

Course Information	
Course title	Virtual Reality
Semester	102-2
Designated for	COLLEGE OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE GRADUATE INSTITUTE OF NETWORKING AND MULTIMEDIA
Instructor	MING OUH YOUNG
Curriculum Number	CSIE7633
Curriculum Identity Number	922 U1940
Credits	3
Full/Half Yr.	Half
Required/ Elective	Elective
Time	Monday 678
Remarks	Limited to undergraduate students of junior year and beyond The upper limit of the number of students: 50.
Table of Core Capabilities and Curriculum Planning	Association has not been established
Course Syllabus	
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Course Description	Part I: Virtual Reality 1. Look real, sound real, feel real, smell real, react realistically and in real-time 2. 3D Sound, directional sound 3. Environment Walkthrough, Distributed Interactive Simulation (DIS) 4. Tracking devices: space tracker, tracking algorithms 5. Immersive display: Head Mounted Display, BOOM, Stereo shutter glasses 6. Force Feedback Devices (Joystick, PHANToM etc.) 7. Trajectory prediction algorithms

	<p>Part II: Display and Visualization</p> <ol style="list-style-type: none"> <li>1. Modeling (Solid modeling, build large models, physically based modeling, motion dynamics)</li> <li>2. Global illumination algorithms( radiosity, volume rendering, scientific sualization)</li> <li>3. Texture mapping and advanced animation</li> <li>4. Graphics packages : OpenGL (X window, WinXP), DirectX(WinXP)</li> </ol> <p>Part III: Hardware and accelerators</p> <ol style="list-style-type: none"> <li>1. High performance graphics architectures (Pixel-Planes, Pixel Machine, SGI reality engine, PC Graphics (nVidia, ATI), Accelerator Chips &amp; Cards)</li> </ol> <p>Part IV:</p> <p>Virtual reality paper survey and term project</p>
Course Objective	
Course Requirement	One homework, one midterm, and one final project.
Office Hours	
References	<p>Reference:</p> <ol style="list-style-type: none"> <li>1. Lecture Notes on Virtual Reality.</li> <li>2. The Science of Virtual Reality and Virtual Environments, Roys S. Kalawsky, Addison Wesley.</li> <li>3. Computer Graphics: principles and practice, second edition, Foley, van Dam, Feiner, Hughes, Addison Wesley.</li> <li>4. Virtual Reality Systems, John Vince, Addison-Wesley.</li> </ol> <p>Textbook:</p> <p>Essential Virtual Reality Fast: How to Understand the Techniques and Potential of Virtual Reality, by John Vince, Publisher: Springer Verlag; ISBN: 1852330120 (1999-2003).</p> <p>Course URL:</p>

	<a href="http://www.cmlab.csie.ntu.edu.tw/~ming/courses/rg/">http://www.cmlab.csie.ntu.edu.tw/~ming/courses/rg/</a>
Designated reading	
Grading	