Tamkang University Academic Year 112, 1st Semester Course Syllabus

Course Title	AI AND PROGRAMMING LANGUAGE	Instructor	TASUPALLI CHANDRASHEKHAR
Course Class	TRJXB1A DEPARTMENT OF GLOBAL POLITICS AND ECONOMICS (ENGLISH-TAUGHT PROGRAM), 1A	Details	◆ General Course ◆ Required ◆ One Semester
Relevance to SDGs	SDG4 Quality education SDG8 Decent work and economic growth SDG9 Industry, Innovation, and Infrastructure SDG12 Responsible consumption and production		

Departmental Aim of Education

Ⅰ. Develop students' basic literacy of information technology.

Ⅱ. Establish students' ability to apply information technology.

Ⅲ. Build students' information ethics.

Ⅳ. Train students' reflections on information-related issues.

Subject Schoolwide essential virtues

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

Course Introduction	In this course, you will explore the exciting field of Artificial Intelligence and learn how to program using an AI-specific language. From understanding fundamental concepts to implementing machine learning algorithms and neural networks, you'll gain the skills needed to develop AI applications. Get ready for hands-on projects, debugging challenges, and discussions on ethical considerations. Join us on this journey of exploring AI and its impact on the world of programming. Let's dive in!

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	Familiarity with the language: Ensure students understand the basics of the AI programming language, including its purpose, features, and applications. Familiarize them with the syntax, keywords, and conventions specific to the language.	Cognitive
2	Programming concepts: Teach fundamental programming concepts such as variables, data types, operators, control structures (e.g., loops, conditionals), functions, and object-oriented programming principles. Explain how these concepts apply to AI programming tasks.	Affective
3	Continuous learning: Instill a mindset of continuous learning by introducing students to additional resources, such as online tutorials, documentation, research papers, and relevant AI communities. Encourage them to stay updated with advancements in AI and explore further beyond the basics of the programming language.	Psychomotor

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment

1		12345678	Lecture, Discussion, Publication, Practicum, Experience, Imitation	Testing, Study Assignments, Discussion(including classroom and online), Practicum, Report(including oral and written), Activity Participation
2		12345678	Lecture, Discussion, Experience, Imitation	Testing, Report(including oral and written), Activity Participation
3		12345678	Lecture, Discussion, Experience, Imitation	Testing, Study Assignments, Discussion(including classroom and online), Activity Participation

Course Schedule

Week	Date	Course Contents	Note
1	112/09/11 ~ 112/09/17		
2	112/09/18 ~ 112/09/24		
3	112/09/25 ~ 112/10/01		
4	112/10/02 ~ 112/10/08		
5	112/10/09 ~ 112/10/15		
6	112/10/16 ~ 112/10/22		
7	112/10/23 ~ 112/10/29		
8	112/10/30 ~ 112/11/05		
9	112/11/06 ~ 112/11/12		
10	112/11/13 ~ 112/11/19	Introduction and History of AI	
11	112/11/20 ~ 112/11/26	Symbolic AI	
12	112/11/27 ~ 112/12/03	Knowledge Representation and Expert Systems	
13	112/12/04 ~ 112/12/10	Introduction to Neural Networks	
14	112/12/11 ~ 112/12/17	Multi-Layered Perceptron and Creating our own Framework	
15	112/12/18 ~ 112/12/24	Intro to Frameworks (PyTorch/TensorFlow) and Overfitting	
16	112/12/25 ~ 112/12/31	Computer vision	

17	113/01/01～ 113/01/07	Convolutional Neural Networks CNN Architectures	
18	113/01/08～ 113/01/14	AI Ethics and Responsible AI	

Key capabilities	self-directed learning International mobility Information Technology Problem solving Interdisciplinary
Interdisciplinary	STEAM course (S:Science, T:Technology, E:Engineering, M:Math, A field:Integration of Art and Humanist) Competency-based education 'competency exploration' sustained competency or global issues STEEP (Society, Technology, Economy, Environment, and Politics) In addition to teaching content of the teacher's professional field, integrate other subjects or invite experts and scholars in other fields to share knowledge or teaching
Distinctive teaching	USR curriculum Game-based learning courses Project implementation course Collaborative teaching (multiple teachers and business teachers in the school) course Learning technologies (such as AR/VR,etc.) incorporated to physical courses
Course Content	Computer programming or Computer language (students have hands-on experience in related projects) Logical Thinking AI application
Requirement	Problem-solving skills with the weekly homework as 40% of the usual evaluation marks.
Textbooks and Teaching Materials	Self-made teaching materials:Textbooks, Presentations, Handouts, Worksheets Using teaching materials from other writers:Textbooks Name of teaching materials: starting out with python Fifth edition Tony Gaddis
References	
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual：30.0 % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 30.0 % ◆ 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.**