

109-1 Full Curriculum of Da-Yeh University

Information			
Title	Augmented Reality Project	Serial No./ID	2976 / CDC7178
Required/Credit	Optinal /1	Time/Place	(Sat)5 / 依公告
Language	Chinese	Grade Type	Text
Lecturer /Full- or Part-time	Cherng Jong Sheng /Full-time	Graduate Class	Non-graduating Class
School System /Dept /Class, Grade	Bachelor /Liberal Arts Center /Class 2, Grade 6		
Office Hour / Place	(Tue) 10:10~11:00, (Tue) 11:10~12:00, (Tue) 13:20~14:10, (Tue) 14:20~15:10 / H318		
Lecturer	n.a.		

Introduction

隨著現代電子產品運算能力的大幅提升，擴增實境（Augmented Reality，AR）的用途也越來越廣，其相關應用如：iPhone 及 Google Android 手機等行動設備之『擴增實境導航』、醫療手術定位、工業大型機械製造與維修、數位學習、遊戲與娛樂等。本課程除了教授設計擴增實境系統之基本概念之外，授課期間亦會引導學生設計一些實務性擴增實境專題。目前強調各學習領域使用資訊科技融入教學之精神，以擴展各領域學生的學習能力及動機。因此使用擴增實境技術應用於各領域，應是未來資訊教育融入各學科可行方式之一。

本課程之目標除教授設計擴增實境系統之基本原理及技術外，授課期間將會以製作簡易2D圖像轉3D立體動態模型、英文單字翻譯機及校園尋寶等擴增實境專題為導向。

Outline

1. 擴增實境簡介 – 介紹擴增實境發展歷程、技術原理與應用領域。
2. 擴增實境軟硬體設備簡介 – 介紹擴增實境軟硬體設備需求及其應用平台。
3. 擴增實境系統體驗 – 體驗行動式平台之擴增實境應用。
4. 簡易擴增實境專題實作(一) – 製作簡易2D圖像轉3D立體動態模型。利用擴增實境的技術，將2D圖像，如動漫畫平面圖，轉成相應之3D立體模型，並可對立體模型做移位、縮放及旋轉等操作。
5. 簡易擴增實境專題實作(二) – 製作簡易英文單字翻譯機。利用擴增實境的技術，將英文單字翻譯成中文，例如：apple這個單字，經由手機攝影機截取後，透過AR在手機螢幕上即時呈現相對之中文解釋、發音及立體3D模型或動畫，以增加對於英文單字的學習記憶力。
6. 簡易擴增實境專題實作(三) – 製作簡易校園尋寶遊戲，讓學生利用手機透過AR在校園中以猜燈謎方式，尋找預設一連串環境影像，進而找到寶物。

Prerequisite

無

The Relationship Between Courses and Departmental Core Competencies and Basic Skills

Fundamental Ability

Professional Ability

Practical Ability

Teamwork Spirit



Active Learning



Creativity and Innovation

Global Vision

Professional Ethics

Leadership and Management

Confidence and Perseverance



Humanistic Qualities

Teaching Plan

Core Capability	Weight(%) 【A】	Ability index(Performance Indicators)	Teaching Methods	Assessment and Weight	Core Competency Learning Outcomes 【B】	Final Exam Grades 【C=B*A 】
Active Learning	40	Consists in helping students actively partake in a variety of learning processes with the aim to achieve self-promotion and self-realization.	Lecturing Group Discussion Practical Operation (Experiment, Machine Operation	Course Participation: 20% Product Manufacturing: 30% Record on Experiment: 40% Written Report: 10%	Total: 100	40
Creativity and Innovation	40	Consists in fostering students' creative and critical thinking skills together with their ability to identify and solve problems in an effective way.	Lecturing Group Discussion Practical Operation (Experiment, Machine Operation	Course Participation: 20% Product Manufacturing: 30% Written Report: 10% Record on Experiment: 40%	Total: 100	40
Humanistic Qualities	20	Consists in enriching students' cultural and social knowledge, helping them acquire the right values systems, and increasing their positive attitude towards society and others. It also involves the nurturing of other skills, especially in terms of i	Lecturing Group Discussion Practical Operation (Experiment, Machine Operation	Course Participation: 20% Record on Experiment: 40% Product Manufacturing: 30% Written Report: 10%	Total: 100	20

Grade Auditing

Record on Experiment: 40%

Product Manufacturing: 30%

Course Participation: 20%

Written Report: 10%

Book Type (Respect intellectual property rights. Please use official textbooks and do not illegally photocopy others' works.)

Book Type	Book name	Author
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Instructor-compiled 略 略

Lesson Plan

Weeks	Content	Teaching Methods
1	Introduction & Intellectual Property Protection (use legitimate textbooks only) & Traffic safety Propaganda	Lecturing
2	Introduction to AR Devices	Lecturing、 Practical Operation (Experiment, Machine Operation
3	AR Experience	Lecturing、 Practical Operation (Experiment, Machine Operation
4	AR Experience	Lecturing、 Practical Operation (Experiment, Machine Operation
5	AR Project 1	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
6	AR Project 1	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
7	AR Project 1	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
8	AR Project 1	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
9	AR Project 1	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
10	AR Project 2	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
11	AR Project 2	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
12	AR Project 2	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
13	AR Project 2	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
14	AR Project 2	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation

15	AR Project 3	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
16	AR Project 3	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
17	AR Project 3	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation
18	AR Project 3	Lecturing、 Group Discussion、 Practical Operation (Experiment, Machine Operation