

Dept Number	CS 586		Course Title	Pattern Recognition and Image Processing						
Semester Hours	3		Course Coordinator	Qiang Cheng						
Catalog Description	An introduction to the area of computer vision for the purpose of restoration, segmentation, encoding, analysis, and recognition of pictures. Topics include: image transforms, edge detection, smoothing, filtering, pseudo-coloring, syntactic methods in scene analysis, parametric decision theory, non-parametric decision theory, linear discriminant functions, parameter estimation, supervised learning, and unsupervised learning.									
Textbooks										
										SP17
<i>Digital Image Processing:Gonzalez& Woods, Prentice Hall, 3rd Edition, ISBN-9780131687288</i>										
References										
Course Learning Outcomes										
Assessment of the Contribution to Program Outcomes										
Outcome →	1	2	3	4	5	6	7	8	9	10
Assessed →	X	X	X	X	X		X			
Prerequisites by Topic										
CS 220 and Math 380 or consent of instructor.										

1. Computer Representation and Display of Picture Data {3 classes}
2. Image Transforms {7 classes}
3. Image Enhancement {3 classes}
4. Image Encoding {3 classes}
5. Descriptive Methods in Scene Analysis {2 classes}
6. Restoration {4 classes}
7. Non Parametric Decision Theory {4 classes}
8. Linear Discriminant Functions {3 classes}
9. Statistical Discriminant Functions {6 classes}
10. Clustering and Non Supervised Learning {5 classes}

Major Lab Assignments and Projects

Assessment Plan for the Course

Tool 1.	<p>Assignments: Assignment 1: O-1, O-2 Assignment 3: O-1, O-3 Assignment 6: O-1, O-4</p>
Tool 2.	<p>Machine Problem: Machine Problem: O-3, O-5, O-7</p>
Tool 3.	<p>Exams: Exam 1: O-1 Exam 2: O-2, O-4</p>