國立東華大學

教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	虛擬實境導論			學年/學期 Academic Year/Semester	105/1
課程名稱(英文) Course Name in English	Introduction to Virtual Reality				
科目代碼 Course Code	CSIE34300	系級 Department & Year	學三	開課單位 Course-Offering Department	資訊工程學系
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0/3.0		
授課教師 Instructor	/楊茂村				
先修課程 Prerequisite					

課程描述 Course Description

虛擬實境是由電腦系統運算產生具有三度空間真實世界的效果，讓使用者有身歷其境的感受，並能自由遊走虛擬世界與操作虛擬物件。這堂課將說明虛擬實境的原理、分類、與演進，介紹虛擬實境軟體環境、硬體環境及發展工具，並討論目前虛擬實境之實際應用。

課程目標 Course Objectives

1. Introduce the VR input/output/hardware
2. Develop and construct VR contents
3. Discuss VR applications in a variety of fields
4. Learn OpenGL programming

	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	資訊專業終身學習能力Ability of lifetime learning in information profession	●
B	實驗驗證資訊科學能力Ability of validate experimental result validation in information science field	○
C	資訊工具整合運用能力Ability of integrated applications of information technology	●
D	資訊系統應用設計開發能力Ability of information application system design and development	○
E	團隊合作溝通協調能力Ability of teamwork, communication, and coordination	○
F	資通訊科技問題解決能力Ability of problem solving regarding information and communication technology	○
G	瞭解資訊科技多元影響能力Ability to understand information technology's multiple influences	●
H	肩負資訊人社會責任能力Ability of bearing the social responsibilities being among information professionals	○

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	Virtual Reality Introduction	
2	Virtual Reality Applications Unity Introduction	

3	Virtual Reality History Unity Script	
4	Virtual Reality Hardware Unity GUI	
5	Virtual Reality Input Unity Physics	
6	Virtual Reality Output Unity Effects	
7	Virtual Reality 3D Unity Android	
8	Virtual Reality Geometry Unity SketchUp	
9	期中考試週 Midterm Exam	
10	Virtual Reality Light Unity Mecanim	
11	Virtual Reality Vision Unity & OpenCV	
12	Virtual Reality Perception Unity & Leap Motion	
13	Virtual Reality Rendering Unity & Kinect	
14	Virtual Reality Tracking Unity Network	
15	Virtual Reality Audio Unity AR	
16	OpenGL	
17	ARToolKit	
18	期末考試週 Final Exam	

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: 實作

學期成績計算及多元評量方式 Grading & Assessments

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
平時成績 General Performance	10%	✓							隨堂測驗
期中考成績 Midterm Exam	20%		✓		✓				專題實作
期末考成績 Final Exam	20%		✓		✓				專題實作
作業成績 Homework and/or Assignments	50%		✓						程式實作
其他 Miscellaneous (_____)									

評量方式補充說明
Grading & Assessments Supplemental instructions

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.)

1. Lavalle. Virtual Reality. 2016. available online: http://vr.cs.uiuc.edu/
4. 賴祐吉 & 姚智原. Unity 3D 遊戲設計範例講堂. 2014.
5. Burdea & Coiffet. Virtual Reality Technology. 2nd Edition, John Wiley & Sons, 2003. (NDHU library ebook)
6. E. Angel. OpenGL: A Primer. Pearson Addison-Wesley, 2007.

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.)

http://web.csie.ndhu.edu.tw/mtyang/vr16fall/

其他補充說明 (Supplemental instructions)