

CMSC 427 – Tentative Course Plan

Fall 2006, Amitabh Varshney

Aug 31	Motivation, Overview <i>applications, graphics pipeline</i>	Sep 5	Graphics APIs and Pixel Operations <i>event-driven computing, OpenGL, GLUT</i>
Sep 7	Graphics Meshes <i>overview, representations</i>	Sep 12	Illumination & Shading <i>ambient, diffuse, specular flat, Gouraud, Phong</i>
Sep 14	Textures <i>use, types, mapping</i> Assg 1 given	Sep 19	2D and 3D Transforms <i>homogeneous coords, composition hierarchical transforms, rotations</i>
Sep 21	3D Viewing and Screen Picking <i>parallel, perspective canonical views, selection</i>	Sep 26	Modeling Overview <i>various primitives, mesh LOD</i>
Sep 28	Curves and Surfaces <i>Bézier and B-splines</i> Assg 1 due, Assg 2 given	Oct 3	Visibility Determination <i>object-order, image-order Z-buffer, cells/portals, BSP trees</i>
Oct 5	Culling and Collisions <i>VFC, back-face, visibility depth cues, collision detection</i>	Oct 10	Shadows <i>shadow matrices, shadow z-buffer</i>
Oct 12	Graphics Processing Units <i>architecture, applications</i> Assg 2 due, Assg 3 given	Oct 17	Shader Programming <i>vertex and fragment programs</i>
Oct 19	Procedural Graphics <i>textures and geometry synthesis</i>	Oct 24	Color and Transparency <i>models, dithering, blending</i>
Oct 26	Course Recap	Oct 31	Mid-Term Exam
Nov 2	Ray Tracing <i>overview, acceleration</i> Assg 3 due, Assg 4 given	Nov 7	Radiosity <i>overview</i>
Nov 9	Line and Polygon Drawing <i>incremental algorithms</i>	Nov 14	Point-based Rendering <i>overview, approaches</i>
Nov 16	Image-based Rendering <i>overview, approaches</i> Assg 4 due	Nov 21	Volume Rendering <i>overview, applications</i>
Nov 28	Graphics Display Technology <i>vector/raster, CRT, LCD, DMD</i>	Nov 30	Sampling and Filtering <i>anti-aliasing</i>
Dec 5	Computer Animation <i>overview</i>	Dec 7	Human Visual System <i>perception, attention, illusions</i>
Dec 12	Wrap-up Review	Dec 18	Final Exam 10:30am – 12:30pm