Tamkang University Academic Year 114, 2nd Semester Course Syllabus

Course Title	OPERATIONS RESEARCH	Instructor	CHEN, CHUN-YING
Course Class	TLTXB3B DEPARTMENT OF TRANSPORTATION MANAGEMENT, 3B	Details	◆ General Course ◆ Required ◆ 2nd Semester ◆ 3 Credits
Relevance to SDGs	SDG9 Industry, Innovation, and Infrastructure		

Departmental Aim of Education

Ⅰ. To obtain professional transportation knowledge.

Ⅱ. To familiarize with execution of transportation practices.

Ⅲ. To master oral expression and teamwork.

Ⅳ. To capture basic skills of system analysis.

Ⅴ. To emphasize professional transportation ethics.

Subject Departmental core competences

A. To obtain basic knowledge of transportation management.(ratio:40.00)

B. To familiarize with practice-oriented professional skills.(ratio:10.00)

C. To be capable of oral expression and teamwork.(ratio:5.00)

D. To obtain basic ability of system analysis.(ratio:40.00)

E. To build transportation ethics, care for humanity, and global visions.(ratio:5.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:5.00)

2. Information literacy. (ratio:30.00)

3. A vision for the future. (ratio:15.00)

4. Moral integrity. (ratio:5.00)

5. Independent thinking. (ratio:30.00)

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 is primarily theoretical and is designed to equip students with rigorous analytical tools for decision making. It covers key topics including network models, dynamic programming, integer programming, and queueing theory. The knowledge acquired through this course provides a strong foundation for students who intend to pursue advanced study or research in related fields.

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	Students are expected to have an understanding of the relevant theories of Operations Research.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDE	12345678	Lecture	Testing, Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	115/02/23 ~ 115/03/01	1.Introduction	
2	115/03/02 ~ 115/03/08	2.Shortest Path Problem	
3	115/03/09 ~ 115/03/15	3.Minimum Spanning Trees & Maximum Flows	
4	115/03/16 ~ 115/03/22	3.Minimum Spanning Trees & Maximum Flows	
5	115/03/23 ~ 115/03/29	4.The Minimum Cost Flow Problem & Network simplex	
6	115/03/30 ~ 115/04/05	4.The Minimum Cost Flow Problem & Network simplex	

7	115/04/06 ~ 115/04/12	5.PERT & CPM	
8	115/04/13 ~ 115/04/19	Midterm Project	
9	115/04/20 ~ 115/04/26	Midterm Exam	
10	115/04/27 ~ 115/05/03	6.Dynamic Programming	
11	115/05/04 ~ 115/05/10	7.Integer Programming	
12	115/05/11 ~ 115/05/17	8.Solution Method for Integer Programming	
13	115/05/18 ~ 115/05/24	9.Queueing Theory	
14	115/05/25 ~ 115/05/31	Final presentation	
15	115/06/01 ~ 115/06/07	Final presentation	
16	115/06/08 ~ 115/06/14	final exam	
17	115/06/15 ~ 115/06/21	Final Week of Diverse Assessments/Flexible Teaching Week for Teachers	
18	115/06/22 ~ 115/06/28	Flexible Teaching Week for Teachers	

Key capabilities	Problem solving
Interdisciplinary	
Distinctive teaching	
Course Content	Logical Thinking AI application
Requirement	
Textbooks and Teaching Materials	Self-made teaching materials:Presentations Using teaching materials from other writers:Presentations

References	Hillier, F.S. and Lieberman G.J. Introduction to Operations Research
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual：10.0 % ◆ Midterm Exam： 25.0 % ◆ Final Exam： 25.0 % ◆ Other〈Term paper〉：30.0 %
Note	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. ※"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.