CMSC 427 – Tentative Course Plan

Fall 2004, Amitabh Varshney

Aug 31	Motivation, Overview *applications, graphics pipeline*	**Sep 2**	Graphics Display Technology *vector/raster, CRT, LCD, DMD* *human visual system*
Sep 7	Graphics APIs *Event-driven computing, OpenGL*	**Sep 9**	Interaction and Pixel Operations *GLUT overview, pixel ops*
Sep 14	Textures *use, types, Perlin Noise* **Assignment 1 given**	**Sep 16**	Geometric Primitives *lines, triangles* *basic linear algebra*
Sep 21	2D and 3D Transformations *translate, rotate, scale, shear* *homogeneous coords, composition*	**Sep 23**	3D Viewing *parallel, perspective* **Assg 1 due, Assg 2 given**
Sep 28	3D Viewing and Picking *canonical views, selection*	**Sep 30**	Line Drawing *overview, algorithms*
Oct 5	Polygon Filling *overview, algorithms*	**Oct 7**	Color and Transparency *models, dithering, blending* **Assignment 2 due**
Oct 12	Course Recap	**Oct 14**	**Mid-Term Exam**
Oct 19	Sampling and Filtering *anti-aliasing*	**Oct 21**	Visibility and Cullings *depth cues, coherence* *VFC, Backface, Collisions* **Assignment 3 given**
Oct 26	Visibility Determination *Z-buffer and other methods*	**Oct 28**	Illumination, Shading, Texturing *ambient, diffuse, specular* *flat, Gouraud, Phong, texture mapping*
Nov 2	Ray Tracing *overview, acceleration*	**Nov 4**	Shadows *shadow matrices, shadow z-buffer* **Assg 3 due, Assg 4 given**
Nov 9	Radiosity *overview*	**Nov 11**	Modeling Overview *various primitives*
Nov 16	Curves and Surfaces *Bézier and B-splines*	**Nov 18**	Point- and Image-based Rendering *overview, approaches* **Assignment 4 due**
Nov 23	Volume Rendering *overview, applications*	**Nov 30**	Computer Animation *overview*
Dec 2	Virtual Environments *technology, applications*	**Dec 7**	Graphics Processing Units *architecture, applications*
Dec 9	Wrap-up Review	**Dec 17**	**Final Exam** 1:30pm – 3:30pm