

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

B. E. COMPUTER ENGINEERING

B. E. FIRST YEAR (EC, IT, CE,)

(Effective From June 2006)

CE 106: ENGINEERING GRAPHICS

Teaching Scheme		Examination Scheme				
Theory Hrs.	Practical Hrs.	Theory Hrs.	Theory Marks	Pract./ Viva Marks	Term Work Marks	Total Marks
2	2	4	100	---	50	150

PART - 1:

1. PLANE GEOMETRY AND MACHINE PARTS:

- ❖ **Introduction to engineering graphics:** Principles of projection lines and dimensioning. B.I.S. code of practice (sp 46) scale, Representative fraction(R.F.), plain scale, diagonal scale, vernier scale and scale of chords.
- ❖ **Engineering curves:** classification of engineering curves, construction of conics, cycloid curves, involute and spiral.
- ❖ **Loci of points:** Simple mechanism like slider cranks mechanism, four bar chain mechanism etc.
- ❖ **Fastening and connecting methods:** Screw thread, bolts, nuts, stud, locking device, simple riveted and welded joints, pipefitting, coupling, cotter joints, pin joints. Electrical electronics, chemical and pipe drawing. Basic notation and symbol for simple flow diagram.

PART - 2:

2. SOLID GEOMETRY:

- ❖ Introduction to projection of points, line and plane: Projection of line inclined to both planes and simple cases. True length of straight line and its inclination with reference planes (traces are not included), projection of perpendicular and oblique plane.
- ❖ Introduction to projection of solid, section of solid and interpretation of solid: Classification of solid, with their axis inclined to both planes. Projection of sphere, section of pyramid, cone, prism and cylinder. Method of determining of intersection and curve of intersection.
- ❖ Intersection of prism-prism, cone-cylinder, cylinder-cylinder, cylinder-cone, cylinder-prism.
- ❖ **Development of surface:** Parallel line development, Radial line development, Development of sphere by zone method and lune method.

PART - 3:

3. ORTHOGRAPHIC PROJECTION:

- ❖ **Orthographic projection:** conversion of pictorial of pictorial views into orthographic views, Type of sections (full, half, offset, broken, removed, revolved), section views, orthographic reading, missing views and missing line problems.
 - ❖ **Isometric view:** Conversion of orthographic views into isometric views.
- Introduction to Computer Aided drafting: Advantages of CAD, Elements of CAD, Components of computer, input and output devices, types of software, Basic functions, Drafting software.

TERM WORK:

Each candidate shall submit a set of following sheets, certified by principal of the college that they have been executed in a satisfactory manner in the Drawing Hall of the college.

1. One sheet of engineering curves.
2. One sheet of Loci of points.

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3. One sheet of projection of points, line and plane surfaces.
4. One sheet of orthographic view with section (2 problem, one in first angle and other in third angle system of projection.)
5. One sheet of reading of orthographic views and missing line/missing views.
6. One sheet of projection solids and section of solids.
7. One sheet on development of surfaces and interpretation of surfaces.
8. One sheet on isometric projection/view.
9. Sketchbook containing sketches of machine parts, electrical, electronics, chemical and pipe drawing, lines, dimensioning, scales. Students' are given complete understanding of BIS code SP46.

Brief insight to CAD tools should be covered as a part of the practical work.

REFERENCE BOOKS:

1. Engineering Drawing. VOL - I & II By P.J.Shah
2. Engineering Drawing By N.D.Bhatt
3. Machine Drawing By N.D.Bhatt