CSC 706 <57924>   Computer Graphics   Dr. Natacha Gueorguieva   S'16

Wed   6:30 pm – 8:10 pm   2N 103
Prerequisites: N/A

Textbook: Edward Angel, Interactive Computer Graphics: A Top-Down Approach Using OpenGL, 5/E , Pearson, ISBN-10: 0321535863, ISBN- 13 : 978 03215 35863

Course Requirements

There will be a midterm and a final exam

There will be two projects

There will be 4 homework assignments and 2-3 exercise problems

There will be one presentation

Homeworks, Exercises, Projects and PPTs are assumed team assignments unless otherwise stated
Exams are individual

Grading

- Projects – 30%
- Homeworks + Exercises – 20%
- Midterm exam – 20%
- Final exam – 20%
- PPT – 10%

Makeup exams will not be given.
Office Hour: Mon 1:00 pm – 2:15 pm   Wed 5:30 pm – 6:15 pm **1N 205 or** by appointment **(1N 205)**

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Course Outline

1. Introduction and Motivation: Graphics history, 2D and 3D graphics, Graphics programming, Graphics software and hardware systems, Display devices, I/O peripherals, Vector and raster graphics system.

2. Fundamental Mathematics and Geometry: Basic mathematics relevant to graphics, Coordinate systems, Points, lines, planes, and normals, Triangles and polygons, Geometric primitives, Curves, and surfaces, Solid and volumetric models, 2D and 3D geometric transformation, Parallel and perspective projection.

3. Scene composition: Coordinate system, 2D and 3D geometric transformation, Object hierarchies, Viewing and clipping, Parallel and perspective projection Object and image order rendering

4. Rendering: Rendering pipeline, Scan-conversion: lines and polygons, Shading/lighting (illumination models) Visibility.

5. Image-based techniques: Sampling, Filtering, Anti-aliasing.

6. Others: Animation, Transparency and shadows, Texture mapping, Ray tracing, radiosity, Image-based rendering and modeling.

Midterm   **April 6**
Final exam   **May 25**