國立台灣科技大學 114學年 第2學期　課程大綱

Spring 2026 NTUST Course Outline

授課教師：胡宗和

Instructor:Tzong-Her Hwu

課程名稱：機動學

Course Title：Mechanisms and Dynamics of Machinery

2026/11/3

課程代號：GD4104301 Course Code 學分數：3 Credits	必選修：必修/半學年 Required/Electve:Required/Half Yr. 先修課程： Prerequisites
節次教室：F10(TR-412-2) F9(TR-412-2) T10(TR-412-2) Time/Location	
專業核心能力：培養學生具備了解連桿機構之反動力學分析、等轉速比動系統基礎觀念之核心能力。 Core Professional Competencies	
課程網址：https://moodle2.ntust.edu.tw/ Course Website	
課程宗旨： Course Objectives	Introduce the mechanical system in operation, the rules that must be observed when moving parts of various parts and the transmission of force between parts, the type and number of plane mechanism synthesis, the displacement of plane mechanism, the method of velocity and acceleration analysis and analytical method, The inverse dynamics analysis of the four-bar linkage mechanism, the establishment of the basic concept of the equal-speed ratio dynamic system, and the analysis and design of the simple, composite and planetary gear set, the introduction of the cam and the follower system, and the mapping of the cam profile Analytical synthesis of the motion curve of the follower, introduction to the three-dimensional space mechanism and robotics.
課程大綱： Outline of Lectures	Introduction to mechanism. Types and synthesis of planar mechanisms. Graphical and analytical methods for displacement, velocity and acceleration analysis of planar linkages. Inverse kinematics of Four-bar linkages. Introduction to constant speed ratio drive system, analysis and design of simple, compound and gear trains Introduction to the cam and follower system, determine the cam profile and the follower motion curve. Introduction to three-dimensional mechanisms and robotics.
授課方式： Method of Instruction	講授 Lecture：0% 分組討論 Group discussion：0% 案例研討 Case study：0% 操做練習 Practical exercises：0% 講授 Lecture：%
教科書： Textbooks	Kinematics, Dynamics, and Design of Machinery, 3rd Edition, Wiley, Kenneth, J. Waldron, Gary L. Kinzel, Sunil K. Agrawal.
參考書目： References	

修課須知： Notice
評量方式： Homework, midterm exam, final exam Grading
備註說明： Notes