

Tamkang University Academic Year 111, 2nd Semester Course Syllabus

Course Title	APPLICATION OF MEDICAL IMAGE PROCESSING	Instructor	CHII-JEN CHEN
Course Class	TEIXM1A MASTER'S PROGRAM, DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING, 1A	Details	◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	SDG4 Quality education		
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			
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:20.00) B. Independent innovative thinking ability.(ratio:20.00) C. Research paper writing and presentation ability.(ratio:10.00) D. Research&development (R&D) ability in information engineering.(ratio:20.00) E. Project execution and control ability.(ratio:10.00) F. Lifelong self-directed learning ability.(ratio:20.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:10.00) 2. Information literacy. (ratio:20.00) 3. A vision for the future. (ratio:20.00) 4. Moral integrity. (ratio:10.00) 5. Independent thinking. (ratio:10.00) 6. A cheerful attitude and healthy lifestyle. (ratio:10.00) 7. A spirit of teamwork and dedication. (ratio:10.00) 8. A sense of aesthetic appreciation. (ratio:10.00)			

Course Introduction	Recently, we pay more and more attentions and requirements to medical images on clinical researches. The aim of this unit is to introduce and describe the techniques of medical image processing. Besides, this unit will also teach student to use some computer software, such as MATLAB, ImageJ, MeVisLab, DICOMViewer or C++ program to assist and understand the related processing methods on medical imaging field.			
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	The ability to know the types of medical images.			Cognitive
2	The ability to know how to implement the medical image processing.			Cognitive
The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment				
No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCD	2	Lecture, Discussion, Practicum	Study Assignments, Discussion(including classroom and online), Practicum, Report(including oral and written)
2	ABCDEF	12345678	Lecture, Discussion, Practicum	Study Assignments, Discussion(including classroom and online), Practicum, Report(including oral and written)
Course Schedule				
Week	Date	Course Contents		Note

1	112/02/13 ~ 112/02/19	Introduction to medical image processing	
2	112/02/20 ~ 112/02/26	Methods of Image processing (1)	
3	112/02/27 ~ 112/03/05	Methods of Image processing (2)	
4	112/03/06 ~ 112/03/12	Methods of Image processing (3)	
5	112/03/13 ~ 112/03/19	Methods of Image processing (4)	
6	112/03/20 ~ 112/03/26	Software of medical image processing (1)	
7	112/03/27 ~ 112/04/02	Software of medical image processing (2)	
8	112/04/03 ~ 112/04/09	Discussion about related research papers (1)	
9	112/04/10 ~ 112/04/16	Discussion about related research papers (2)	
10	112/04/17 ~ 112/04/23	Midterm reports	
11	112/04/24 ~ 112/04/30	Software of medical image processing (3)	
12	112/05/01 ~ 112/05/07	Software of medical image processing (4)	
13	112/05/08 ~ 112/05/14	Practice and demonstration (1)	
14	112/05/15 ~ 112/05/21	Practice and demonstration (2)	
15	112/05/22 ~ 112/05/28	Discussion about related research papers (3)	
16	112/05/29 ~ 112/06/04	Discussion about related research papers (4)	
17	112/06/05 ~ 112/06/11	Final oral presentation	
18	112/06/12 ~ 112/06/18	Final oral presentation	
Requirement			
Teaching Facility		Computer, Projector	
Textbooks and Teaching Materials		Self-made teaching materials	
References			

Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	◆ Attendance : % ◆ Mark of Usual : 40.0 % ◆ 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.