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：溫照華

Instructor:Chao-Hua Wen

課程名稱：智慧環境的人機互動

Course Title：Human-Computer Interaction in Intelligent Environments

2026/11/3

課程代號：CX4024701 Course Code	必選修：選修/半學年 Required/Electve:Elective/Half Yr.
學分數：3 Credits	先修課程： Prerequisites
節次教室：R2(TR-311) R3(TR-311) R4(TR-311) Time/Location	
專業核心能力： Core Professional Competencies	(1) 搜尋與分析相關研究領域專業知識之能力 (2) 終身自我學習成長之能力
課程網址： Course Website	
課程宗旨： Course Objectives	On completion of this module, students will be able to: (1) comprehensive understand of how the practical applications of HCI approaches and methodologies, illustrating their utility; (2) become familiar with the way humans interact with computers and digital information for color science and applications; (3) explores the dynamic relationship between humans and intelligent environments, with a specific emphasis on the role of artificial intelligence (AI) and the Internet of Things (IoT); and (4) provides insights into the intricacies of various intelligent environment contexts, ranging from automotive to room?based systems, to entire cities, to urban interfaces, and beyond.
課程大綱： Outline of Lectures	(1) 智慧環境設計和人機互動基礎；(2) 人類感知與績效；(3) 數位彩色成像互動；(4) 使用者介面適應和設計；(5) 人工智慧的人本設計；(6) 使用者經驗方法與工具；(7) 物聯網互動；(8)生成式自然語言處理與設計；(9) 會話代理；(10) 未來車載人機介面之移動性；(11) 人類代理聯隊；(12) 環境輔助生活解決方案；(13) 智慧城市介面；(14) 永續性和市民科學的人機互動與未來。 (1) Design for intelligent environments; (2) Sensing, perception and performance; (3) Interaction of digital color imaging; (4) User interface adaption and design for AI; (5) Human-centered AI; (6) User Experience methods and Tools; (7) Interacting with the Internet of Things; (8) Generative Natural Language Processing and design; (9) Conversational Agents; (10) Automotive user interfaces: Enhancing future mobility; (11) Human-agent teaming; (12) Ambient assisted living solutions; (13) Urban interfaces; (14) Sustainability and Citizen Science in the future HCI.
授課方式： Method of Instruction	講授 Lecture：80% 分組討論 Group discussion：0% 案例研討 Case study：10% 操做練習 Practical exercises：10% 講授 Lecture：%
教科書： Textbooks	[1] Human-Computer Interaction in Intelligent Environments, eds Constantine Stephanidis and, Gavriel Salvendy, CRC Press, 2024.

參考書目： References	[1] User Experience Methods and Tools in Human Computer Interaction, Constantine Stephanidis, Gavriel Salvendy, CRC, 2025. [2] Human-Computer Interaction. An Empirical Research Perspective, I. Scott MacKenzie, Elsevier ,2024.
修課須知： Notice	Finding a volunteer TA from within the class.
評量方式： Grading	1. Assignment (50 %) - Two problem/quiz sets 2. Term project (50 %) - Project approval required in midterm - Oral presentation or demonstration of projects
備註說明： Notes	本課程涵蓋多元且前瞻的主題，是智慧環境與人機互動領域的一次全面探索，適合希望了解科技如何融入日常生活、提升互動體驗的學生。