Tamkang University Academic Year 113, 1st Semester Course Syllabus

Course Title	THE TECHNOLOGY OF AI INDUSTRY	Instructor	HAN-CHIEH CHAO
Course Class	TGEXB0A ELECTIVES COURSES BY COLLEGE OF ENGINEERING, 0A	Details	◆ General Course ◆ Selective ◆ One Semester ◆ 2 Credits
Relevance to SDGs	SDG9 Industry, Innovation, and Infrastructure		

Departmental Aim of Education

Educate our undergraduate students to be successful engineers who have interdisciplinary knowledge, techniques and literacy.

Subject Departmental core competences

A. The ability to solve engineering problems using basic information techniques and computer software.(ratio:70.00)

B. The ability to recognize and treasure professional ethics.(ratio:10.00)

C. The ability to learn and integrate basic knowledge of mathematics, science and engineering.(ratio:20.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:20.00)
2. Information literacy. (ratio:30.00)
3. A vision for the future. (ratio:20.00)
4. Moral integrity. (ratio:5.00)
5. Independent thinking. (ratio:10.00)
6. A cheerful attitude and healthy lifestyle. (ratio:5.00)
7. A spirit of teamwork and dedication. (ratio:5.00)
8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction	This course provides students with an understanding of smart manufacturing technologies, covering basic concepts and various applications with a focus on Industry 4.0. Expert lectures from industry and academia will help students connect theory with practice and stay updated on industry trends. Discussions with experts will also offer valuable career advice.

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 the fundamental theories and concepts of smart manufacturing technologies. 2. Learn about the applications of smart manufacturing systems in Industry 4.0. 3. Connect precision machining theory with practical applications to enhance learning outcomes. 4. Explore the latest industry trends in smart manufacturing. 5. Gain practical career planning advice through expert lectures and discussions.	Cognitive
2	1. Understand the fundamental theories and concepts of smart manufacturing technologies. 2. Learn about the applications of smart manufacturing systems in Industry 4.0. 3. Connect precision machining theory with practical applications to enhance learning outcomes. 4. Explore the latest industry trends in smart manufacturing. 5. Gain practical career planning advice through expert lectures and discussions.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	C	1235	Lecture	Discussion(including classroom and online), Report(including oral and written)
2	ABC	12345678	Lecture	Discussion(including classroom and online), Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	113/09/09 ~ 113/09/15	Basic Concepts and Historical Evolution of Artificial Intelligence	
2	113/09/16 ~ 113/09/22	Principles and Applications of Machine Learning Technologies	
3	113/09/23 ~ 113/09/29	Deep Learning and Neural Networks: From Theory to Practice	
4	113/09/30 ~ 113/10/06	Practical Applications of Natural Language Processing in Business	
5	113/10/07 ~ 113/10/13	Current Status and Future of Computer Vision Technologies	
6	113/10/14 ~ 113/10/20	Reinforcement Learning: The Next Frontier of Artificial Intelligence	
7	113/10/21 ~ 113/10/27	The Revolution of Artificial Intelligence in Medical Technology	
8	113/10/28 ~ 113/11/03	Integration of Smart Cities and the Internet of Things	
9	113/11/04 ~ 113/11/10	Midterm Exam/Midterm Assessment Week (teachers can adjust the week as needed)	
10	113/11/11 ~ 113/11/17	AI-Driven Innovation in Manufacturing	
11	113/11/18 ~ 113/11/24	Ethical Challenges and Regulatory Frameworks of Artificial Intelligence	
12	113/11/25 ~ 113/12/01	Synergistic Effects of Quantum Computing and Artificial Intelligence	
13	113/12/02 ~ 113/12/08	Autonomous Driving: AI Applications in Transportation Systems	

14	113/12/09～ 113/12/15	AI Innovations in FinTech	
15	113/12/16～ 113/12/22	Cross-Applications of Blockchain and Artificial Intelligence	
16	113/12/23～ 113/12/29	Transformations in Education through Artificial Intelligence	
17	113/12/30～ 114/01/05	Final Exam/Final Assessment Week (teachers can adjust the week as needed)	
18	114/01/06～ 114/01/12	Flexible Teaching Week: Generally, no in-person classes; teachers may arrange teaching activities or final assessments, among other options.	

Key capabilities	self-directed learning International mobility Information Technology Interdisciplinary
Interdisciplinary	Competency-based education 'competency exploration' sustained competency or global issues STEEP (Society, Technology, Economy, Environment, and Politics)
Distinctive teaching	
Course Content	AI application
Requirement	
Textbooks and Teaching Materials	Self-made teaching materials:Presentations Using teaching materials from other writers:Presentations
References	
Grading Policy	◆ Attendance： 40.0 % ◆ Mark of Usual：20.0 % ◆ Midterm Exam： 20.0 % ◆ Final Exam： 20.0 % ◆ 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.**