Course Title	MACHINE LEARNING	Instructor	WU, SHIH-JUNG
Course Class	TEIBM1A MASTER'S PROGRAM, DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM),	Details	◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	1A 　SDG4　Quality education 　SDG9　Industry, Innovation, and Infrastructure		

Departmental Aim of Education

Ⅰ. Cultivate the ability to conduct independent research and problem solving.

Ⅱ. Strengthen creativity and research capacity.

Ⅲ. Build profound professional knowledge in computer science and information engineering.

Ⅳ. Engage in self-directed lifelong learning.

Subject Departmental core competences

A. Independent problem solving ability.(ratio:20.00)

B. Independent innovative thinking ability.(ratio:20.00)

D. Research & development (R&D) ability in information engineering.(ratio:40.00)

F. Lifelong self-directed learning ability.(ratio:20.00)

Subject Schoolwide essential virtues

2. Information literacy. (ratio:50.00)

3. A vision for the future. (ratio:20.00)

5. Independent thinking. (ratio:30.00)

Course Introduction	Machine Learning (Machine Learning) is a data analysis technology that teaches computers to imitate humans to learn from experience. Machine learning "learns" information directly from data, instead of relying on predetermined programs as models.We will explore various machine learning techniques and their learning process.

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	Understand machine learning technology and cross-domain applications.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABDF	235	Lecture, Discussion	Study Assignments, Discussion(including classroom and online), Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	110/02/22 ~ 110/02/28	Basic concepts	
2	110/03/01 ~ 110/03/07	Regression	
3	110/03/08 ~ 110/03/14	Decision Tree	
4	110/03/15 ~ 110/03/21	Random Forest	

5	110/03/22~110/03/28	K-Nearest Neighbors, KNN	
6	110/03/29~110/04/04	Convolutional Neural Networks, CNN	
7	110/04/05~110/04/11	Recurrent Neural Networks, RNN	
8	110/04/12~110/04/18	Long Short-Term Memory, LSTM	
9	110/04/19~110/04/25	Midterm	
10	110/04/26~110/05/02	Naïve Bayes	
11	110/05/03~110/05/09	Bayesian Networks	
12	110/05/10~110/05/16	Support Vector Machines, SVM	
13	110/05/17~110/05/23	K-Means	
14	110/05/24~110/05/30	DBSCAN	
15	110/05/31~110/06/06	Mean Shift	
16	110/06/07~110/06/13	Hierarchical clustering	
17	110/06/14~110/06/20	Summary	
18	110/06/21~110/06/27	Final	

Requirement	Five assignments account for 80%.
Teaching Facility	Computer, Projector
Textbooks and Teaching Materials	Machine learning related
References	
Number of Assignment(s)	**5**　(Filled in by assignment instructor only)
Grading Policy	◆ Attendance： 　20.0　% 　◆ Mark of Usual：80.0　% 　◆ Midterm Exam： 　% ◆ Final Exam： 　% ◆ 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.