

Tamkang University Academic Year 110, 2nd Semester Course Syllabus

Course Title	IMAGE AND VIDEO PROCESSING AND APPLICATIONS	Instructor	CHENG SHIAN LIN
Course Class	TEIBM1A MASTER'S PROGRAM, DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM),	Details	<ul style="list-style-type: none"> ◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	1A SDG4 Quality education		
Departmental Aim of Education			
<ul style="list-style-type: none"> 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			
<ul style="list-style-type: none"> A. Independent problem solving ability.(ratio:10.00) B. Independent innovative thinking ability.(ratio:10.00) C. Research paper writing and presentation ability.(ratio:10.00) D. Research & development (R&D) ability in information engineering.(ratio:50.00) E. Project execution and control ability.(ratio:10.00) F. Lifelong self-directed learning ability.(ratio:10.00) 			
Subject Schoolwide essential virtues			
<ul style="list-style-type: none"> 2. Information literacy. (ratio:30.00) 4. Moral integrity. (ratio:10.00) 5. Independent thinking. (ratio:20.00) 7. A spirit of teamwork and dedication. (ratio:20.00) 8. A sense of aesthetic appreciation. (ratio:20.00) 			

Course Introduction	In this course, in addition to introducing basic image/video processing methods, we will also focus on discussing and developing core technologies/algorithms for exploring the latest research topics in the image, video, and related fields.
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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	Students will learn updated definitions and operations on image/video.	Cognitive
2	Students will learn implementation-related algorithms for solving image/video tasks.	Cognitive
3	Students will survey updated journal papers of related issues and make presentations.	Cognitive
4	Students will learn how to comment pro and con of academic papers.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDEF	24578	Lecture, Discussion	Study Assignments, Discussion(including classroom and online)
2	ABCDEF	24578	Lecture, Discussion	Study Assignments, Discussion(including classroom and online)
3	ABCDEF	24578	Lecture, Discussion	Study Assignments, Discussion(including classroom and online)

4	ABCDEF	24578	Lecture, Discussion	Study Assignments, Discussion(including classroom and online)
Course Schedule				
Week	Date	Course Contents		Note
1	111/02/21 ~ 111/02/25	Introduction to multimedia processing and applications		
2	111/02/28 ~ 111/03/04	Introduction to Python/Matlab Programming		
3	111/03/07 ~ 111/03/11	Introduction to Introduction to Python/Matlab Programming		
4	111/03/14 ~ 111/03/18	Introduction to Numpy, Pandas package		
5	111/03/21 ~ 111/03/25	Introduction to Image processing libraries		Python Imaging Library (PIL), scikit-image
6	111/03/28 ~ 111/04/01	Still image compression		
7	111/04/04 ~ 111/04/08	Still image compression		
8	111/04/11 ~ 111/04/15	Video compression		
9	111/04/18 ~ 111/04/22	Video compression		
10	111/04/25 ~ 111/04/29	Midterm Report		
11	111/05/02 ~ 111/05/06	Image/Video content analysis		
12	111/05/09 ~ 111/05/13	Image/Video content analysis		
13	111/05/16 ~ 111/05/20	Case study discussion		
14	111/05/23 ~ 111/05/27	Case study discussion		
15	111/05/30 ~ 111/06/03	Case study discussion		
16	111/06/06 ~ 111/06/10	Case study discussion		
17	111/06/13 ~ 111/06/17	Final Report		
18	111/06/20 ~ 111/06/24	Final Report		
Requirement				

Teaching Facility	Computer, Projector
Textbooks and Teaching Materials	Self compiling teaching material
References	
Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	<p>◆ Attendance : 15.0 % ◆ Mark of Usual : 35.0 % ◆ Midterm Exam : %</p> <p>◆ Final Exam : %</p> <p>◆ Other (Midterm&Final Report) : 50.0 %</p>
Note	<p>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.</p> <p>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>