



Kadi Sarva Vishwavidyalaya
Faculty of Engineering & Technology
First Year Bachelor of Engineering (All Branches)
(With Effect From: Academic Year 2017-18)

ENGINEERING GRAPHICS
SUB CODE: CC110-N

Teaching Scheme (Credits and Hours)

Teaching Scheme				Total Credit	Evaluation Scheme					Total Marks
L	T	P	Total		Theory		IE	CIA	Pract.	
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	
3	0	4	7	5	3	70	30	20	30	150

LEARNING OBJECTIVES:

The educational objectives of this course are

- To develop in students graphic skills for communication of concepts, ideas and design of engineering products and expose them to existing national standards related to technical drawings.
- Importance of graphics in engineering applications – Use of drafting instruments – BIS conventions and specifications – Size, layout and folding of drawing sheets – Lettering and dimensioning.

INSTRUCTIONAL METHOD AND PEDAGOGY (Continuous Internal Assessment (CIA) Scheme)

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed
- Lecture may be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lectures and Practical which carries **05 Marks**.
- Classroom participation and involvement in solving the problems in Drawing Lab carries **05 Marks**.
- **10 Marks** given on the basis of Drawing Sheets and Sketch book work.
- Viva Voce will be conducted at the end of the semester of **30 Marks**.
- One internal exam of **30 Marks** is conducted as a part of mid semester evaluation.
- Experiments shall be performed in the laboratory related to course contents.
- The course includes a laboratory, where students have an opportunity to build an appreciation for the concept being taught in lectures.

OUTLINE OF THE COURSE:



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Sr. No	Unit No.	Lecture Hrs.	Lab Hrs.
1	Introduction	2	2
2	Scales	0	4
3	Engineering Curves	0	10
4	Loci of Points	7	2
5	Projections of Points & Lines	7	2
6	Projections of Planes	7	2
7	Projections of Solids	7	2
8	Section of Solids	7	2
9	Development of Lateral Surfaces	8	2
10	Orthographic Projections	0	14
11	Isometric Projections and Isometric View or Drawing	0	14
12	Machine Drawing	0	4
Total Hrs.		45	60

Total Hours (Theory): 45

Total Hours (Lab): 60

Total Hours: 105



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DETAILED SYLLABUS

Unit No	Topics	Lectures+Lab (Hours)	Weightage (%)
1.	Introduction: Introduction to Engineering Graphics, Drawing instruments and accessories. Line, Lettering and Dimensioning, Sheet Lay Out and Sketching,	2+2	3
2.	Scales: Types of scales and Representative Fraction, Plane scale, Diagonal Scale, Vernier Scale, and Scale of Chords.	0+4	6
3.	Engineering Curves: Classification of Engineering Curves, Construction of Conics, Cycloid Curves, Involute, Spirals and Helix.	0+10	9
4.	Loci of Points: Path of the points moving on simple arrangements and simple mechanisms, slider crank mechanism, four bar chain mechanism etc.	7+2	9
5.	Projections of Points & Lines: Introduction to principal planes of projections, Projections of the points located in same quadrant and different quadrants, Projections of line with its inclination to one reference plane and with two reference planes. True length of the line and its inclination with the reference planes.	7+2	9
6.	Projections of Planes: Concept of different planes, Projections of planes with its inclination to one reference plane and with two reference planes. Concept of auxiliary plane method for projections of the plane.	7+2	9
7.	Projections of Solids: Classification of solids. Projections of solids like Cylinder, Cone, Pyramid and Prism with its inclination to one reference plane and with two reference planes.	7+2	9
8.	Section of Solids: Section of Cylinder, Cone, Pyramid and Prism and the true shape of the section with its inclination to one reference plane and with two reference planes.	7+2	9
9.	Development of Lateral Surfaces: Concept of development of the different surfaces. Parallel Line Development and Radial Line Development.	8+2	9



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10.	Orthographic Projections: Principle of projection, Principal planes of projection, Projections from the pictorial view of the object on the principal planes for View from Front, View from Top and View from Side using first angle projection method and third angle projection method, Full Sectional View.	0+14	12
11.	Isometric Projections and Isometric View or Drawing: Isometric Scale, Conversion of orthographic views into isometric projection, isometric view or drawing.	0+14	12
12.	Machine Drawing: Representation of Three Dimensional objects – Need for and importance of multiple views and their placement – Developing visualization skills through free hand sketching of multiple views from pictorial views of objects.	0+4	4
Total		45+60=105	100

STUDENTS LEARNING OUTCOME:

On successful completion of the course

- Be able to sketch engineering components
- Be able to interpret engineering drawings that comply with drawing standards
- Be able to produce engineering drawings

TEXT BOOKS:

- A Text Book of Engineering Graphics By P.J.Shah, S.Chand & Company Ltd., New Delhi
- A Text Book of Machine Drawing By P.J.Shah, S.Chand & Company Ltd., New Delhi
- Elementary Engineering Drawing By N.D.Bhatt, Charotar Publishing House, Anand
- Geometrical and Machine Drawing By N.D.Bhatt, Charotar Publishing House, Anand

REFERENCE BOOKS:

- Engineering Graphics – I and II By Arunoday Kumar, Tech – Max Publication, Pune
- Engineering Drawing & Graphics using Auto CAD 2000 By T. Jeyapooan, Vikas Publishing House Pvt. Ltd., New Delhi
- A text book of Engineering Drawing By R.K.Dhawan, S.Chand & Company Ltd., New Delhi
- A text book of Engineering Drawing By P.S.Gill, S.K.Kataria & sons, Delhi



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- Engineering Drawing with an Introduction to AutoCAD By D.A.Jolhe, Tata McGraw-Hill Publishing Co. Ltd., New Delhi
- Computer Aided Engineering Drawing, S. Trymbaka Murthy, I.K.International Publishing House Pvt. Ltd., New Delhi

WEB MATERIALS:

- <http://www.wikipedia.org>

LIST OF DRAWING SHEETS

Sr. No.	Title
1	Engineering Curves
2	Loci of Points
3	Projections of Points & Lines
4	Projections of Planes
5	Projections of Solids
6	Section of Solids
7	Development of Lateral Surfaces
8	Orthographic Projections
9	Isometric Projections and Isometric View