

Engineering Graphics Module-06 Notes

MODULE-06 TOPICS

- Overview of Computer Graphics
- Computer Technologies used in Graphical Communication
- Introduction to CAD Software
- Menu System
- Toolbars in CAD
- Drawing Area
- Coordinate System
- Dialog Boxes and Windows
- Shortcut Menus and Button Bars
- Command Line
- Status Bar
- Zoom Methods in CAD
- Selection and Erasing of Objects
- Isometric Views of Lines, Planes and Solids

1. COMPUTER GRAPHICS

Computer Graphics is the branch of computer science used to create, store, manipulate and display graphical information.

Applications of Computer Graphics

1. Engineering Drawing
2. CAD/CAM
3. Animation and Gaming
4. Architecture
5. Scientific Visualization
6. Multimedia

2. COMPUTER TECHNOLOGIES USED IN GRAPHICAL COMMUNICATION

1. CAD (Computer Aided Design)
2. CAM (Computer Aided Manufacturing)
3. CNC Machines
4. 3D Modeling Software
5. Graphics Workstations
6. Plotters and Printers

Advantages of Computer Graphics

- Fast drawing creation
- Better accuracy
- Easy editing and modification
- High quality visualization
- Efficient storage of drawings

3. INTRODUCTION TO CAD SOFTWARE

CAD software is used to create engineering drawings and models digitally.

Popular CAD Software

1. AutoCAD
2. SolidWorks

3. CATIA
4. Creo
5. Fusion 360

4. MENU SYSTEM

Menu system contains different commands grouped according to functions.

Common Menus

1. File Menu
2. Edit Menu
3. View Menu
4. Draw Menu
5. Modify Menu

5. TOOLBARS IN CAD

Toolbars contain shortcut icons for commands.

Types of Toolbars

1. Standard Toolbar
2. Object Properties Toolbar
3. Draw Toolbar
4. Modify Toolbar
5. Dimension Toolbar

6. DRAWING AREA

Drawing area is the workspace where drawings are created.

Features

- Background
- Crosshairs
- Coordinate System

7. COORDINATE SYSTEM

Coordinate system is used to locate points in drawing area.

Types

1. Absolute Coordinates
2. Relative Coordinates
3. Polar Coordinates

8. DIALOG BOXES AND WINDOWS

Dialog boxes are used to enter command parameters and settings.

Functions

- Input values
- Change properties
- Save settings

9. SHORTCUT MENUS & BUTTON BARS

Shortcut menus provide quick access to commands by right click.

Button bars contain command buttons for fast operations.

10. COMMAND LINE

Command line is used to type commands directly in CAD software.

Advantages

1. Fast operation
2. Accurate command execution
3. Easy editing

11. STATUS BAR

Status bar shows drawing modes and coordinate information.

Common Modes

1. Snap Mode
2. Grid Mode
3. Ortho Mode
4. Polar Tracking

12. ZOOM METHODS IN CAD

Zoom is used to enlarge or reduce drawing view.

Types of Zoom

1. Zoom All
2. Zoom Window
3. Zoom Extents
4. Zoom Dynamic
5. Zoom Scale

13. SELECTING AND ERASING OBJECTS

Objects can be selected using mouse or selection commands.

Methods of Selection

1. Window Selection
2. Crossing Selection
3. Fence Selection

Erase command removes unwanted objects.

14. ISOMETRIC VIEWS IN CAD

CAD software is used for creating isometric views of:

- Lines
- Planes
- Simple Solids
- Compound Solids

15. ADVANTAGES OF CAD

1. High precision drawings
2. Easy editing
3. Time saving
4. Better visualization
5. Reduced drafting errors

MOST IMPORTANT 14 MARK QUESTIONS

1. Explain computer graphics and its applications.
2. Explain CAD software and its advantages.
3. Explain different toolbars used in CAD software.
4. Explain coordinate systems used in CAD.
5. Explain zoom methods used in CAD software.
6. Explain command line and status bar functions.
7. Explain selection and erase methods in CAD.
8. Explain isometric drawing in CAD software.
9. Explain menu system and drawing area of CAD.
10. Explain applications of computer graphics in engineering.

IMPORTANT 7 MARK QUESTIONS

1. Define computer graphics.
2. Define CAD.
3. Define toolbar.
4. Define coordinate system.
5. Define command line.
6. Define status bar.
7. Explain zoom methods.
8. Explain advantages of CAD.
9. Define isometric view.
10. Explain object selection methods.

EXAM PREPARATION TIPS

- Learn CAD interface properly.
- Practice coordinate system commands.
- Revise zoom and modify tools.
- Learn toolbar functions carefully.
- Practice isometric views regularly.

Topic Weightage Analysis

Topic	Importance
CAD Software	★★★★★
Computer Graphics	★★★★
Toolbars & Commands	★★★★
Coordinate System	★★★★
Zoom & Selection Methods	★★★
Isometric Views in CAD	★★★