FACULTY OF ENGINEERING & TECHNOLOGY

First Year Bachelor of Engineering

Course Code: 102001208

Course Title: Engineering Graphics

Type of Course: Engineering Science Course

Course Objectives: The subject is intended To make students familiar with the concepts of Engineering Drawing, widely used in the industries. To improve visualization skills of students which they can use in the industries for developing products.To facilitate the students in enhancing their technical communication skills using

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Internal		External		Total
Lecture	Tutorial	Practical		Theory	J/V/P*	Theory	J/V/P*	
2	0	4	4	30 / 9	20 / 6	70 / 21	30 / 9	150 / 45

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	Introduction to Engineering Graphics: Drawing instruments and accessories, BIS – SP 46, Geometrical Constructions, Dimensioning, Construction of plain scales and Diagonal Scales	3 (Lab)
2	Engineering Curves: Classification and application of Engineering Curves; Construction of Conics, Cycloidal Curves, Involutes and Spirals along with normal and tangent to each curve	6 (Lab)
3	Projections of Points and Lines: Introduction to principal planes of projections, Projections of the points located in different quadrants	2
4	Projections of line with its inclination to one reference plane and with two reference planes (excluding mixed quadrants and traces). True length and inclination with the reference planes. Application of projection of lines.	6
5	Projections of Planes: Projections of planes (polygons, circle and ellipse) with its inclination to one reference plane and with two reference planes (oblique planes)	5
6	Projections of Solids: Classification of solids. Projections of solids (Cylinder, Cone, Pyramid, cube and Prism) with its inclination to one reference plane and with two reference planes	6
7	Section of Solids and Development of Surfaces: Section of such solids and the true shape of the section, Development of surfaces	4

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8	Orthographic Projections: Fundamental of projection along with classification, Projections from the pictorial view of the object on the principal planes for view from front, top and sides using first angle projection method and third angle projection method, full sectional view	**3 + 2(Lab)**
9	Computer Aided Drawing: Introduction to AutoCAD, Basic commands for 2D drawing like: Line, Circle, Polyline, Rectangle, Hatch, Fillet, Chamfer, Trim, Extend, Offset, Dim style	**2 (Lab)**

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks						**R**: Remembering; **U**: Understanding; **A**: Application, **N**: Analyze; **E**: Evaluate; **C**: Create
R	**U**	**A**	**N**	**E**	**C**	
20%	25%	25%	10%	10%	10%	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1	Elementary Engineering Drawing by N.D.Bhatt Charotar Publishing House, Anand
2	A Text Book of Engineering Graphics by P.J.Shah S.Chand & Company Ltd., New Delhi
3	A text book of Engineering Drawing by R.K.Dhawan, S.Chand & Company Ltd., New Delhi
4	A text book of Engineering Drawing by P.S.Gill, S.K.Kataria & sons, Delhi
5	Engineering Drawing by B. Agrawal and C M Agrawal, Tata McGraw Hill, New Delhi
6	Engineering Graphics & Design by Arunoday Kumar, Tech-Max Publication, Pune

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Know about the basics of drawing including use of standards; dimensioning types and methods for technical drawings.	**5**
CO-2	Have idea about the need for scales along with construction of various engineering curves and their applications.	**20**
CO-3	Understand the concept of different types of projection methods and orthographic projection in more details.	**20**
CO-4	Learn to visualize multiple types of objects in different positions and also to draw sectional views.	**40**
CO-5	Learn to find the material requirement for the manufacturing industry using the concept of development of surfaces.	**10**
CO-6	Having basic insight about the use of Auto CAD for engineering drawing	**5**

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List of Practicals / Tutorials:

1	Practice sheet (which includes geometric constructions, dimensioning methods, different types of line)
2	Scales and Conic Sections
3	Engineering Curves (Cycloids, Involutes & Spirals)
4	Projection of Lines
5	Projection of Planes
6	Projection of Solids
7	Section of Solids and Development of surfaces
8	Orthographic Projection
9	Auto CAD Drawing

Curriculum Revision:	
Version:	**1**
Drafted on (Month-Year):	Apr-20
Last Reviewed on (Month-Year):	Jul-20
Next Review on (Month-Year):	Apr-22

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