

## Course Syllabus

**Term:** Fall 2012

**Course Title:** Introduction to Digital Image Processing

**Instructor:** Prof. C.-C. Jay Kuo  
Ming Hsieh Dept. of Electrical Engineering, Room EEB 440  
University of Southern California  
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**Lecture:** 9:00 - 11:50 a.m. Friday

**Discussion:** TBA

**Website:** <http://den.usc.edu>

1. Please check the website for latest announcements and project assignments.
2. For general questions, please utilize the discussion board on the website. TAs will check the forum on a daily basis.

**Instructor's Office Hours:**

Monday and Tuesday 8:30 - 10 am.

For any problem related to the homework, ask TAs for help first.

**Teaching Assistants:** TBA

**Graders:** TBA

You are welcome to communicate with Professor, TAs, and graders by e-mails. Please include words "EE569" in the subject line for ease of search and management.

**Textbook:**

William K. Pratt: Digital Image Processing, 4th Edition, John Wiley & Sons Inc., 2007. (ISBN 9780471767770).

**Reference Books:**

1. D. E. Dudgeon and R. M. Mersereau: Multidimensional Digital Signal Processing, Prentice Hall, 1984.
2. Anil K. Jain: Fundamentals of Digital Image Processing, Prentice Hall, 1989.
3. J. S. Lim: Two-Dimensional Signal and Image Processing, Prentice Hall, 1990.
4. Rafael C. Gonzalez and Richard E. Woods: Digital Image Processing, Addison-Wesley, 1992
5. Ronald N. Bracewell: Two-Dimensional Imaging, Prentice Hall, 1995.
6. Kenneth R. Castleman: Digital Image Processing, Prentice Hall, 1996.

**Homework:**

There will be 3 projects. All require computer programming. All homework will be due on Fridays, at 5pm - no late homework will be accepted.

**Midterm Exam:**

Nov. 16 (Friday) 9:00am ~ 11:50am

**Term Paper:**

Due on Dec. 7 (Friday) 5pm PST

**Grading Policy:**

1. Homework: 51%
2. Oral Exam (test on your submitted code): 9%
3. Midterm Exam: 20%
4. Term Paper: 20%

**Tentative Schedule:**

Topic 1: DIP Fundamentals and Image Enhancement and Noise Removal (Chapter 10)

**Homework No. 1**

Topic 2: Edge Detection (Chapter 16)

Topic 3: Morphological Processing (Chapter 15)

Topic 4: Digital Halftoning

**Homework No. 2**

Topic 5: Geometrical Modification (Chapter 14)

Topic 6: Texture Analysis (Chapters 17 and 18)

Topic 7: Object Shape Recognition (Chapters 18 and 20)

**Homework No. 3**

Topic 8: Color Image Processing

Topic 9: Image Watermarking and Data Hiding

Topic 10: Image Indexing and Retrieval

Topic 11: Image re-targeting

**Term Paper Due****Important Reminder:**

Please refer to the following web sites for USC policy on academic integrity and the penalties for cheating and plagiarism. These rules will be strictly enforced.

1. <http://www.usc.edu/dept/publications/SCAMPUS/gov/gov05.html>
2. <http://www.usc.edu/dept/publications/SCAMPUS/gov/gov11.html>
3. <http://www.usc.edu/dept/publications/SCAMPUS/gov/gov12.html>
4. <http://www.usc.edu/dept/ARR/grades/>