pulleys, three sets of slotted weights (5 x 50g) and twine thread.

4. LAMI’S THEOREM

Vertical drawing board, two Z pulleys, three sets of slotted weights (5 x 50g) and twine thread.

5. COMPARISON OF VISCOSITIES

Burette stand, graduated burette without stopper, rubber tube, capillary Tube, beaker, digital stop watch, two liquids and funnel.

6. *STOKES’ METHOD*.

Stokes’ Apparatus, highly viscous liquid (Castrol oil), glass beads of different radii, digital stop watch and screw gauge.

*7. SONOMETER.*

Sonometer, screw gauge, tuning fork, rubber hammer, slotted weight hanger set (5 x 0.5kg) and paper rider.

*8. DEFLECTION MAGNETOMETER*

Deflection Magnetometer, meter scale and two bar magnets

**40016 ENGINEERING PHYSICS - I PRACTICAL**

**MODEL QUESTION PAPER**

1. Measure the thickness of the given irregular glass plate using micrometer. Determine the area of the glass plate using a graph sheet and calculate the volume of the glass plate.
2. Measure the length and diameter of the given solid cylinder using Vernier caliper and then calculates the volume of the solid cylinder.
3. Verify the parallelogram law of forces using concurrent forces.
4. Verify the Lami’s theorem using concurrent forces.
5. Compare the coefficient of viscosity of two Liquids by capillary flow method, using graduated burette.
6. Determine the coefficient of viscosity of a highly viscous liquid by Stokes’ method.
7. Determine the frequency of the given tuning fork using Sonometer.
8. Compare the magnetic moments of the two bar magnets using deflection magnetometer in Tan-A position, by equal distance method.