Tamkang University Academic Year 113, 2nd Semester Course Syllabus

Course Title	EDGE COMPUTING AND FOG COMPUTING	Instructor	JEONG JAESIK
Course Class	TKFXB3P DEPARTMENT OF ARTIFICIAL INTELLIGENCE, 3P	Details	◆ General Course ◆ Selective ◆ One Semester ◆ 3 Credits
Relevance to SDGs	SDG4 Quality education SDG9 Industry, Innovation, and Infrastructure SDG17 Partnerships for the goals		

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:10.00)

B. Practical application.(ratio:40.00)

C. Professional attitude.(ratio:40.00)

D. Global Mobility.(ratio:10.00)

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:5.00)
7. A spirit of teamwork and dedication. (ratio:15.00)
8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction	This course explores the fundamentals of Edge and Fog Computing, focusing on real-world applications and practical implementation using the single board computer. Students will learn the architecture, benefits, and challenges of edge and fog systems. The course includes a hands-on review of Linux, Python programming, and AI frameworks, enabling the development and deployment of AI-powered edge applications. By the end, students will design and implement edge computing solutions, integrating AI models.

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. Understand Core Concepts 2. AI Frameworks and Model Deployment 3. Project-Based Learning	Cognitive

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, Experience	Testing, Discussion(including classroom and online), Practicum

Course Schedule

Week	Date	Course Contents	Note
1	114/02/17 ~ 114/02/23	Introduction to Edge and Fog Computing	
2	114/02/24 ~ 114/03/02	Holiday	
3	114/03/03 ~ 114/03/09	Review of Linux for Edge Computing	
4	114/03/10 ~ 114/03/16	Review of Python for Edge Computing	

5	114/03/17 ~ 114/03/23	AI Frameworks for Edge Computing	
6	114/03/24 ~ 114/03/30	AI Frameworks for Edge Computing	
7	114/03/31 ~ 114/04/06	Holiday	
8	114/04/07 ~ 114/04/13	Introduction to Edge Computing Board	
9	114/04/14 ~ 114/04/20	Midterm Exam/Midterm Assessment Week (teachers can adjust the week as needed)	
10	114/04/21 ~ 114/04/27	Practice: Edge Computing Board	
11	114/04/28 ~ 114/05/04	Practice: Edge Computing Board	
12	114/05/05 ~ 114/05/11	Deep Dive into Edge Computing Board	
13	114/05/12 ~ 114/05/18	Networking and Communication in Edge/Fog Systems	
14	114/05/19 ~ 114/05/25	Networking and Communication in Edge/Fog Systems	
15	114/05/26 ~ 114/06/01	Holiday	
16	114/06/02 ~ 114/06/08	Project Development	
17	114/06/09 ~ 114/06/15	Final Exam/Final Assessment Week (teachers can adjust the week as needed)	
18	114/06/16 ~ 114/06/22	Flexible Teaching Week: Generally, no in-person classes; teachers may arrange teaching activities or final assessments, among other options.	

Key capabilities	self-directed learning Information Technology Problem solving
Interdisciplinary	STEAM course (S:Science, T:Technology, E:Engineering, M:Math, A field:Integration of Art and Humanist)
Distinctive teaching	
Course Content	Computer programming or Computer language (students have hands-on experience in related projects) Logical Thinking AI application

Requirement	
Textbooks and Teaching Materials	Self-made teaching materials:Presentations
References	
Grading Policy	◆ Attendance： 20.0 % ◆ Mark of Usual：10.0 % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 40.0 % ◆ Other〈 〉： %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at 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.**