

Digital Image Processing

C\$ 3060

W. 1997-98

Prerequisite : CS2010

Instructor : David Gregg Libero Ficocelli
Office : C405 C424
Phone : 539 -2976 539 - 2825

Course Content:

To introduce students to the fundamentals of image processing and to give them an opportunity to utilize these techniques on real images. The core topics will include image fundamentals, image transforms, image enhancement and restoration, segmentation and encoding. We will also venture to cover advanced topics in applied image processing such as: pattern recognition, scene analysis and morphing. Course topics **may** include (but not limited to) all or some the following:

Image representation and Image processing devices

Image Fundamentals:

visual perception, sampling and quantization
pixel relations and imaging geometry

Image Transforms:

Fourier transforms, Hough Transforms

Image Enhancement:

histogram-modification techniques, smoothing and sharpening, pseudo-color

Image Restoration:

algebraic approach, inverse filtering
geometric transformations

Image Compression:

encoding process and criteria
lossless compression and lossy compression;

Image Segmentation:

thresholding, edge detection, boundary following,
region growing, motion detection;

Image Description:

chain codes, shape descriptors, morphology

Pattern recognition:

decision rules, classifiers and clustering

Lab : The scheduled lab for this course is in J101

Text: **Digital Image Processing: Principles and Applications**
Gregory A. Baxes
John Wiley and Sons

Marking:

Lab Assignments	18%
Projects	25%
Midterm	20%
Quizzes	12%
Final Exam	25%

Special Notes :

The Student will be eligible for a passing grade for the term, only if they obtain 31 out of a possible 62 marks (on quizzes, midterm and final).