



課 綱 Course Outline

資訊工程學系國際組

中文課程名稱 Course Name in Chinese	永續之創意數位學習				
英文課程名稱 Course Name in English	Creative digital learning with sustainability				
科目代碼 Course Code	CSIEM0630	班 別 Degree	碩士班 Master' s		
修別 Type	選修 Elective	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite					
課程目標 Course Objectives					
<p>Learning in authentic contexts reflect the kind of activities that people do in the real world, particularly using advanced technologies like recognition technology and AI. Therefore, authentic contexts are very meaningful and relevant to students during their learning process. In this course, we will focus on sustainable learning in authentic contexts using advanced technology to facilitate students to develop high-level cognition like creativity with scalability.</p> <p>Creativity is the use of knowledge, imagination, and judgment by students to solve problems in an innovative, high quality, and appropriate manner. Clarke, Dede, Ketelhut, and Nelson (2006) defined the term “sustainability” to refer to an ability to learn programs to remain in use and the term “scalability” as an ability to learning programs and design to be adapted in a wide variety of context.</p> <p>Therefore, how to consider the above three abilities in learning design with advanced technology becomes very critical to get a success in education. This is because learning in authentic context with help of advanced technologies can potentially realize the above three abilities and complement traditional learning in class/at school.</p>					
系教育目標 Dept.'s Education Objectives					
1	探究學科知識，善用專業技能 Explore academic knowledge, utilize professional skills.				
2	訓練評析思考，創新解決問題 Exercise analytical thinking, enhance creative problem solving skills.				
3	學習團隊分工，強化溝通表達 Participate in teamwork, strengthen communication skills.				

系專業能力 Basic Learning Outcomes		課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
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.	
圖示說明Illustration：● 高度相關 Highly correlated ○ 中度相關 Moderately correlated		
課程大綱 Course Outline		
<p>Part I EFL Speaking in Authentic contexts</p> <ol style="list-style-type: none"> 1. Collaborative Kinesthetic English Learning with Recognition Technology. 2. Collaborative Drama-Based EFL Learning in Familiar Contexts 3. Collaborative Kinesthetic EFL Learning with Collaborative Total Physical Response 4. Investigating the effectiveness of a learning activity supported by a mobile multimedia learning system to enhance autonomous EFL learning in authentic contexts 5. Facilitating application of language skills in authentic environments with a mobile learning system 6. A Study of the Cognitive Diffusion Model: Facilitating Students' High Level Cognitive Processes with Authentic Support 7. Cognitive Diffusion Model: Facilitating EFL learning in an authentic environment 8. Evaluating Listening and Speaking Skills in a Mobile Game-Based Learning Environment with Situational Contexts 9. Effects of Storytelling to Facilitate EFL Speaking Using Web-Based Multimedia System 10. Review of research on mobile language learning in authentic environments 11. Recognition-based physical response to facilitate EFL learning 12. Cognitive Diffusion Model with User-Oriented Context-to-Text Recognition for Learning to Promote High Level Cognitive Processes 13. Effects of using mobile devices on English listening diversity and speaking for EFL elementary students 14. Users' Familiar Situational Contexts Facilitate the Practice of EFL in Elementary Schools with Mobile Devices <p>Part II EFL Writing in Authentic contexts</p> <ol style="list-style-type: none"> 15. Self-experienced storytelling in an authentic context to facilitate EFL writing 16. Improving English as a Foreign Language Writing in Elementary Schools Using Mobile Devices in Familiar Situational Contexts 		

Mid-term Presentation(Summary & Reflection& Proposal)

Part III Math Learning in Authentic contexts

17. An Investigation of the Effects of Measuring Authentic Contexts on Geometry Learning Achievement

18. Exploring Authentic Contexts with Ubiquitous Geometry to Facilitate Elementary School Students' Geometry Learning

19. Effect of Ubiquitous Fraction App on Mathematics Learning Achievements and Learning Behaviors of Taiwanese Students in Authentic Contexts

20. Ubiquitous Geometry: Measuring Authentic Surroundings to Support Geometry Learning of the Sixth Grade Students

Part IV Physics Learning in Authentic contexts

21. Investigation of Inquiry Behaviors and Learning Achievement in Authentic Contexts with the Ubiquitous-Physics App

22. Investigation of Learning Behaviors of Simple Pendulum and Their Effects to Learning Achievement of Vocational High School Students Using Ubiquitous Physics App

23. Investigation of Learning Behaviors and Achievement of Vocational High School Students Using an Ubiquitous Physics Tablet PC App

Final Presentation(Summary & Reflection & Proposal)

資源需求評估（師資專長之聘任、儀器設備的配合．．．等）

Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)

Bring own laptop computer.

課程要求和教學方式之建議

Course Requirements and Suggested Teaching Methods

Teaching methods: Paper presentation and discussion with Google classroom

Assessment methods: Report, Attendance and Q&A

其他

Miscellaneous