



MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

COURSE CONTENT

COMPUTER AIDED ENGINEERING GRAPHICS								
I Semester: CSE								
II Semester: CE / CSD / CSM / ECE / EEE / ME					MLRS-R24			
Course Code	Category	Hours/ Week			Credits	Maximum Marks		
24X0371	Foundational	L	T	P	C	CIA	SEE	Total
		1	0	4	3	40	60	100
Contact Classes: 15	Tutorial Classes: Nil	PracticalClasses:60			TotalClasses:75			
Prerequisites: Nil								

Course Overview:

Engineering Graphics is a foundational course designed to introduce first-year engineering students to the principles and practices of technical drawing and computer-aided design (CAD). This course covers essential topics such as geometric construction, orthographic projection, isometric drawing, lettering and dimensioning. Students will develop skills to create and interpret engineering drawings and gain proficiency in using CAD software for engineering applications.

Prerequisite: NIL

Course Objective: The students will be able

1. To understand the importance of engineering graphics in the engineering design process.
2. To apply principles of dimensioning and lettering in engineering drawings
3. To develop the ability to create and interpret technical drawings.
4. To master geometric constructions and projections.
5. To gain proficiency in computer-aided design (CAD) software.

Course Outcomes: Upon successful completion of this course, students will be able to:

1. Explain the role of engineering graphics in the engineering design and manufacturing process.
2. Understand the fundamental concepts of AutoCAD.
3. Perform basic geometric constructions and create accurate technical drawings.
4. Develop skills to create 2D and 3D drawings.
5. Use CAD software to create, modify, and manage engineering drawings.

Module-I: Introduction to Engineering Graphics:

[12]

The Menu System, Toolbars (Standard, Object Properties, Draw, Modify and Dimension), Drawing Area (Background, Crosshairs, Coordinate System), Dialog boxes and windows, Shortcut menus (Button Bars), The Command Line, The Status Bar, Different methods of zoom as used in CAD, Select and erase objects.



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Module-II: Conic Sections and Engineering Curves [10]

Construction of Ellipse, Parabola, Hyperbola (General Method Only)
Engineering Curves: Cycloids, Epicycloid and Hypocycloid

Module -III: Orthographic Projections [12]

Introduction to Projections: Assumptions, Principles and Different angles of projections.
Projections of Points: Located in all Quadrants
Projections of Lines: Parallel, Perpendicular, Inclined to one plane.

Module -IV: Projections of Planes and Projection of Solids [12]

Projections of Planes: Introduction to planes, Regular lamina- Orientations- Surface parallel to HP, Surface parallel to VP, Inclined to HP, Inclined to VP.
Projections of Solids: Introduction to solids, Right Regular Solids- Orientations- Axis perpendicular to HP, Axis perpendicular to VP, Axis inclined to HP, Axis inclined to VP.

Module –V: Isometric Drawing and Conversions [14]

Principles of Isometric projections, Isometric View and Isometric Scale, Isometric view of: Planes and Solids, Conversion: Isometric to Orthographic and Vice Versa

Text Books:

1. "Engineering Drawing", N.D. Bhatt, Charotar Publishing House Pvt. Ltd, 53rd Edition, 2014, ISBN: 978-9380358173
2. "Textbook of Engineering Drawing", K. Venkata Reddy, BS Publications, Revised Edition, 2013, ISBN: 978-9381075994
3. "Engineering Graphics", K.R. Gopalakrishna, Subhas Stores, 32nd Edition, 2014, ISBN: 978-9353460206
4. "Engineering Drawing and Computer Graphics", M B Shah & C. Rana, Pearson Edition 2010.

Reference Books:

1. "A Textbook of Engineering Drawing", R.K. Dhawan, S. Chand Publishing, Revised Edition, 2012, ISBN: 978-8121914311
2. "AutoCAD 2024: A Problem-Solving Approach, Basic and Intermediate", Sham Tickoo, CAD/CIM Technologies, 1st Edition, 2023, ISBN: 978-1640571577
3. "Engineering Drawing and Graphics Using AutoCAD", T. Jeyapoovan, Vikas Publishing House 2nd Edition, 2015, ISBN: 978-9325982417



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ELECTRONIC RESOURCES:

1. <https://alison.com/course/diploma-in-engineering-graphics-and-software>
2. <https://alison.com/course/design-projects-for-engineering-graphics-and-design>
3. <https://www.mygreatlearning.com/academy/learn-for-free/courses/engineering-graphics-drawing>
4. <https://www.coursera.org/learn/computer-aided-design>
5. <https://engineerrefe.com/book/engineering-graphics-essentials-with-autocad-2014-instruction>

MATERIALS ONLINE:

1. Course template
2. CAEG Lab Manual
3. Open-ended experiments