GOVERNMENT OF TAMILNADU

DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN ENGINEERING
I YEAR

SEMESTER SYSTEM

L - SCHEME

2011 - 2012

II SEMESTER

ENGINEERING PHYSICS – II 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 : **22007**

Semester : II Semester

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

TEACHING AND SCHEME OF EXAMINATION:

No of weeks per Semester: 16 weeks

Subject	Instructions		Examination			
	Hours /Week	Hours /Semester	Marks			Duration
			Internal Assessment	Board Examination	Total	
ENGINEERING PHYSICS – II PRACTICAL	**2 Hrs**	**32 Hrs**	**25**	**75**	**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 Ten 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 three 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
Total	75 Marks

SECOND SEMESTER

22007 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 and the angle of minimum deviation using spectrometer and to calculate the refractive index of glass.

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

5. METRE BRIDGE.
   To determine the unknown resistance of the given wire.

6. POTENTIOMETER.
   To compare the electro motive forces (e.m.fs) of the given two cells.

7. JOULE'S CALORIMETER.
   To determine the specific heat capacity of water.

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

9. 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.

10. 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)

SECOND SEMESTER

22007 ENGINEERING PHYSICS - II PRACTICAL

LIST OF EQUIPMENT

1. *REFRACTIVE INDEX*

   Travelling Microscope, Beaker with transparent liquid and Saw dust.

2. *SPECTROMETER*.

   Spectrometer, Sodium vapour lamp, Reading lens and Glass prism

3. *SOLAR CELL*.

   Solar cell Kit for drawing the V - I characteristics

4. *LAWS OF RESISTANCES*.

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

5. *METRE BRIDGE*.

   Meter Bridge, variable resistance box, Leclanche cell, plug Key, galvanometer, high resistance, jockey, connecting Wires and unknown resistance.

6. *POTENTIOMETER*.

   Potentiometer, two cells (Leclanche cell and Daniel cell), Battery eliminator, Rheostat, Key, two way key, Galvanometer, high resistance, jockey and connecting wires

7. *JOULE'S CALORIMETER*.

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

8. *COPPER VOLTAMETER*.

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

9. *P-N JUNCTION DIODE*.

P-N Junction Diode forward characteristics kit

10. *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)

SECOND SEMESTER

22007 ENGINEERING PHYSICS - II PRACTICAL

MODEL QUESTION PAPER

1. Determine the refractive index of the given transparent liquid using traveling microscope.

2. Draw the V – I characteristics of the solar cell.

3. Measure the angle of the prism and the angle of minimum deviation using spectrometer and then calculate the refractive index of glass.

4. Verify the laws of resistances by connecting the two given standard resistances (i) in series and (ii) in parallel, using Ohm's law.

5. Determine the unknown resistance of the given wire, using metre bridge.

6. Compare the electro motive forces (e.m.fs) of the given two cells, using potentiometer.

7. Determine the specific heat capacity of water, using Joule's calorimeter.

8. Determine the electro chemical equivalent (e.c.e.) of copper using Copper Voltameter.

9. 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.

10. 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.