Course Name: Computer Graphics	Course Code: ITSE304
Pre-Requisite: (1) ITSE201-Programming II **, AND** (2) ITSE203- Object Ordinated Programming	Credit Hours: 3
Passing Grade: Depending on the Type of the course belongs to the Audit Degree.	Level: Year 3
No. Of Theory & Practical Hours : 1:4	

Goal: To apply the concept of computer graphics , modeling, animation techniques, and virtual reality (VR) and augmented reality (AR) Application

Objectives: The course should enable the student to:

1. Apply the principles of 2D and 3D computer graphics.
2. Use graphic libraries to implement graphical applications.
3. Use a Graphic tool to practice 2D and 3D Modeling and Animation.
4. Create an appropriate virtual reality (VR) and augmented reality (AR) solution for an application.

Outcomes The students should be able to:	Method
1. Identify hardware components ,software applications and technologies of interactive devices.	Theory
2. Describe the tools used in development of graphical systems.	Theory
3. Apply algorithms and techniques for generating 2D Attributes	Theory & Practical
4. Analyze the production of primitive graphical objects on a raster display.	Theory & Practical
5. Design graphics using two dimensional graphics, three dimensional graphics, graphics arts and animations.	Theory & Practical
6. Perform transformations on objects in the plane using suitable matrices and homogeneous coordinates.	Theory & Practical
7. Apply transformation to objects using functions and procedures.	Practical
8. Use a tool for 3D Modeling and Animation.	Practical
9. Explain the underlying technologies of VR systems and VR applications	Theory
10. Create an appropriate virtual reality augmented reality (AR) solution for an application.	Practical

Hardware / Software Tools:
OpenGL, MS Visual Studio, Blender, 3D Canvas, Unity 3D, PENCIL, Synfig Studion, Powtoon

Text Book:

1. Hearn, D.D., Baker, M.P. and Carithers, W., 2010. Computer graphics with open GL. Prentice Hall Press.
2. Ganovelli, F. (2015). Introduction to computer graphics. Boca Raton [u.a.]: CRC Press.
3. McGuire-Lytle, E. (1999). Careers in graphic arts and computer graphics. New York: Rosen Pub. Group.
4. Yoon, S. (2008). Real-time massive model rendering. [San Rafael, Calif.]: Morgan & Claypool Publishers.

Reference Book:

1. Shreiner. D ,Woo. M. OpenGL(R) Programming Guide .New York : Addison-Wesley

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