

School of Mechanical Engineering

Course Code : BTME 3060

Course Name: Computer Aided Design

BTME 3060 Computer Aided Design Lecture 8

2nd Year

III Semester

Galgotias University

2020-21

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Name of the Faculty: Pramod Kumar

Program Name: B.Tech

Unit I: Introduction to CAD

- Syllabus
 - Product Development Cycle
 - Introduction to CAD, Hardware and software requirement of CAD;
 - Graphics input devices- cursor control devices, Digitizers, Scanners, speech oriented devices and touch panels,
 - Graphics display devices- Refresh cathode ray tubes, Raster-scan displays, Random-scan displays, CRT Monitors;
 - Input devices- keyboard, joy-stick, mouse, scanner;
 - DVST, Flat- panel display, Hard copy devices - Printers and Plotters, dot matrix, inkjet, laser printers,
 - Graphics Standards – Neutral File formats –IGES, STEP,
 - **Graphics software, Graphics functions,**
 - output primitives- Bresenham's Algorithm and DDA.

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Objectives of the lecture

- Understanding of the Graphics software.
- Understanding basic functions of Graphics functions,



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Graphics software

- graphics software refers to a program or collection of programs that enable a person to manipulate images or models visually on a computer.
- Computer graphics can be classified into distinct categories:
 - raster graphics
 - vector graphics,
 - 2D and 3D variants.
- Many graphics programs focus exclusively on either vector or raster graphics, but there are a few that operate on both.
- It is simple to convert from vector graphics to raster graphics, but going the other way is harder.

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- In addition to static graphics, there are animation and video editing software.
- Different types of software are often designed to edit different types of graphics such as video, photos, and vector-based drawings.
- The exact sources of graphics may vary for different tasks, but most can read and write files.
- Most graphics programs have the ability to import and export one or more graphics file formats, including those formats written for a particular computer graphics program.
- Examples of such programs include GIMP, Adobe Photoshop, CorelDRAW, Pizap, Microsoft Publisher, Picasa, etc.

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History

- SuperPaint (1973) was one of the earliest graphics software applications.
- Fauve Matisse (later Macromedia xRes) was a pioneering program of the early 1990s, notably introducing layers in customer software.
- Currently Adobe Photoshop is one of the most used and best-known graphics programs in the Americas, having created more custom hardware solutions in the early 1990s
- It was initially subject to various litigation.
- CorelDraw holds a stronger user base in Europe than Adobe.

Graphics functions-Putpixel

- Purpose:-Putpixel function is to draw the pixel on the screen. Pixel is small dot on the screen.
- Syntax:-putpixel(x co-orinate, y co-ordinate,COLOR);
- Example: – putpixel(100,100,BLUE);

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Graphics functions-SetbkColor

- Purpose:-Setbkcolor function is used to set background color of the screen.
- Syntax:-setbkcolor(COLOR);
- Example:-setbkcolor(RED);

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Graphics functions-Setlinestyle

- Purpose:-setlinestyle function is used to set the current line style, width and pattern
- Syntax:-setlinestyle(linestyle, pattern, thickness);
- Example:-setlinestyle(SOLID_LINE,1,2);

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Graphics functions-Setcolor

- Purpose:-setcolor is to set color of the objects which is to be drawn after this setcolor line.
- Syntax:-setcolor(COLOR);
- Example:-setcolor(RED);

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Graphics functions



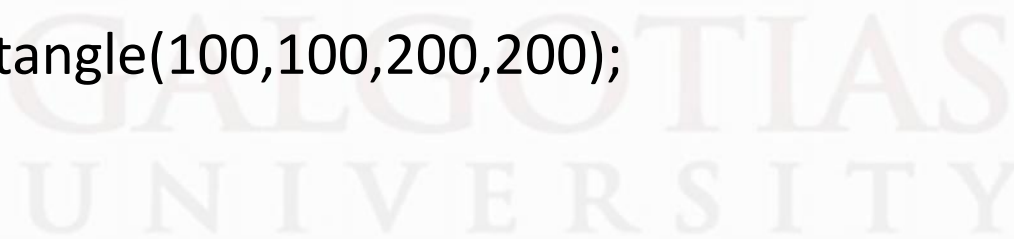
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Graphics functions-Rectangle

- Purpose:- Rectangle function is used to draw the rectangle on the screen. X_1, y_1 are the lower left co-ordinates of the rectangle and the x_2, y_2 are the upper right co-ordinates of the rectangle.
- Syntax:- `rectangle(x1,,y1,x2,y2);`
- Example:- `rectangle(100,100,200,200);`



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Graphics functions-Textheight

- Purpose:-textheight returns the height of a string in pixels.
- Syntax:-textheight(STRING);
- Example:-i=textheight("HELLO");

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Graphics functions-Textwidth

- Purpose:-textwidth returns the width of a string in pixels
- Syntax:-textwidth(STRING);
- Example:-i=textwidth("HELLO");

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Graphics functions-Getx

- **Purpose:**-getx returns the current position's of x o-ordinate
- **Syntax:**-getx();
- **Example:**-x=getx();

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Graphics functions-Getmaxx

- Purpose:-getmaxx returns the maximum x co-ordinate on the screen
- Syntax:-getmaxx();
- Example:-maxx=getmaxx();

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Graphics functions-Line

- Purpose:-Line function is used to draw the line on the screen.
- Syntax: `line(x1,y1,x2,y2);`
- Example:-`line(100,100,200,100);`

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Graphics functions-Closegraph

- Purpose:-closegraph function shut down the graphic system
- Syntax:-closegraph();
- Example:-closegraph();

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Graphics functions-Moveto

- Purpose:-moveto function moves current cursor position on the screen
- Syntax:-moveto(x co-ordinate, y co-ordinate);
- Example:-moveto(getmaxx/2, getmaxy/2);

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Graphics functions-Settextstyle

- Purpose:-settextstyle sets the current text characteristics like font, direction and size
- Syntax:-settextstyle(font, direction size);
- Example:-settextstyle(1,1,10);
 - Font
 - DEFAULT
 - TRIPLEX
 - SMALL
 - SANS SERIF
 - GOTHIC

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Summery

- Graphics software requirements for the CAD
- Basic functions of the graphics functions



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Questions

- What are the software requirements for the CAD
- Explain the graphics functions



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Text Books

- Introduction to Computer Graphics by DJ Eck
- Graphics in C – by Dr. Rab Nawaz Jadoon



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- Thank you



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