



Course Weekly Outline

Week	Date	Topics Covered	Lab. Experiment Assignments	Notes
1		History, uses, pipeline Primitives Graphic system and models	Computer graphics instruction in C++	
2		Calligraphic and Raster Devices How a Monitor Works Physical Devices	Computer graphics instruction in C++	
3		Ray Tracing, Reflection, Texture mapping	Computer graphics instruction in C++	
4		Illumination and shadows, light sources, surfaces,	Computer graphics instruction in C++	
5		Introduction to colors and Human Visual Systems	Colors system with C++ code	
6		DDA	DDA program	
7		Berzenham	Berzenham program	
8		Berzenham circle algorithm	Berzenham circle program	
9		In 2D : Objects representation, Coordinates transformation,	2D transformation program	
10		In 3D: Objects representation, Coordinates transformation,	3D transformation program	
11		Point clipping	Point clipping program	
12		Cohen-Surherland	Cohen-Surherland program	
13		Animation algorithm -1	Animation software	
14		Animation algorithm -2	Animation software	
15		Polygon Clipping	Polygon clipping program	
16		General question solution		
Half-year Break				

17		Image processing overview, digital images, digital image types color space	Image processing instruction in C++	
18		Representations of colour space	Image processing instruction in C++	
		Color Models Color image Transforms		
19		FFT Fourier descriptors	FFT programs with image analysis	
20		Feature Characterization, Calculation of region properties, Moment features	Image description with image property	
21		Intensity Transformations, Histogram Processing, Histogram equalization	Image description with histogram features	
22		Preliminary Concepts	Cont.	
23		Linear and non-linear filtering operations	Filter programming	
24		Image Smoothing	Smoothing filter programming	
25		Image Sharpening Image enhancement filters	Sharpening filter programming	
26		Noise Models Noise Reduction	Noise and noise filter reduction	
27		Point, line, edge detection Threshold	Gray to B/W image transformation program	
28		Region-based segmentation	Cont.	
29		Erode and dilate operators on binary images Open, close, thinning and other transforms	Morphology programming	
30		Mathematical and logical image operations	Mathematical and logical image operations programming	
31		Image compression fundamental algorithms	Image compression programming	
32		DCT, wavelets (suggested)	DCT and wavelets programming	