朝陽科技大學 099學年度第1學期教學大綱
System Simulation 系統模擬

當期課號	1615	Course Number	1615
授課教師	洪弘祈	Instructor	HORNG,HORNG CHYI
中文課名	系統模擬	Course Name	System Simulation
開課單位	工業工程與管理系(四日)四A	Department	
修習別	選修	Required/Elective	Elective
學分數	3	Credits	3
課程目標	以電腦模擬軟體，如ARENA等，建構模擬模型來代表真實或虛構之系統。並藉由對這些模型的實驗來解釋系統的行爲，增進系統之效能，或者設計新的系統。本課程除介紹模擬軟體之外，並對統計方法在模擬學上之應用做深入的探討。	Objectives	The practice of building computer simulation models to represent existing real-world systems, or hypothetical future systems, and of experimenting with these models to explain system behavior, improve system performance, or design new systems with desirable performances.
教材	A. Simulation with ARENA, 4th Edition, Kelton, W.D. et al., 2007 (McGraw Hill). 新月書局代理。 B. Simulation Modeling and Analysis, Law, A.M. and Kelton, W.D., 2000 (McGraw Hill). 新月書局代理。	Teaching Materials	A. Simulation with ARENA, 4th Edition, Kelton, W.D. et al., 2007 (McGraw Hill). 新月書局代理。 B. Simulation Modeling and Analysis, Law, A.M. and Kelton, W.D., 2000 (McGraw Hill). 新月書局代理。
成績評量方式	作業 30% 報告 30% 考試 40%	Grading	Homework 30% Project 30% Exam 40%
教師網頁	http://www.cyut.edu.tw/~hchorng		
教學內容	此課程以理論及模式建構的角度來介紹系統模擬學。課程重點在於建構電腦模擬模式以取代真實或虛擬系統，並以模擬實驗來分析系統行爲、改善系統績效、或設計新系統。主要授課主題包括資料分析、模式建構、隨機亂數/變數、模擬結果統計分析、模擬實驗設計、以及模擬之未來趨勢。本課程透過一系列的案例演練來增進學生模擬分析的技巧，並以專題報告的方式來提昇學生的溝通及寫作能力。	Syllabus	The course presents basic techniques of systems simulation concentrating on both theoretical and modeling aspects. The focus of the course is building computer simulation models to represent existing real-world systems, or hypothetical future systems, and of experimenting with these models to explain system behavior, improve system performance, or design new systems with desirable performances. Topics includes data analysis using Input Analyzer, modeling of real world systems using ARENA, random number/variates generators, statistical analysis of simulation output using Output Analyzer, design of simulation experiments, and future trend of systems simulation. A series of design exercises provides a key bridge between the simulation theory and the application of software modeling skills to an open-ended simulation problem. Communication skills are developed with both written and oral presentation.

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