

## ANNEXURE

**STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU**  
**DIPLOMA IN ENGINEERING / TECHNOLOGY SYLLABUS**  
**M-SCHEME**  
**(Implements from the Academic year 2015-2016 onwards)**

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

Subject Code : 30026

Semester : II Semester

Subject Title : ENGINEERING GRAPHICS – II

### TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Subject	Instructions		Examination			Duration
	Hours / Week	Hours / Semester	Marks			
ENGINEERING GRAPHICS - II	6	90	Internal Assessment	Board Examination	Total	3 Hrs.
			25	75	100	

### Topics and Allocation of Hours

Sl.No.	Topics	Time (Hrs)
1	Constructions of special curves,	18 Hrs.
2	Development of surfaces	21 Hrs.
3	Projection of solids, Section of Solids	27 Hrs
4	Isometric projections	24 Hrs.
	<b>Total</b>	<b>90 Hrs.</b>

#### **RATIONALE:**

Engineering graphics is a basic subject for all branches of Diploma Engineering and Technology. Since engineering drawing is considered as the language of engineers, the proper understanding and practice is required with proper instruments.

This subject is aimed at providing basic understanding of the fundamentals of Engineering Drawing; mainly visualization, graphics theory, standards & conventions of drawing, the tools of drawing and the use of Drawings in engineering applications.

The topics covered are based on the syllabus for Diploma studies in engineering. The subject is planned to include sufficient practices which would help the student in visualization of three dimensional objects and developing the drawing.

The chapters are arranged in sequence and starts from the basic concepts of constructions of special curves and polygons, proceeds to the principles of projection solids and section of solids. By the end of the subject it is expected that the students would be matured to visualize any engineering component by reading an engineering drawing.

**OBJECTIVES:**

At the end of the practice, the students will be able to,

- Understand the importance of drawing.
- Identify and uses of the drawing instruments.
- Acquire knowledge about the construction of special curves.
- Draw the development of solids and objects.
- Draw the projection and sectional views of solids and true shape.
- Construct orthographic views into isometric drawings.

**30026 ENGINEERING GRAPHICS – II**  
**DETAILED SYLLABUS**

**Contents: Theory**

Unit	Name of the Topic	Hours
I	<p><b>1.1 Constructions of special curves</b> Geometric curves: Definition - construction of cycloid - epicycloids – hypocycloid – exercises. Involute of a circle - Archimedean spiral – helix – exercises.</p> <p><b>1.2 Construction of Polygon</b> Construct triangle, rectangle, pentagon and hexagon by side distance in various positions – construction by inscribe &amp; circumscribe a circle and by angle.</p>	18
II	<p><b>2.1 Development of surfaces</b> Methods of development - Need for development - Development of regular polygons: prism, cylinder, cone and pyramids. Exercises in rectangular, pentagon and hexagon prisms and pyramids. Exercises in regular cylinder and cone. Development of truncated prism and cylinder, frustum of pyramid and cone. Development of miscellaneous objects - T-pipe, elbow, ducts, tray, lamp shade and funnel.</p>	21

III	<p><b>3.1 Projection of solids</b>  Introduction - important terms - classification of solids – polyhedron – solids of revolution – exercises in triangular and hexagonal prisms - triangular and hexagonal pyramids - cylinder and cone.  Projections of solids in simple positions – Axis parallel to one plane and perpendicular to other plane - axis inclined to one plane and parallel to other plane - axis parallel to both planes - exercises.</p> <p><b>3.2 Section of Solids</b>  Introduction – terminology - true shape - sectional view - need for sectional view - cutting plane – section lines - triangular and hexagonal prisms and pyramids - cylinder and cone.  Position of solids – Axis parallel to one plane and perpendicular to other plane - axis parallel to both planes - exercises.  Position of cutting planes – cutting plane perpendicular to one plane and parallel to another plane - cutting plane perpendicular to one plane and inclined to another plane – exercises.</p>	27
IV	<p><b>4.1 Isometric projections</b>  Introduction – isometric view - isometric projection – methods of drawing an isometric view - box method – isometric view of regular solids – isometric view of truncated solids - Isometric view of arcs and circles – four centre method for drawing an ellipse - arcs of circles in isometric view.  Isometric view of the machine parts from the given simple orthographic view - exercises.</p>	24

### Text Books

1. Bhatt N.D. and Panchal V.M., “Engineering Drawing”, Charotar Publishing House, 50<sup>th</sup> Edition, 2010.
2. Gill P.S., “Engineering drawing”, S.K.Kataria & Sons.

### Reference Books

1. Gopalakrishnan.K.R., "Engineering Drawing", (Vol.I and Vol.II), Dhanalakshmi publishers, Edition 2, 1970
2. Venugopal.K, Sreekanjana G, “Engineering Graphics” New Age International Publishers.
3. K V Nataraajan “A Text Book of Engineering Drawing”
4. Besant Agrawal, C M Agrawal “Engineering drawing”, Tata McGraw Hill Education Private Limited.
5. Barkinson & Sinha, "First Year Engineering Drawing", Pitman Publishers.

## Board Examination – Question pattern

**Time: 3 Hrs.**

**Max.Marks: 75**

[Note: Answer all the questions in the drawing sheet only. Assume missing dimensions suitably]

### **Part A**

Answer all questions. Each question carries five marks.

$$3 \times 5 = 15$$

**Note: Three questions will be asked. (1 to 3). One question each from UNIT I, II and III.**

[Construction of polygon, Development of regular polygon and Projection of solids (axis perpendicular to one plane)].

### **Part B**

Answer any four questions. Each question carries fifteen marks.

$$4 \times 15 = 60$$

**Note: Six questions will be asked. Minimum one question from each unit.**

**TOTAL**

**75**

### **Internal Marks**

Assignment drawings	-	10
Test	-	10
Attendance	-	5
<b>Total</b>	-	<b>25</b>