

Tamkang University Academic Year 110, 1st Semester Course Syllabus

Course Title	COMPUTER VISION	Instructor	
Course Class	TLMXM1A MASTER'S PROGRAM, DEPARTMENT OF INFORMATION MANAGEMENT, 1A	Details	<ul style="list-style-type: none">◆ General Course◆ Selective◆ One Semester
Relevance to SDGs	SDG9 Industry, Innovation, and Infrastructure		
D e p a r t m e n t a l A i m o f E d u c a t i o n			
Devoting to the integration and research of information technology and business management knowledge, and cultivating, for the society, middle and higher level managers with both information capabilities and modern management skills.			
Subject Departmental core competences			
A. Use of modern management knowledge.(ratio:50.00) D. Integration of information technology and business management.(ratio:50.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:50.00) 2. Information literacy. (ratio:50.00)			
Course Introduction	This is an introduction to computer vision algorithms, methods and concepts which will enable the student to implement computer vision systems with emphasis on applications and problem solving. Topics include: camera models, multi-view geometry, reconstruction, some low-level image processing, and high-level vision problems like object and scene recognition. Students will use the Python language or Matlab to implement computer vision algorithms.		

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. Inspiring students interest in learning the Vision (Eye) of Computer. , and cultivating their basic core competence of CV so as to make it reality in daily lives.	Cognitive
2	2 Guiding students CV skills with diverse examples so that they can apply what they have learned in their live and work	Psychomotor
3	3 Keeping abreast of the developments and applications of information communication and technology.	Affective

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	AD	12	Lecture, Discussion	Testing, Study Assignments, Report(including oral and written)
2	AD	12	Lecture, Discussion	Testing, Discussion(including classroom and online), Report(including oral and written)
3	AD	12	Lecture, Discussion	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	Image Formulation	
2	110/09/29 ~ 110/10/05	Image projective geometry	
3	110/10/06 ~ 110/10/12	Image lighting and shading	

4	110/10/13 ~ 110/10/19	Practical linear algebra	
5	110/10/20 ~ 110/10/26	Image processing	
6	110/10/27 ~ 110/11/02	Image descriptors	
7	110/11/03 ~ 110/11/09	Image warping	
8	110/11/10 ~ 110/11/16	Image warping	
9	110/11/17 ~ 110/11/23	Midterm Exam Week	
10	110/11/24 ~ 110/11/30	Practical linear algebra	
11	110/12/01 ~ 110/12/07	Linear models + optimization	
12	110/12/08 ~ 110/12/14	Linear models + optimization	
13	110/12/15 ~ 110/12/21	Motion and flow	
14	110/12/22 ~ 110/12/28	Motion and flow	
15	110/12/29 ~ 111/01/04	Single-view geometry	
16	111/01/05 ~ 111/01/11	Single-view geometry	
17	111/01/12 ~ 111/01/18	Project presentation	
18	111/01/19 ~ 111/01/25		
Requirement			
Teaching Facility		Computer, Projector	
Textbooks and Teaching Materials		- "Computer Vision: Algorithms and Applications by Richard Szeliski. - Computer Vision: A Modern Approach (2nd Edition) by D. A. Forsyth and J. Ponce.	
References		Selected Journal Papers	
Number of Assignment(s)		2 (Filled in by assignment instructor only)	
Grading Policy		◆ Attendance : 10.0 % ◆ Mark of Usual : % ◆ Midterm Exam : 30.0 % ◆ Final Exam : % ◆ Other 〈Project presentation〉 : 60.0 %	

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>
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