Course Title	DATA VISUALIZATION		Instructor	CHEN, SHIH-HSIN
Course Class	TEIEM1A MASTER'S PROGRAM IN INTELLIGENT COMPUTING AND APPLICATION, DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION		Details	◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	ENGINEERING, 1A 　SDG8 Decent work and economic growth 　SDG9 Industry, Innovation, and Infrastructure			

D e p a r t m e n t a l   A i m   o f   E d u c a t i o n

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

Ⅱ. Strengthen creativity and research capacity.

Ⅲ. Build profound professional knowledge in networking and communication.

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)

C. Research paper writing and presentation ability.(ratio:20.00)

D. Research &development (R&D) ability in networking and communication.(ratio:20.00)

E. Project execution and control ability.(ratio:10.00)

F. Lifelong self-directed learning ability.(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:10.00)

5. Independent thinking. (ratio:10.00)

6. A cheerful attitude and healthy lifestyle. (ratio:10.00)

7. A spirit of teamwork and dedication. (ratio:10.00)

8. A sense of aesthetic appreciation. (ratio:10.00)

Course Introduction	The focus of this semester's lectures is on Tableau, the leader in Gartner's evaluation visualization software. In addition to drawing quite vivid charts, the software can also provide text files, connect relational databases to NoSQL databases, and perform fast A lot of calculations, and more importantly, the main actions in the drawing process are dragging and clicking two actions to complete professional charts. Tableau can also support Python and R language external library for data mining or machine learning results rendering.	

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 the importance of drawing charts, and be familiar with different interactive chart drawing techniques, so that you could use this tool to complete when you are faced with visualization needs.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDEF	12345678	Lecture, Discussion, Practicum	Study Assignments, Discussion(including classroom and online), Practicum, Report(including oral and written), Activity Participation

Course Schedule

Week	Date	Course Contents	Note
1	112/09/11 ~ 112/09/17	Introduction to Tableau and uploading workbooks to the cloud	
2	112/09/18 ~ 112/09/24	Descriptive Analytics and Statistical Visualization vs. Descriptive Analytics and Statistical Visualization	

3	112/09/25~ 112/10/01	Implementation of diagnostic analysis, grouping, and RFM sales models	
4	112/10/02~ 112/10/08	Time-series data, predictive and prescriptive analytics	
5	112/10/09~ 112/10/15	National Holiday	
6	112/10/16~ 112/10/22	Polygon layer nesting, dual-axis maps, spatial data visualization	
7	112/10/23~ 112/10/29	Dashboard creation, color processing, detailed typesetting	
8	112/10/30~ 112/11/05	Kaggle Datasets	
9	112/11/06~ 112/11/12	Midterm report	
10	112/11/13~ 112/11/19	Set chart linkage, from dashboard to data story	
11	112/11/20~ 112/11/26	Basic function application, conditional rules, table calculation	
12	112/11/27~ 112/12/03	Python matplotlib programming	
13	112/12/04~ 112/12/10	Python matplotlib programming	
14	112/12/11~ 112/12/17	Ploty interactive dashboard	
15	112/12/18~ 112/12/24	Ploty interactive dashboard	
16	112/12/25~ 112/12/31	D3.js on web	
17	113/01/01~ 113/01/07	National Holiday	
18	113/01/08~ 113/01/14	Final term presentation	
Key capabilities		self-directed learning Information Technology Problem solving	
Interdisciplinary			
Distinctive teaching		Project implementation course	

Course Content	Computer programming or Computer language (students have hands-on experience in related projects) Intellectual Property (learning intellectual property) AI application
Requirement	
Textbooks and Teaching Materials	Self-made teaching materials:Textbooks, Presentations, Handouts Using teaching materials from other writers:Textbooks Name of teaching materials: 大數據時代超吸睛視覺化工具與技術：Tableau資料分析師進階高手養成實戰經典，彭其捷, 劉姿嘉，博碩，2021
References	Python資料可視化攻略，小久保奈都彌 許郁文，碁峰，2021
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual：20.0 % ◆ Midterm Exam： 35.0 % ◆ Final Exam： 35.0 % ◆ 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.**