

Tamkang University Academic Year 114, 1st Semester Course Syllabus

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| Course Title | INTRODUCTION TO ARTIFICIAL INTELLIGENCE | Instructor | TZU-CHIA CHEN | | | |
| Course Class | TKFXB1B DEPARTMENT OF ARTIFICIAL INTELLIGENCE, 1B | Details | <ul style="list-style-type: none"> ♦ General Course ♦ Required ♦ One Semester ♦ 3 Credits | | | |
| Relevance to SDGs | SDG4 Quality education | | | | | |
| Departmental Aim of Education | | | | | | |
| <p>I. Students may analyze problems in applied science based on the fundamental knowledge of programming, mathematics, and artificial intelligence.</p> <p>II. Students may plan and implement an AI system following the procedures of problem analysis, experiment testing, data visualizing, derivation and deduction.</p> <p>III. Educate the students to be AI engineers who may accomplish their missions independently and may collaborate with their colleagues in the workplace.</p> <p>IV. Students may have basic skills and global competence for career diversification, and may keep lifelong learning.</p> | | | | | | |
| Subject Departmental core competences | | | | | | |
| <p>A. Professional analysis.(ratio:35.00)</p> <p>B. Practical application.(ratio:30.00)</p> <p>C. Professional attitude.(ratio:15.00)</p> <p>D. Global Mobility.(ratio:20.00)</p> | | | | | | |
| Subject Schoolwide essential virtues | | | | | | |
| <p>1. A global perspective. (ratio:10.00)</p> <p>2. Information literacy. (ratio:20.00)</p> <p>3. A vision for the future. (ratio:20.00)</p> <p>4. Moral integrity. (ratio:5.00)</p> <p>5. Independent thinking. (ratio:20.00)</p> <p>6. A cheerful attitude and healthy lifestyle. (ratio:10.00)</p> <p>7. A spirit of teamwork and dedication. (ratio:10.00)</p> <p>8. A sense of aesthetic appreciation. (ratio:5.00)</p> | | | | | | |

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| Course Introduction | <p>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.</p> |
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| <p>The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.</p> <p>Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.</p> <p>I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.</p> <p>II. Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.</p> <p>III. Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.</p> |
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| No. | Teaching Objectives | objective methods |
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| 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 |

| <p>The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment</p> | | | | |
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| No. | Core Competences | Essential Virtues | Teaching Methods | Assessment |
| 1 | ABCD | 12345678 | Lecture, Discussion, Practicum | Testing, Study Assignments, Discussion(including classroom and online) |

| Course Schedule | | | |
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| 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 | |

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| 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) | | |
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| Requirement | Not Available. |
| Textbooks and Teaching Materials | Using teaching materials from other writers:Handouts |
| References | |
| Grading Policy | <ul style="list-style-type: none"> ◆ Attendance : 10.0 % ◆ Mark of Usual : 20.0 % ◆ Midterm Exam : 30.0 % ◆ Final Exam : 40.0 % ◆ Other < > : % |
| Note | <p>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.</p> <p style="color: red;">※"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.</p> |