



GOVERNMENT OF TAMILNADU

**DIRECTORATE OF TECHNICAL EDUCATION**

**DIPLOMA IN ENGINEERING  
I YEAR**

**SEMESTER SYSTEM**

**L - SCHEME**

**2011 - 2012**

**I SEMESTER**

**ENGINEERING PHYSICS – I PRACTICAL**

**CURRICULUM DEVELOPMENT CENTER**

**STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU**  
**DIPLOMA IN ENGINEERING - SYLLABUS**  
**L-SCHEME**

(Implements from the Academic Year 2011-2012 on wards)

Course Name : All Branches of Diploma in Engineering and Technology and Special Programmes except DMOP, HMCT and Film & TV

Subject Code : **21007**

Semester : I Semester

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

**TEACHING AND SCHEME OF EXAMINATION** :

**No of weeks per semester: 16 weeks**

Subject	Instructions		Examination			Duration
	Hours /Week	Hours /Semester	Marks			
			Internal Assessment	Board Examination	Total	
<b>ENGINEERING PHYSICS – I PRACTICAL</b>	<b>2 Hrs</b>	<b>32 Hrs</b>	<b>25</b>	<b>75</b>	<b>100</b>	<b>3 Hrs</b>

**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.

### ALLOCATION OF MARKS

Formula with explanation	10 marks
Figure / Circuit diagram with parts	05 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
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## **FIRST SEMESTER**

### **21007 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 calipers and to calculate the volume of the solid cylinder.
3. CONCURRENT FORCES.  
To verify the parallelogram law of forces and Lami's theorem.
4. POISEUILLE'S METHOD.  
To determine the coefficient of viscosity of water by capillary flow method, using Graduated burette without stopper (variable pressure head arrangement ).
5. STOKES' METHOD.  
To determine the coefficient of viscosity of a high viscous liquid.
6. SURFACE TENSION.  
To determine the surface tension of water by capillary rise method.
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 .

**FIRST SEMESTER**  
**21007 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. *CONCURRENT FORCES.*

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

4. *POISEUILLE'S METHOD.*

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

5. *STOKES' METHOD.*

Stokes' Apparatus, high viscous liquid (Castrol oil), glass beads of Different radii, digital stop watch and screw gauge.

6. *SURFACE TENSION.*

Beaker with water, capillary tube, iron stand with clamp, pointer, travelling microscope and hydro static bench.

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.

## **FIRST SEMESTER**

### **21007 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 calipers and then calculate the volume of the solid cylinder.
3. Verify the parallelogram law of forces and Lami's theorem using concurrent forces.
4. Determine the coefficient of viscosity of water by capillary flow method, using graduated burette.
5. Determine the coefficient of viscosity of a high viscous liquid by Stokes' method.
6. Determine the surface tension of water by capillary rise 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.