

**ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT
UNIVERSITY OF CENTRAL FLORIDA**

SPRING 2004

EEL 5820 – IMAGE PROCESSING
W 6:00 - 8:45 PM, ENG2-103

Instructor: Dr. T. Kasparis - Eng 115, Tel. (407) 823-5913
Office hours: T W R 3 – 5 PM or by appointment
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Text: "Digital Image Processing". 2nd Edition, Gonzalez & Woods, Prentice Hall

Web-site: <http://people.cecs.ucf.edu/kasparis/>

Objectives: To introduce students to image processing fundamentals.

Homework: Homework will be assigned periodically, and collected a week later. HW solutions will be provided.

Computer: Three computer assignments will be required during the semester. In addition, computer usage may be necessary in homework problems as well

Grading:

2 Exams:	40%
Comprehensive Final Exam:	30%
Computer work:	25%
Homework:	5%

The final letter grade will be based on the class average.

Other: The lecture may not necessarily follow the text consistently, and periodically material not in the textbook may be covered in the class. It is therefore the student's responsibility to be in class and take notes. Exams will cover all material covered in class and homework.

COURSE TOPICS

1. Image Sampling and quantization
2. Processing in the Spatial Domain
 - a) Histograms
 - b) Spatial filtering
 - c) Linear and non-linear filters
3. Processing in the Frequency Domain
 - a) 1-D and 2-D Fourier transforms
 - b) Smoothing and sharpening filters
 - c) Implementations
4. Image Restoration
 - a) Noise Models
 - b) Linear and non-linear filters
5. Multi-resolution and Wavelets
6. Image Compression
7. Image Segmentation