Course Title	DIGITAL IMAGES PROCESSING	Instructor	MENG-LUEN WU
Course Class	TEIBM1A MASTER'S PROGRAM, DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM),	Details	◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	1A SDG8 Decent work and economic growth SDG9 Industry, Innovation, and Infrastructure SDG17 Partnerships for the goals		

Departmental Aim of Education

Ⅰ. Cultivate the ability to conduct independent research and problem solving.

Ⅱ. Strengthen creativity and research capacity.

Ⅲ. Build profound professional knowledge in computer science and information engineering.

Ⅳ. Engage in self-directed lifelong learning.

Subject Departmental core competences

A. Independent problem solving ability.(ratio:10.00)

B. Independent innovative thinking ability.(ratio:10.00)

D. Research & development (R&D) ability in information engineering.(ratio:80.00)

Subject Schoolwide essential virtues

2. Information literacy. (ratio:100.00)

Course Introduction	Overview of digital image processing including visual perception, image formation, spatial transformations, image enhancement, color image representation and processing, edge detection, image segmentation, and morphological image processing.

The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

 I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.

II.Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.

III.Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.

No.	Teaching Objectives	objective methods
1	1. Human visual systems and color space model 2. Image enhancement techniques 3. Image histogram analysis 4. Image restoration 5. Image segmentation 6. Morphological operations 7. Frequency domain manipulation 8. Image compression methods	Cognitive

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABD	2	Lecture, Discussion, Experience	Testing, Discussion(including classroom and online), Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	110/09/22 ~ 110/09/28	Overview, Computer imaging systems	
2	110/09/29 ~ 110/10/05	Image preprocessing	
3	110/10/06 ~ 110/10/12	Human visual system	
4	110/10/13 ~ 110/10/19	Image binarization and histogram	
5	110/10/20 ~ 110/10/26	Image enhancement	
6	110/10/27 ~ 110/11/02	Image restoration	
7	110/11/03 ~ 110/11/09	Morphological operations	

8	110/11/10 ~ 110/11/16	Connected components and shapes	
9	110/11/17 ~ 110/11/23	Presentation I	
10	110/11/24 ~ 110/11/30	Midterm Week	
11	110/12/01 ~ 110/12/07	Image segmentation methods	
12	110/12/08 ~ 110/12/14	Fourier discrete transformations	
13	110/12/15 ~ 110/12/21	Frequency filters, geometric transforms	
14	110/12/22 ~ 110/12/28	Wavelets transform	
15	110/12/29 ~ 111/01/04	Image compression, lossless & lossy method	
16	111/01/05 ~ 111/01/11	Presentation II	
17	111/01/12 ~ 111/01/18	Final Exam	
18	111/01/19 ~ 111/01/25		

Requirement	Basic Programming Concepts
Teaching Facility	Computer, Projector
Textbooks and Teaching Materials	Gonzalez, R. C., and R. E. Woods. "Digital Image Processing Prentice." (2006). Mcandrew, Alasdair. "Digital Image Processing with MATLAB." Cengage learning (2004).
References	
Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual：30.0 % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 30.0 % ◆ Other〈 〉： %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php . ※ **Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**