

朝陽科技大學 093學年度第1學期教學大綱
Structural Matrix Analysis 結構矩陣分析

當期課號	6012	Course Number	6012
授課教師	程運達	Instructor	YUN,TA CHENG
中文課名	結構矩陣分析	Course Name	Structural Matrix Analysis
開課單位	營建工程系(二進)四A	Department	
修習別	選修	Required/Elective	Elective
學分數	3	Credits	3
課程目標	本課程是以矩陣方法來處理結構問題。結構矩陣學為電腦數值分析結構問題的基本，若要瞭解電腦程式處理結構問題，應先瞭解矩陣法較為適宜。結構矩陣學是以能量法為基礎，可分成直接勁度法、位移法、力法等三種方法。	Objectives	The course introduces the matrix method to solve the structural affairs. The matrix method is the base of the computer numerical analysis. Therefore, the matrix method should be learned before the learning of the computer program to solve the structural problems. The matrix method is based on the energy method. There are three methods in the course. They are force method, displacement method, and directly stiffness method.
教材	1. Matrix Analysis of Structures, Yuan-Yu Hsieh(結構學新編，謝元裕)，文笙書局 2. Matrix Structural Analysis, William McGuire and Richard H. Gallagher 3. 隨堂講義	Teaching Materials	
成績評量方式	期中考40%，作業20%，期末考40%	Grading	Mid exam 40%, H.W. 20%, Final exam 40%
教師網頁	-		
教學內容	本學期課程主要為 1. 能量定理：介紹結構分析之基本觀念 2. 矩陣法解析：古典力法與變位法、柔度與勁度、直接勁度法 3. 柱與剛架之彈性穩定。 4. 有限元素法簡介	Syllabus	1. Concepts of structural analysis and energy theorems. 2. Three approaches for matrix analysis of framed structures: matrix generalization of classical force and displacement methods; congruent transformation approach for force and displacement methods based on finite element concept; direct-stiffness formulation 3. elastic stability of columns and rigid frames 4. introduction of finite-element-method

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