

Computer Graphics

- **Course number and name:**
CC 416 – Computer Graphics
- **Credits and contact hours**
Credits Hours: 3Hrs
Contact Hours: In Lecture 2Hrs, In Tutorial 2Hrs, and In Lab 2Hrs
- **Instructor’s or course coordinator’s name**
Coordinator Name: Prof. Dr. Ahmed Fahmy
- **Text book, title, author, and year**
 - Computer Graphics Open Gl Version, by D. Hearn and M.P. Baker, Prentice Hall
- **Specific course information**
 - a. **Catalog description**
Introduction - History and survey of graphics applications - Overview of graphics systems and output devices - Output primitives including points, lines, circles, splines, area filling, and character generation - Attributes of output primitives - Two dimensional transformations - Windowing and clipping - Interactive input methods – Three dimensional graphics.
 - b. **prerequisites or co-requisites**
Prerequisites: CC319
 - c. **Type of the course (required, elective, or selected elective course) in the program**
Required Course
- **Specific goals for the course**
 - a. **Specific outcomes of instruction**

After the completion of this course the students will be able to:

| | Course Learning Outcomes | SO |
|---|---|----|
| 1 | Understand the basic principles for design, use and understanding of 2-d as well as 3-d graphics. | C |
| 2 | Understand the hardware and software components of graphics systems. | C |
| 3 | Acquired necessary knowledge in mathematics, algorithms design and programming skills to develop graphics applications. | D |
| 4 | Understand history and survey of professional computer graphics applications. | F |

Topics to be covered

- Introduction, history and Survey of Computer Graphics Applications
- Overview of Graphics Systems : Raster and Random scan displays
- Color display – Color models (RGB, CMY, ..)
- Output Primitives : Bresenham line and Mid-point Circle / Ellipse drawing algorithms
- Drawing free curves : Bezier and Spline techniques
- Two – Dimensional Transformations
- Viewing transformation
- Line and Polygon clipping algorithms
- Filling algorithms
- Animation
- Three – Dimensional Concepts Viewing and Representation
- Three – Dimensional Transformations