Tamkang University Academic Year 110, 2nd Semester Course Syllabus

Course Title	COMPUTER SIMULATION	Instructor	MA, SIN-YE
Course Class	TEIDB4P DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM), 4P	Details	◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	SDG7 Affordable and clean energy SDG8 Decent work and economic growth SDG9 Industry, Innovation, and Infrastructure		

Departmental Aim of Education

Ⅰ. Comprehend professional knowledge.

Ⅱ. Acquire mastery of Practical Skills.

Ⅲ. Establish creative achievement.

Subject Departmental core competences

A. Programming and application ability.(ratio:50.00)

B. Mathematical reasoning ability.(ratio:25.00)

C. Implementing computer systems ability.(ratio:25.00)

Subject Schoolwide essential virtues

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:20.00)

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

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

Course Introduction	Simulation plays an important role in the area of management science, which can be applied to many kinds of management applications such as manufacturing management, transportation system, service systems, logistics, etc. This course introduces the application and theoretical background of system simulation. Topics included modeling systems dynamics using discrete events, the modeling of transportation applications and service systems through simulation. A high level simulation package ARENA will be utilized for the simulation modeling practices.

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	This course introduces the application and theoretical background of system simulation. Theoretical topics include random variable generation, model verification and validation, statistical analysis of output.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABC	234578	Lecture, Discussion, Experience, Imitation	Testing, Study Assignments, Discussion(including classroom and online), Practicum, Report(including oral and written), Activity Participation

Course Schedule

Week	Date	Course Contents	Note
1	111/02/21 ~ 111/02/25	Syllbus/Course instruction	
2	111/02/28 ~ 111/03/04	Concept of modeling and simulation	

3	111/03/07 ~ 111/03/11	What is Simulation? (CH 01)	
4	111/03/14 ~ 111/03/18	Fundamental simulation concept (CH 02)	
5	111/03/21 ~ 111/03/25	A guided tour through Arena (CH 03)	
6	111/03/28 ~ 111/04/01	A guided tour through Arena (CH 03)	6 study groups assembled
7	111/04/04 ~ 111/04/08	Arena Training Course	
8	111/04/11 ~ 111/04/15	Modeling basic operations and inputs (CH 04)	Presentation 1, example 3-1 ~ 3-5
9	111/04/18 ~ 111/04/22	Modeling detailed operations (CH 05)	Presentation 2, example 4-1 ~ 4-5
10	111/04/25 ~ 111/04/29	Midterm Exam Week	
11	111/05/02 ~ 111/05/06	Statistical analysis of output from terminating simulations (CH 06)	Presentation 3, example 5-1 ~ 5-4
12	111/05/09 ~ 111/05/13	Statistical analysis of output from terminating simulations (CH 06)	Presentation 4, example 6-1 ~ 6-4
13	111/05/16 ~ 111/05/20	Intermediate modeling and steady state statistical analysis (CH 07)	Presentation 5, example 6-5 ~ 6-7
14	111/05/23 ~ 111/05/27	Entity transfer (CH 08)	Presentation 6, example 7-1 ~ 7-4
15	111/05/30 ~ 111/06/03	Graduate Exam Week	
16	111/06/06 ~ 111/06/10	---	
17	111/06/13 ~ 111/06/17	---	
18	111/06/20 ~ 111/06/24	---	

Requirement	1.Each study group will present the designated textbook examples briefing in sequence. 2.The presentation should be carried out step by step to show the detailed information of the example, which can be in the form of video, animation, or powerpoint text, and must not be less than 45 minutes. 3.All members of each group are not allowed to be absent during the group presentation. 4.The presentation score is assessed by all the student of the class and teacher.
Teaching Facility	Computer, Projector
Textbooks and Teaching Materials	Kelton - Simulation with Arena 6E
References	

Number of Assignment(s)	4 (Filled in by assignment instructor only)
Grading Policy	◆ Attendance： 15.0 % ◆ Mark of Usual：15.0 % ◆ Midterm Exam： 15.0 % ◆ Final Exam： 15.0 % ◆ Other〈Presentation〉：40.0 %
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.**