

## Tamkang University Academic Year 112, 2nd Semester Course Syllabus

Course Title	MEDICAL IMAGE TECHNOLOGY AND ANALYSIS	Instructor	CHII-JEN CHEN
Course Class	TEIXM1A MASTER'S PROGRAM, DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING, 1A	Details	<ul style="list-style-type: none"> <li>◆ General Course</li> <li>◆ Selective</li> <li>◆ One Semester</li> </ul>
Relevance to SDGs	SDG4 Quality education		
Departmental Aim of Education			
<ul style="list-style-type: none"> <li>I. Cultivate the ability to conduct independent research and problem solving.</li> <li>II. Strengthen creativity and research capacity.</li> <li>III. Build profound professional knowledge in computer science and information engineering.</li> <li>IV. Engage in self-directed lifelong learning.</li> </ul>			
Subject Departmental core competences			
<ul style="list-style-type: none"> <li>A. Independent problem solving ability.(ratio:20.00)</li> <li>B. Independent innovative thinking ability.(ratio:20.00)</li> <li>C. Research paper writing and presentation ability.(ratio:10.00)</li> <li>D. Research&amp;development (R&amp;D) ability in information engineering.(ratio:20.00)</li> <li>E. Project execution and control ability.(ratio:10.00)</li> <li>F. Lifelong self-directed learning ability.(ratio:20.00)</li> </ul>			
Subject Schoolwide essential virtues			
<ul style="list-style-type: none"> <li>1. A global perspective. (ratio:10.00)</li> <li>2. Information literacy. (ratio:20.00)</li> <li>3. A vision for the future. (ratio:20.00)</li> <li>4. Moral integrity. (ratio:10.00)</li> <li>5. Independent thinking. (ratio:10.00)</li> <li>6. A cheerful attitude and healthy lifestyle. (ratio:10.00)</li> <li>7. A spirit of teamwork and dedication. (ratio:10.00)</li> <li>8. A sense of aesthetic appreciation. (ratio:10.00)</li> </ul>			

Course Introduction	<p>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.</p>
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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	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	113/02/19 ~ 113/02/25	Introduction to medical image processing	
2	113/02/26 ~ 113/03/03	Methods of Image processing (1)	
3	113/03/04 ~ 113/03/10	Methods of Image processing (2)	
4	113/03/11 ~ 113/03/17	Methods of Image processing (3)	
5	113/03/18 ~ 113/03/24	Methods of Image processing (4)	
6	113/03/25 ~ 113/03/31	Software and programming of image processing (1)	
7	113/04/01 ~ 113/04/07	教學行政觀摩日	
8	113/04/08 ~ 113/04/14	Practice and demonstration (1)	
9	113/04/15 ~ 113/04/21	Midterm reports	
10	113/04/22 ~ 113/04/28	Software and programming of image processing (3)	
11	113/04/29 ~ 113/05/05	Software and programming of computer version (1)	
12	113/05/06 ~ 113/05/12	Software and programming of computer version (2)	
13	113/05/13 ~ 113/05/19	Practice and demonstration (2)	
14	113/05/20 ~ 113/05/26	Practice and demonstration (3)	
15	113/05/27 ~ 113/06/02	Discussion about related research papers (1)	
16	113/06/03 ~ 113/06/09	Discussion about related research papers (2)	
17	113/06/10 ~ 113/06/16	Final oral presentation	
18	113/06/17 ~ 113/06/23	Final oral presentation	
Key capabilities			
Interdisciplinary			
Distinctive teaching			

Course Content	Computer programming or Computer language (students have hands-on experience in related projects) AI application
Requirement	
Textbooks and Teaching Materials	Self-made teaching materials:Presentations, Handouts
References	
Grading Policy	<p>◆ Attendance :            %    ◆ Mark of Usual : 40.0 %    ◆ Midterm Exam : 30.0 %</p> <p>◆ Final Exam :    30.0 %</p> <p>◆ Other (   ) :            %</p>
Note	<p>This syllabus may be uploaded at the website of Course Syllabus Management System at <a href="http://info.ais.tku.edu.tw/csp">http://info.ais.tku.edu.tw/csp</a> or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at <a href="http://www.acad.tku.edu.tw/CS/main.php">http://www.acad.tku.edu.tw/CS/main.php</a> .</p> <p><b>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</b></p>