COURSE TITLE	**ENGINEERING GRAPHICS**
COURSE CODE	**01ME1102**
COURSE CREDITS	**5**

Objective:

1. 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
2. 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. Use drawing instruments, including scales, to produce accurate engineering drawings.
2. Construct and analyze common engineering curves for practical applications.
3. Determine and illustrate the projections of points and lines in various positions.
4. Project basic plane surfaces with given inclinations.
5. Develop projections of simple solids and interpret their orientations relative to reference planes.
6. Create and compare orthographic and isometric views for a clear understanding.

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

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	4	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	**Introduction** Drawing instruments and accessories, Standards of Engineering Drawings, Plain scales, diagonal scale	3
2	**Engineering Curves** Introduction to engineering curves with classification and application, Construction of Ellipse, Construction of Parabola, Construction of Hyperbola, Construction of Involutes and Spirals, Construction of Cycloidal, 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, Line projection with inclination to two RP, True length of Line	8

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Contents : Unit	Topics	Contact Hours
4	**Projections of Plane Surfaces** Projection of Polygons, Circle and ellipse with inclination to one RP, Circle and ellipse with inclination to two RP, Method for projection of plane surfaces	6
5	**Projections of Solids** Projection of Cylinder, Cone, Projection of Pyramid and Prism along with frustum, 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 plane, Front view, Top view and sides view using First and Third angle Projection methods, Sectional Orthographic	7
7	**Isometric Projections** Isometric View, Conversion of Orthographic view to isometric view, Difference between Isometric View and Projection	6
Total Hours		**42**

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Practice sheet** Practice sheet	4
2	**Scale (Plane and Diagonal Scale)** Scale (Plane and Diagonal Scale)	4
3	**Curves** Curves	4
4	**Projection of Straight line and Projection of plane surfaces** Projection of Straight line and Projection of plane surfaces	8
5	**Projection of solid** Projection of solid	9
6	**Orthographic projection and Sectional Orthographic projection** Orthographic projection and Sectional Orthographic projection	9
7	**Computer Aided Design** Computer Aided Design	12
8	**Isometric projection and Isometric View** Isometric projection and Isometric View	6
Total Hours		**56**

Textbook :

1 Engineering Graphics , Ramdevsinh Jhala , Tata McGraw Hill, New Delhi , 2015

2 A Textbook Of Engineering Graphics, P.J.Shah , S Chand & Company, 2010

References:

1 Engineering Drawing, Engineering Drawing, N.D.Bhatt, Charotar Publishing House, 2012

2 A Textbook of Engineering Drawing, A Textbook of Engineering Drawing, Dr. Dhawan R. K., S Chand & Co Ltd, 2019

3 Engineering Drawing, Engineering Drawing, P.S.Gill, S.K. Kataria & Sons, 2012

4 ENGINEERING DRAWING, ENGINEERING DRAWING, McGraw Hill Education, Dhananjay Jolhe, 2017

5 Engineering Drawing, Engineering Drawing, Basant Agrawal, C M Agrawal, McGraw-Hill, 2019

Suggested Theory Distribution:

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

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
14.00	22.00	22.00	14.00	14.00	14.00

Instructional Method:

1 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

2 The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.

3 Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

4 Students will use supplementary resources such as online videos, NPTEL videos, e-courses

Supplementary Resources:

1 https://nptel.ac.in/courses/112103019