

Syllabus for Bachelor of Technology

Department of Mechanical Engineering

Subject Code: 01ME1102

Subject Name: Engineering Graphics

B.Tech. Sem -II

Type of course: Under Graduate

Objective: Engineering Graphics is the language of engineering. It is the fundamental core skill enhances problem solving ability which improves the engineering knowledge. Moreover, it is creating link between imagination and realization.

Course Outcomes: After completion of this course, student will be able to

1. Know, understand and able to define the methods of engineering drawing.
2. Learn basic sketching methods.
3. Understand engineering drawings using fundamental mathematics.
4. Construct Engineered Drawing.
5. Develop visualization skills so that they can create new product design.
6. Understand the theory of projection, Learn technical communication skill.

Pre-requisite of course: Zeal to learn the subject.

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA	CSE	Viva (V)	Term work (TW)	
3	0	4	5	50	30	20	25	25	150

Contents:

Unit	Topics	Hours
1	Introduction: Drawing instruments and accessories, Standards of Engineering Drawings. Plain scales.	3
2	Engineering Curves: Introduction to engineering curves with classification and application. Construction of Ellipse, Parabola and Hyperbola with normal and tangent to the curve. Construction of Involute, Spirals and Cycloidal curve with normal and tangent to the curve.	8

3	Projection of Points and straight Lines: Introduction to principal planes. Point projection located in same and different quadrants. Line projection with inclination to one RP and two RP, True length of Line.	8
4	Projections of Plane Surfaces: Projection of Polygons, circle and ellipse with inclination to one RP and two RP. Method for projection of plane surfaces.	6
5	Projections of Solids: Projection of Cylinder, Cone, Pyramid and Prism along with frustum with its inclination to one RP and with two RP.	4
6	Orthographic Projections: Introduction to Orthographic Projection, Plane of Projection. Projection of the object on the principal planes. Front view, Top view and sides view using First and Third angle Projection methods. Sectional Orthographic.	3
7	Isometric Projections: Isometric View, Conversion of Orthographic view to isometric view. Isometric Scale, Difference between Isometric View and Projection.	3
8	Computer Aided Drawing: (To be cover in Laboratory) Introduction to CAD, Basic commands in 3D modelling software. Implementation of 3D Printing.	-
Total Hours		36

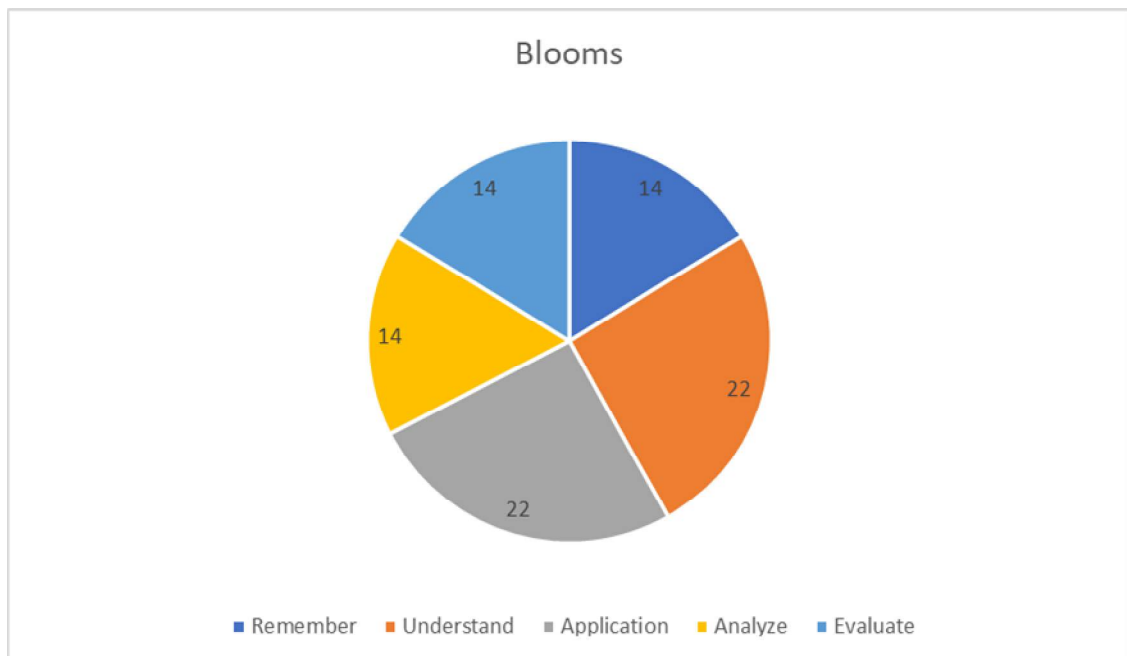
References Book:

1. Engineering Graphics by Ramdevsinh Jhala Tata McGraw Hill, New Delhi
2. A Text Book of Engineering Graphics by P.J.Shah S.Chand & Company Ltd., New Delhi
3. Elementary Engineering Drawing by N.D.Bhatt, Charotar Publishing House, Anand
4. A text book of Engineering Drawing by R.K.Dhawan, S.Chand & Company Ltd., New Delhi
5. A text book of Engineering Drawing by P.S.Gill, S.K.Kataria & sons, Delhi.

Distribution of Theory Marks:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
14%	22%	22%	14%	14%	14%



Suggested List of Drawing Sheet:

1. Practice sheet
2. Scale (Plane and Diagonal Scale)
3. Curves
4. Projection of Straight line and Projection of plane surfaces.
5. Projection of solid
6. Orthographic projection and Sectional Orthographic projection. (Using CAD Software)
7. Isometric projection and Isometric View. (Using CAD Software & 3D Printing)

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Instructional Method:

- a. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming
- b. The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.
- c. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
- d. Students will use supplementary resources such as online videos, NPTEL videos, e-courses