Tamkang University Academic Year 110, 1st Semester Course Syllabus

Course Title	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING	Instructor	WU, SHIH-JUNG
Course Class	TEIBM1A MASTER'S PROGRAM, DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM), 1A	Details	◆ General Course ◆ Required ◆ One Semester
Relevance to SDGs	SDG4 Quality education SDG9 Industry, Innovation, and Infrastructure		

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:20.00)

D. Research & development (R&D) ability in information engineering.(ratio:70.00)

Subject Schoolwide essential virtues

2. Information literacy. (ratio:75.00)

3. A vision for the future. (ratio:25.00)

Course Introduction	The course is an introduction to artificial intelligence application and machine learning technology. It will teach students the concept of artificial intelligence technology and machine learning and its industrial practical applications. At the same time, students are expected to have the ability to plan and integrate relevant technologies in valuable applications.

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	Understand AI and cross-domain applications.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABD	23	Lecture, Discussion	Study Assignments, Discussion(including classroom and online), Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	110/09/22 ~ 110/09/28	Artificial intelligence application and development	
2	110/09/29 ~ 110/10/05	Artificial intelligence application and development	
3	110/10/06 ~ 110/10/12	Application Introduction-Data Analysis	
4	110/10/13 ~ 110/10/19	Application Introduction-Image Recognition	
5	110/10/20 ~ 110/10/26	Application Introduction-Natural Language	
6	110/10/27 ~ 110/11/02	Application Introduction-Industry 4.0	
7	110/11/03 ~ 110/11/09	Decision tree	
8	110/11/10 ~ 110/11/16	Random Forest	
9	110/11/17 ~ 110/11/23	Midterm	
10	110/11/24 ~ 110/11/30	K-Nearest Neighbors, KNN	
11	110/12/01 ~ 110/12/07	Naïve Bayes	

12	110/12/08 ~ 110/12/14	Support Vector Machines, SVM	
13	110/12/15 ~ 110/12/21	K-Means	
14	110/12/22 ~ 110/12/28	DBSCAN	
15	110/12/29 ~ 111/01/04	Mean Shift	
16	111/01/05 ~ 111/01/11	Hierarchical clustering	
17	111/01/12 ~ 111/01/18	Summary	
18	111/01/19 ~ 111/01/25	Final	

Requirement	Five reports/assignments account for 80%.
Teaching Facility	Computer, Projector
Textbooks and Teaching Materials	AI and Machine learning related
References	
Number of Assignment(s)	**5** (Filled in by assignment instructor only)
Grading Policy	◆ Attendance： 20.0 % ◆ Mark of Usual：80.0 % ◆ Midterm Exam： % ◆ Final Exam： % ◆ 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.**