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：王靖維

Instructor:Ching-Wei Wang

課程名稱：進階電腦視覺與機器學習

Course Title：Advanced Computer Vision and Machine Learning

2026/11/3

課程代號： BE5048701 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： Time/Location	R2(TR-836) R3(TR-836) R4(TR-836)
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	本課程將講授進階電腦視覺與機器學習理論與技術，提供學生從事影像分析的基石。 The key aim of this course is to equip students with advanced computer vision and machine learning knowledge necessary to become successful engineers or scientists.
課程大綱： Outline of Lectures	1. Automatic Global Thresholding Algorithms (Binarization, Pixel Classification) 2. Automatic Local Thresholding Algorithms (Binarization, Pixel Classification) 3. Color Images, Spectral Techniques 4. Discrete Fourier Transform in 2D 5. Geometric Operations 6. Inception, ResNet, DenseNet 7. Transformers and Multi-Head Attention
授課方式： Method of Instruction	講授 Lecture：40% 分組討論 Group discussion：15% 案例研討 Case study：15% 操做練習 Practical exercises：30% 講授 Lecture：N/A%
教科書： Textbooks	Candidate journal list or a journal with IF>10: The selected paper must be published within 3 years. Medical Image Analysis Nature Medicine Nature Methods Nature IEEE Trans on Medical Imaging IEEE TPAMI
參考書目： References	

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修課須知： Notice	Two TAs will be available.
評量方式： Grading	Two team presentations with course assignments.
備註說明： Notes	Requirement: English, Math and basic programming skills.