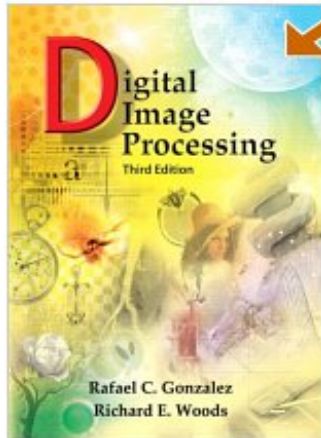


CS 340-101: Digital Image Processing (CRN:
2107)
Marshall University
Fall 2007

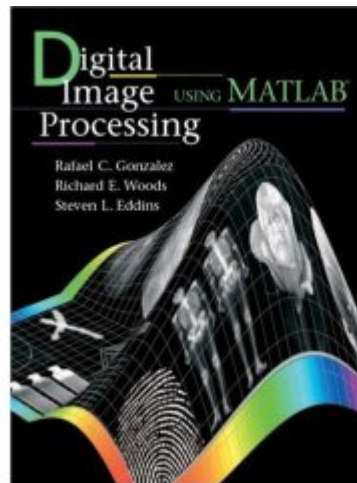
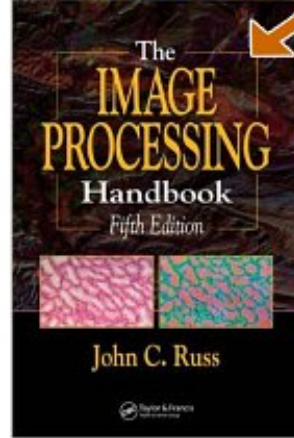
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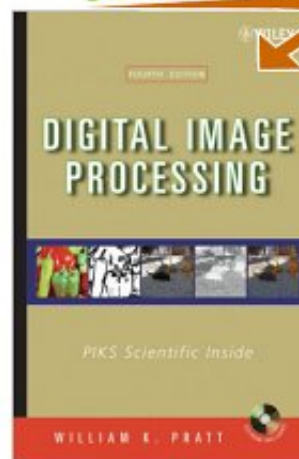
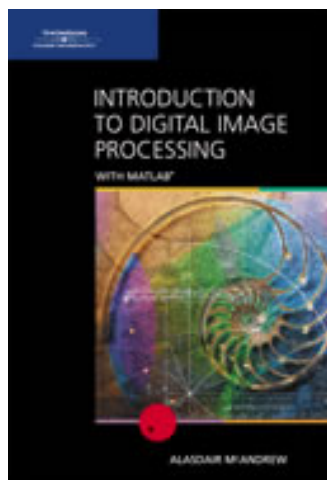
LOOK INSIDE!™



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1 Course description

In this course you will learn mathematical techniques, algorithms, and software tools for image sampling, quantization, enhancement, reconstruction, compression, segmentation, and analysis. MATLAB will be used to demonstrate digital image principles and practices.

2 Course schedule

This course meets on MW 2.00 PM - 3.15 PM in GH 206A.

3 Instructor information

- Dr. V.N. Gudivada, Gullickson Hall Room 205A, Phone: 304-696-5452, Email: gudivada@marshall.edu. Please use this email only if you cannot access WebCT Vista email.
- Office hours: 12.00 Noon - 2.00 PM on MWF and 4.00 PM - 5.00 PM on MW. Other times by appointment.

4 Course topics at a glance

- a. Image capture and display.
- b. Image types and storage formats.
- c. Intensity transformations and spatial filtering.
- d. Frequency domain processing.
- e. Color image processing.
- f. Morphological image processing.
- g. Image segmentation.
- h. Image representation and description.
- i. Image restoration.

5 Student learning outcomes

- a. The student **articulates** general terminology of digital image processing principles and practices.
- b. The student **demonstrates** the knowledge of various image types and associated storage requirements.
- c. The student **demonstrates** the knowledge of various intensity transformations and spatial filtering in enhancing digital images.
- d. The student **demonstrates** the knowledge of frequency domain technique in enhancing digital images.
- e. The student **has mastered the methodologies and tools** for color image processing.
- f. The student **has mastered the methodologies and tools** for morphological image processing.
- g. The student **has mastered the methodologies and tools** for image segmentation.
- h. The student **has mastered the methodologies and tools** for image representation and description.
- i. The student **has mastered the methodologies and tools** for image restoration.

6 Instructional materials

Required Textbook Rafael C. Gonzalez, Richard E. Woods, and Steven L. Eddins. *Digital Image Processing Using MATLAB.* ISBN-10: 0130085197. ISBN-13: 978-0130085191. Prentice Hall, 1st edition (September 5, 2003).

Reference Book. No need to buy Rafael C. Gonzalez and Richard E. Woods. *Digital Image Processing.*, ISBN-10: 013168728X. ISBN-13: 978-0131687288, Prentice Hall, 3rd edition, (August 21, 2007).

Reference Book. No need to buy John C. Russ. *The Image Processing Handbook.*, ISBN-10: 0849372542. ISBN-13: 978-0849372544, CRC Press, 5th edition, (December 19, 2006).

Reference Book. No need to buy Alasdair McAndrew. *Introduction to Digital Image Processing with MATLAB.*, ISBN-10: 0534400116, ISBN-13: 978-0534400118, Course Technology, 1st edition (April 7, 2004).

Reference Book. No need to buy William K. Pratt. *Digital Image Processing: PIKS Scientific Inside.*, ISBN-10: 0471767778, ISBN-13: 978-0471767770, Wiley-Interscience, 4th edition (February 9, 2007).

Additional Resources Course notes and other handouts will be available on WebCT Vista. URLs for additional resources will also be listed on the Vista.

7 Course assessment and grading criteria

The course assessment is based on the following components:

- Written assignments: 20%
- Two midterm exams: 50%
- Final exam: 30%

8 Assignment of letter grade

<i>Score</i>	<i>Letter Grade</i>	<i>Remarks</i>
≥ 90	A	Achievement of distinction
$\geq 80 \ \& \ < 90$	B	Competent and professional work
$\geq 70 \ \& \ < 80$	C	Below average performance
$\geq 60 \ \& \ < 70$	D	Patently substandard work
< 60	F	Unsatisfactory work

Note that A grades are awarded only to those students who have demonstrated distinctive performance in the course.

9 WebCT Vista

It is important to visit WebCT Vista for up-to-date information about the course. It hosts all the course materials including assignments, handouts, lecture notes, and reading materials. Also, you will use the Vista for submitting your team project.