

**Course Description**

Students will learn the principals of digital image processing and analysis techniques which have been widely used in biomedical applications. Every lecture is followed by a hands-on session to give the students better understanding of the theories and concepts that they have learned.

**Instructor**

Kisung Lee, Hana Science Hall Rm468, [kisung@korea.ac.kr](mailto:kisung@korea.ac.kr), 3290-5652, 010-9507-5969

**Office hour**

To be arranged by email request

**Teaching assistant**

Daryun Kim, Hana Science Hall Rm457, [kdr5127@korea.ac.kr](mailto:kdr5127@korea.ac.kr), 940-2753

**Textbook**

McAndrew, Wang and Tseng, Introduction to Digital Image Processing with Matlab, Asia Ed. CENGAGE Learning, 2010, ISBN 13-978-1-111-29619-3

**Reference books**

Rafael C. Gonzalez, Richard E. Woods, Digital Image Processing, 3rd Ed. Prentice Hall, 2007, ISBN-10: 013168728X, ISBN-13: 978-0131687288

Wolfgang Birkfellner, Applied Medical Image Processing, 2<sup>nd</sup> Edition: Basic Course, 2016

**Evaluation**

Attendance/attitude 20%, homework: 20%, Exams 30%, final project 30%

**Weekly Schedule**

week 1: Class introduction

week 2: Chap 1-3, Image processing intro.

week 3: Chap 4, Point processing

week 4: Chap 5, Spatial filter, [HW1 PACKAGE](#)

[week 5: Chuseok, Korean Thanksgiving Holiday](#)

week 6: Chap 6, Image geometry

week 7: Chap 7, Frequency filters

week 8: Chap 8, Image restoration, [HW2 PACKAGE](#)

week 9: Chap 9-10, Image segmentation, morphology

week 10: Chap 11-12, Shape and boundaries

week 11: Chap 13-14, Color and image compression, [HW3 PACKAGE](#)

week 12: Chap 15-16, Wavelet and special effects, [PROJECT INTRO](#)

week 13: [Final exam](#)

week 14: Term project: proposal presentation and submission

week 15: Term project: midterm presentation

week 16: [Term project](#): final presentation, demo, and report package submission