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：郭永麟

Instructor:Yong-Lin Kuo

課程名稱：高等控制工程分析

Course Title：Advanced Control Engineering Analysis

2026/11/3

課程代號： AC6012701 Course Code 學分數： 3 Credits	必選修：選修/半學年 Required/Electve:Elective/Half Yr. 先修課程： Prerequisites
節次教室： M10(TR-516) M8(TR-516) M9(TR-516) Time/Location	
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	1. Offer implementable intelligent control design methods for engineering applications 2. Provide intelligent control design methods and their stability analysis methods 3. Demonstrate simulation examples and MATLAB programs of intelligent control design methods
課程大綱： Outline of Lectures	1. Introduction to Intelligent Control 2. Expert PID Control 3. Foundation of Fuzzy Mathematics 4. Fuzzy Logic Control 5. Fuzzy T-S Modeling and Control 6. Adaptive Fuzzy Control 7. Neural Networks 8. Adaptive RBF Neural Network Control 9. Adaptive Sliding Mode RBF Neural Network Control 10. Discrete RBF Neural Network Control 11. Intelligent Search Algorithm Design 12. Iterative Learning Control and Applications
授課方式： Method of Instruction	講授 Lecture：90% 分組討論 Group discussion：0% 案例研討 Case study：10% 操做練習 Practical exercises：0% 講授 Lecture：%
教科書： Textbooks	Intelligent Control Design and MATLAB Simulation, J Liu, 2017, Springer
參考書目： References	1. Intelligent Control: Fuzzy Logic Applications, CW Silva, 2018, CRC 2. Intelligent Control: A Hybrid Approach Based on Fuzzy Logic, Neural Networks and Genetic Algorithms, N Siddique, 2013, Springer
修課須知： Notice	Matlab Fuzzy Logic Toolbox Matlab Neural Network Toolbox

評量方式： Grading	Midterm exam 50% Final exam 50%
備註說明： Notes	Matlab/Simulink might be used in class.