922U3010 Digital Image Processing (02/25/2021)

# Course Syllabus

**Term:** Spring 2021
**Course Title:** Introduction to Digital Image Processing

**Instructor:**
Dr. Ming-Sui (Amy) Lee
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**Lecture:** Thursday 10:20 ~ 13:10 @ CSIE 101

**Website: NTU COOL** https://cool.ntu.edu.tw/courses/5350

**Teaching Assistants:**
黃偉綸、朱世耘
Office Hours: 14:00 ~ 16:00, Tuesday
Office Hours: 10:00 ~ 12:00, Friday
Office: CSIE Building, Room 532
E-mail: dip.mslee@gmail.com

**Textbook:**
William K. Pratt: Digital Image Processing, 3rd Edition, John Wiley & Sons Inc., 2001.

**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, Prentice Hall, 2010.
5. Ronald N. Bracewell: Two-Dimensional Imaging, Prentice Hall, 1995.
6. Kenneth R. Castleman: Digital Image Processing, Prentice Hall, 1996.

**Homework:**
There will be 5~6 assignments. All of them require computer programming.
No late homework will be accepted. Plagiarism is strictly prohibited.

**Grading Policy:**

1. Homework: 40%
2. Midterm Exam: 30%
3. Term Project: 30%

**Tentative Schedule:**

I. Introduction and Digital Image Fundamentals
II. Image Enhancement in Spatial Domain
III. Edge Detection
IV Geometrical Modification
V Morphological Processing
VI Digital Halftoning and Inverse Halftoning
VII Texture Analysis
VIII Document Processing
IX Image Sampling and Transforms
X Image Enhancement in Frequency Domain
XI Color Image Processing
XII Image Compression