Tamkang University Academic Year 114, 1st Semester Course Syllabus

Course Title	INTRODUCTION TO ARTIFICIAL INTELLIGENCE	Instructor	TZU-CHIA CHEN
Course Class	TKFXB1A DEPARTMENT OF ARTIFICIAL INTELLIGENCE, 1A	Details	◆ General Course ◆ Required ◆ One Semester ◆ 3 Credits
Relevance to SDGs	SDG4 Quality education		

Departmental Aim of Education

Ⅰ. Students may analyze problems in applied science based on the fundamental knowledge of programming, mathematics, and artificial intelligence.

Ⅱ. Students may plan and implement an AI system following the procedures of problem analysis, experiment testing, data visualizing, derivation and deduction.

Ⅲ. Educate the students to be AI engineers who may accomplish their missions indepedently and may collaborate with their colleagues in the workplace.

Ⅳ. Students may have basic skills and global competence for career diversification, and may keep lifelong learning.

Subject Departmental core competences

A. Professional analysis.(ratio:35.00)

B. Practical application.(ratio:30.00)

C. Professional attitude.(ratio:15.00)

D. Global Mobility.(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:5.00)

5. Independent thinking. (ratio:20.00)

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:5.00)

Course Introduction	This course introduces these core topics in AI from three main perspectives in the history of artificial intelligence: optimal solution search, learning from data, and logic and knowledge reasoning.

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	This course aims to impart core knowledge of artificial intelligence, enabling students to connect with more advanced theoretical concepts or broader applications seamlessly.	Affective

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCD	12345678	Lecture, Discussion, Practicum	Testing, Study Assignments, Discussion(including classroom and online)

Course Schedule

Week	Date	Course Contents	Note
1	114/09/15 ~ 114/09/21	Introduction to Computer Science	
2	114/09/22 ~ 114/09/28	Introduction to Number Systems & Data Representation	
3	114/09/29 ~ 114/10/05	Introduction to Logic Gates & Boolean Algebra	
4	114/10/06 ~ 114/10/12	Introduction to Computer Architecture	

5	114/10/13 ~ 114/10/19	Memory Hierarchy & Storage	
6	114/10/20 ~ 114/10/26	Operating Systems Concepts	
7	114/10/27 ~ 114/11/02	Networking & Internet Basics	
8	114/11/03 ~ 114/11/09	Machine Learning Overview, Logistic Regression	
9	114/11/10 ~ 114/11/16	Midterm Exam Week	
10	114/11/17 ~ 114/11/23	Nonlinear Learning: Decision Tree Ensemble	
11	114/11/24 ~ 114/11/30	Probabilistic Modeling: Markov Decision Process and/or Reinforcement Learning	
12	114/12/01 ~ 114/12/07	Unsupervised Learning: K-means Clustering, Principal Component Analysis	
13	114/12/08 ~ 114/12/14	Neural Networks and Deep Learning	
14	114/12/15 ~ 114/12/21	Proper Uses of Machine Learning	
15	114/12/22 ~ 114/12/28	Connection to Advanced Topics and Other Courses	
16	114/12/29 ~ 115/01/04	Final Week of Diverse Assessments	
17	115/01/05 ~ 115/01/11	Final Week of Diverse Assessments/Flexible Teaching Week for Teachers	
18	115/01/12 ~ 115/01/18	Flexible Teaching Week for Teachers	

Key capabilities	Information Technology
Interdisciplinary	STEAM course (S:Science, T:Technology, E:Engineering, M:Math, A field:Integration of Art and Humanist)
Distinctive teaching	Special/Problem-Based(PBL) Courses
Course Content	Computer programming or Computer language (students have hands-on experience in related projects) Intellectual Property (learning intellectual property)

Requirement	Not Available.
Textbooks and Teaching Materials	Using teaching materials from other writers:Handouts
References	
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual：20.0 % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 40.0 % ◆ Other〈 〉： %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at https://web2.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. ※"Adhere to the concept of intellectual property rights" and "Do not illegally photocopy, download, or distribute." Using original textbooks is advised. It is a crime to improperly photocopy others' publications.