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：RENAN S. MAGLASANG

Instructor:RENAN S. MAGLAS

課程名稱：系統動態學

Course Title：System Dynamics

2026/11/3

課程代號： IM6411701 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： Time/Location	T2(MA-010) T3(MA-010) T4(MA-010)
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	This course, also know as System Dynamics and the SDGs (SD & SDGs), introduces SD through the SBST pedagogical framework: System Builder → System Thinker. Students begin by rigorously defining an SDG-related dynamic problem, articulating its accumulation processes, feedback structures, delays, and defensible system boundaries before formal modeling begins. They then construct stock-flow models (System Builder phase) and interrogate those models through structured What-If experimentation to explain emergent behavior (System Thinker phase). The course unfolds in two modeling cycles: a guided SIR model to demonstrate the complete SD workflow, followed by an SDG-anchored project in which students build, freeze, and analyze their own dynamic models. Emphasis is placed on disciplined problem framing, understanding how structure generates behavior over time, and extracting system-level insights grounded in feedback dominance and accumulation logic rather than prescribing optimal solutions.
課程大綱： Outline of Lectures	Each module comprises four integrated lecture and engagement sessions and one dedicated session for project progress presentations. The course is structured into three sequential modules (or stages), each designed to progressively advance students toward the intended course outcomes. Module 1 SDG System Dynamic Problem Statement and Causal Loop Diagrams (CLD) Module 2 Stock Flow Diagram and Policy Experimentation Module 3 Writing the Final SD Project
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	If you’re thinking about enrolling, join us on the first day for orientation. We’ll clarify the syllabus, course expectations, project structure, student resources, and leave space for your questions and concerns.
參考書目： References	
修課須知： Notice	If you’re thinking about enrolling, join us on the first day for orientation. We’ll clarify the syllabus, course expectations, project structure, student resources, and leave space for your questions and concerns.
評量方式： Grading	
備註說明： Notes	