



教學計畫表 Syllabus

課程名稱(中文) Course Name in Chinese	生成式 AI 導論			學年/學期 Academic Year/Semester	113/1
課程名稱(英文) Course Name in English	Introduction to Generative AI			授課教師 Instructor	Wen-Chieh Fang
科目代碼 Course Code	CSIE35470/ CSIEB0530	系級 Department & Year	大學部 3 年級	開課單位 Course-Offering Department	CSIE
修別 Type	☐ 必修 Required ☒ 選修 Elective ☐ 學程 Program	學分數/時數 Credit(s)/ Hour(s)		3/3	
先修課程 Prerequisite	None				
課程描述 Course Description	This course covers fundamental concepts, techniques, and algorithms in modern generative AI, including variational autoencoders, generative adversarial networks, diffusion models, transformers, and large language models. Students will engage with homework and programming assignments to develop relevant coding skills, with learning evaluated through mid-term and final exams.				

課程目標 Course Objectives	- This course provides an overview of key concepts, techniques, and algorithms in modern generative AI. - The course will give the student the ideas and intuition behind modern generative AI methods. - The course may also cover techniques and applications of generative AI, including multimodal approaches, prompt engineering, and text-to-image generation.				
系專業能力 Basic Learning Outcomes	A. 統合資工知識技術之能力 Ability to integrate knowledge and technologies of computer science and information engineering. B. 設計技術理論驗證實驗之能力 Ability to design and conduct science experiments and to validate hypotheses. C. 資訊軟硬體設計開發之能力 Ability to design and develop computer software and hardware. D. 團隊專案開發之能力 Ability to design and develop team projects. E. 批判性思考與創新研發之能力 Ability of analytical thinking, creative research planning, and innovative development.				
課程目標與系專業能力 相關性 Correlation between Course Objectives and Basic Learning Outcomes	A	B	C	D	E
	●	○	●	○	○

圖示說明 Illustration：● 高度相關 Highly correlated ○ 中度相關 Moderately correlated										
授 課 進 度 表 Teaching Schedule & Content										
週次 week	內 容 (Subject/Topics)								備 註 Remarks	
1	Course introduction									
2	Generative Modeling									
3	Deep Learning									
4	Variational Autoencoders									
5	National Day (Holiday)								No Lecture	
6	Generative Adversarial Networks									
7	Advanced GANs									
8	Diffusion Models									
9	期中考試週 Midterm Exam									
10	Transformers									
11	Introduction to Large Language Models									
12	Prompt Engineering									
13	Fine-Tuning Large Language Models									
14	Embedding LLMs within Your Applications									
15	Multimodal Models									
16	Multimodal Models									
17	期末考試週 Final Exam									
18	Alternative curriculum									
教學策略 Teaching Strategies	☒ 課堂講授 Lecture ☐ 分組討論 Group Discussion ☐ 參觀實習 Field Trip ☐ 其他 Miscellaneous: _____									
學期成績 計算及多 元評量方 式 Grading&a ssessme-nts	配分項目 Items	配分比例 Percentage	多元評量方式 assessments							
			測驗/ 會考	實作/ 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
	期中考成績 Midterm Exam	30%	V							
	期末考成績 Final Exam	30%	V							
	作業成績 Homework and/or Assignments	40%		V						
教科書與參考書目 (書名、作者、書局、代理商、說明) Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)										
● David Foster, "Generative Deep Learning_ Teaching Machines To Paint, Write, Compose, and Play," Second edition, O'Reilly Media, 2023 ● Valentina Alto, "Building LLM Powered Applications: Create intelligent apps and agents with large language models," Packt Publishing Ltd, 2024. ● James Phoenix and Mike Taylor, "Prompt Engineering for Generative AI: Future-Proof Inputs for Reliable AI Outputs at Scale," O'Reilly Media, Inc., 2024. ● Zhang, Aston and Lipton, Zachary C. and Li, Mu and Smola, Alexander J., "Dive into Deep Learning," Cambridge University Press, 2023.										
課程教材網址 (教師個人網址請列在本校內之網址) Teaching Aids & Teacher's Website (Personal website can be listed here.) 東華 e 學苑										