RYERSON UNIVERSITY

Department of Electrical and Computer Engineering

EE8212

Winter 2006

Digital Image Processing II

Course Information

www.ee.ryerson.ca/~courses/ee8212/

Professor:

Name	Office	Ext.	Email	Counseling Hours
Dr. Dimitri Androutsos	ENG 457	6104	dimitri@ee.ryerson.ca	

Course Organization- Lecture/Tutorial Hours

Lecture **3 hrs/week** Wednesdays 5pm - 8pm

Course Description:

This course deals with advanced concepts in digital image processing. In particular, emphasis will be on color image processing. The concepts that will be covered include: color vision, trichromacy theory, color spaces, colour image creation/representation/storage, component colour image processing, vector colour image processing, segmentation, and colour image compression. The course will include a practical aspect by discussing applications and implementations of image processing techniques currently in use in industry. The course will also have student projects and literature reviews in selected areas.

Pre-requisites: Courses in signal and image processing..

Course Evaluation:

2 Assignments: 40%

1 Final Project: 60%

Text & References:

Required Textbook	**Digital Image Processing (2nd Edition),** R.C. Gonzalez & R.E. Woods, **Prentice Hall 2002, ISBN: 0-20-118075-8**
Reference 1	**Color Image Processing,** K.N. Plataniotis & A.N. Venetsanopoulos **Springer 2000, ISBN: 3-540-66953-1**
Reference 2	**Fundamentals of Digital Image Processing,** A.K. Jain, **Prentice Hall, 1989, ISBN: 0-13-336165-9**

Lecture Content Outline:

Topic Descriptions	Hours
Colour Fundamentals - light and colour - human eye - trichromacy theory - additive/subtractive colour - colour spaces	4
Digital Colour Images - creation/display hardware - gamma - representation - noise	6
Colour Image Processing -Scalar Component image processing -Vector image processing	8
Image Segmentation - Region growing - Split & merge - Thresholding	4
STUDY WEEK	Week of Feb 13, 2006
Morphology - Erosion - Dilation - Opening - Closing	12
Upsampling - Increasing resolution - Super-resolution	8
Image & Video Compression - DCT - Wavelets & Multiresolution - JPEG - MPEG	4
Current Applications	4

IMPORTANT NOTE:

- **It is the students responsibility to regularly check the course web page for updates and announcements**

NOTE: Ryerson University Policy

- "All of the required course specific written reports will be assessed not only on their technical or academic merit, but also on the communication skills of the author as exhibited through these reports."
- "All students are required to activate and maintain a Ryerson University central Matrix e-mail account which shall be an official means by which they will receive University communications." It is also recommended that, where possible, students utilize these account for communicating with their instructors.