RAGHU ENGINEERING COLLEGE

Autonomous

(Approved by ACTIE, New Delhi, Accredited by NBA (CIV, ECE, MECH, CSE), NAAC with 'A+' grade & Permanently Affiliated to JNTU-GV Vizianagaram)

Dakamarri, Bheemunipatnam Mandal, Visakhapatnam Dist. – 531 162 (A.P.)

Ph: +91-8922-248001, 248002 Fax: + 91-8922-248011

e-mail: principal@raghuenggcollege.com website: www.raghuenggcollege.com

I Year-I Semester

L	T	P	C
1	0	4	3

23ES102: ENGINEERING GRAPHICS

(Common to All branches of Engineering)

- To enable the students with various concepts like dimensioning, conventions and standards related to Engineering Drawing
- To impart knowledge on the projection of points, lines and plane surfaces
- To improve the visualization skills for better understanding of projection of solids
- To develop the imaginative skills of the students required to understand Section of solids and Developments of surfaces.
- To make the students understand the viewing perception of a solid object in Isometric and Perspective projections.

Course Outcomes:

COURSE OUTCOMES- STATEMENT	
COs	At the end of Course, student will be able to
CO1	Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections.
CO2	Draw and interpret orthographic projections of points, lines, planes and solids in front, top and side views.
CO3	Understand and draw projection of solids in various positions in first quadrant.
CO4	Explain principles behind development of surfaces.
CO5	Prepare isometric and perspective sections of simple solids.

UNIT I

Introduction: Lines, Lettering and Dimensioning, Geometrical Constructions and Constructing regular polygons by general methods.

Curves: construction of ellipse, parabola and hyperbola by general method. Cycloids, Involutes.

Normal and tangent to Curves.

UNIT II

Orthographic Projections: Reference plane, importance of reference lines or Plane,

Projections of a point situated in any one of the four quadrants.

Projections of Straight Lines: Projections of straight lines parallel to both reference planes, perpendicular to one reference plane and parallel to other reference plane, inclined to one reference plane and parallel to the other reference plane. Projections of Straight Line Inclined to both the reference planes.

Projections of Planes: regular planes Perpendicular to both reference planes, parallel to one reference plane and inclined to the other reference plane;

UNIT III

Projections of Solids: Types of solids: Polyhedra and Solids of revolution. Projections of solids in simple positions: Axis perpendicular to horizontal plane, Axis perpendicular to vertical plane and Axis parallel to both the reference planes, Projection of Solids with axis inclined to one reference plane and parallel to another plane.

UNIT IV

Sections of Solids: Perpendicular and inclined section planes, Sectional views and True shape of section, Sections of solids in simple position only.

Development of Surfaces: Methods of Development: Parallel line development and radial line development. Development of a cube, prism, cylinder, pyramid and cone.

UNIT V

Conversion of Views: Conversion of isometric views to orthographic views;

Computer graphics: Creating 2D&3D drawings of objects including PCB and Transformations using Auto CAD (*Not for end examination*).

CO-PO Mapping

COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2										2
CO2	2	2										2
CO3	2	2										2
CO4	2	1										3
CO5	2	1										2

Textbook:

1. N. D. Bhatt, Engineering Drawing, Charotar Publishing House, 2016.

Reference Books:

1. Engineering Drawing, K.L. Narayana and P. Kannaiah, Tata McGraw Hill, 2013.
2. Engineering Drawing, M.B.Shah and B.C. Rana, Pearson Education Inc,2009.
3. Engineering Drawing with an Introduction to AutoCAD, Dhananjay Jolhe, Tata McGraw Hill, 2017.