

# LANEY COLLEGE COURSE OUTLINE

<b>COLLEGE:</b>		<b>STATE APPROVAL DATE:</b>	05/11/2018
<b>ORIGINATOR:</b>	Vina Cera	<b>STATE CONTROL NUMBER:</b>	CCC00059 3392
		<b>BOARD OF TRUSTEES APPROVAL DATE:</b>	05/08/2018
		<b>CURRICULUM COMMITTEE APPROVAL DATE:</b>	03/16/2018
		<b>CURRENT EFFECTIVE DATE:</b>	08/01/2018

## DIVISION/DEPARTMENT:

### 1. REQUESTED CREDIT CLASSIFICATION:

Credit - Degree Applicable  
Course is not a basic skills course.  
Program Applicable

### 2. DEPT/COURSE NO:

MEDIA 080

### 3. COURSE TITLE:

Advanced AR/VR Unity Training

### 4. COURSE: Laney New Course

**TOP NO.** 0699.00\*

### 5. UNITS: 3.000

**HRS/WK LEC:** 2.00 Total: 35.00

**HRS/WK LAB:** 3.00 Total: 52.50

**HRS/WK TBA:**

### 6. NO. OF TIMES OFFERED AS SELETED TOPIC: AVERAGE ENROLLMENT:

### 7. JUSTIFICATION FOR COURSE:

This field is growing exponentially, as shown by the many unfilled jobs seen daily in the job ads. Together with the audio, camera and visual storytelling skills gained in the many MEDIA department courses at Laney College, this AR and VR course will equip students with entry level skills to extremely high paying internships in the industry.

### 8. COURSE/CATALOG DESCRIPTION

Advanced Techniques for AR and VR Immersive Design for Mobile, Web, and Head Mounted Displays: Analysis and application of tools for Augmented and Virtual Reality; design, animation, audio, scripting, lighting, camera, UI, navigation, deployment, hardware and Unity Game Engine software.

### 9. OTHER CATALOG INFORMATION

- a. Modular: No If yes, how many modules:
- b. Open entry/open exit: No
- c. Grading Policy: Letter Grade Only
- d. Eligible for credit by Exam: No
- e. Repeatable according to state guidelines: No
- f. Required for degree/certificate (specify):  
AR/VR: Immersive Design
- g. Meets GE/Transfer requirements (specify):  
acceptable for credit CSU/UC
- h. C-ID Number: Expiration Date:

i. Are there prerequisites/corequisites/recommended preparation for this course? No

### 10. LIST STUDENT PERFORMANCE OBJECTIVES (EXIT SKILLS): (Objectives must define the exit skills required of students and include criteria identified in Items 12, 14, and 15 - critical thinking, essay writing, problem solving, written/verbal communications, computational skills, working with others, workplace needs, SCANS competencies, all aspects of the industry, etc.)(See SCANS/All Aspects of Industry Worksheet.)

Students will be able to:

1. Develop a functioning AR/VR prototype
2. Adapt professional skills to most current VR and AR technology industry standards
3. Demonstrate mastery of artistic and technical skills needed to contribute effectively including design principles, storytelling, critique, adapting content based on research and integrating a variety of media, software and platforms as needed in a group production.
4. Implement AR/VR content development
5. Explain AR and VR theory, AR/VR presence, AR/VR tracking
6. Implement core concepts of AR/VR storytelling
7. Develop and implement AR/VR aesthetics

**11A. COURSE CONTENT:** List major topics to be covered. This section must be more than listing chapter headings from a textbook. Outline the course content, including essential topics, major subdivisions, and supporting details. It should include enough information so that a faculty member from any institution will have a clear understanding of the material taught in the course and the approximate length of time devoted to each. There should be congruence among the catalog description, lecture and/or lab content, student performance objectives, and the student learning outcomes. List percent of time spent on each topic; ensure percentages total 100%.

**LECTURE CONTENT:**

1. 10% VR and AR Theory
2. 20% VR and AR Tools
3. 10% Software technologies
4. 10% C# Programming
5. 20% Design Principles
6. 30% AR/VR Prototype Development
  1. Introduction to Unity
  2. Exploring the Unity User Interface
  3. Using Game Objects and Assets
  4. Managing Projects and Assets
  5. Preparing Assets for Implementation
  6. Assembling the AR/VR Level
  7. Lighting in AR/VR
  8. Baking Lighting in AR/VR Production
  9. Animating Game Objects in the Unity Editor
  10. Bringing Animations into the AR/VR APP
  11. Scripting in AR/VR Development
  12. Implementing Navigation and Pathfinding
  13. Building the Player and Allies
  14. Building the Enemies
  15. Creating Particle Systems
  16. Control Audio Properties
  17. Building the Camera and Player Selection System
  18. Designing User Interfaces for AR/VR APPS
  19. Building and Deploying the AR/VR APP

## 20. Preparing for Mobile Deployment

### 11B. LAB CONTENT:

Become familiar with the Unity engine and the critical parts of the Unity editor. 10%

Create Game Objects, define scene structure, import Assets, and work with Sprites. 10%

Understand Unity's project management features and organize your game project. 10%

Create materials and discover best practices for 3D content creation. 10%

Understand Rigidbodies, colliders, how they work, and how to integrate them. 10%

Analyze lighting tools and processes and develop the look and mood of your scene. 10%

Enhance the visual quality of your lighting while optimizing the look of your scene before game play. 10%

Explore character animation tools and learn the process of creating animations for use in game levels or state machines. 10%

Familiarize yourself with animation import options and learn how to manage animation data in your game project. 10%

Dive into programming as you learn terms, examine code, identify script types, and start writing code of your own. 10%

### 12. METHODS OF INSTRUCTION (List methods used to present course content.)

1. Activity
2. Lecture
3. Lab
4. Observation and Demonstration
5. Discussion
6. Critique
7. Projects
8. Visiting Lecturers
9. Multimedia Content

### 13. ASSIGNMENTS: 4.00 hours/week (List all assignments, including library assignments. Requires two (2) hours of independent work outside of class for each unit/weekly lecture hour. Outside assignments are not required for lab-only courses, although they can be given.)

Out-of-class Assignments:

1. Researching and reading AR/VR theory assignments
2. Viewing and Critiquing AR/VR content
3. Hands on projects
4. Individual and Peer Reviews
5. AR/VR topic Document creation

ASSIGNMENTS ARE: (See definition of college level):  
Primarily College Level

- 14. STUDENT ASSESSMENT:** (Grades are based on):  
ESSAY (Includes "blue book" exams and any written assignment of sufficient length and complexity to require students to select and organize ideas, to explain and support the ideas, and to demonstrate critical thinking skills.)  
COMPUTATION SKILLS  
NON-COMPUTATIONAL PROBLEM SOLVING (Critical thinking should be demonstrated by solving unfamiliar problems via various strategies.)  
SKILL DEMONSTRATION

**15. TEXTS, READINGS, AND MATERIALS**

A. Textbooks:

Jonathan Linowes. *Unity Virtual Reality Projects*. 1st Packt Publishing, 2015.

Ray Wenderlich, etal. *Unity games by tutorial*. 2nd RazewareLLC, 2017.

\*Date is required: Transfer institutions require current publication date(s) within 5 years of outline addition/update.

B. Additional Resources:

Library/LRC Materials and Services:

The instructor, in consultation with a librarian, has reviewed the materials and services of the College Library/LRC in the subject areas related to the proposed new course

Are print materials adequate? Yes

Are nonprint materials adequate? Yes

Are electronic/online resources available? Yes

Are services adequate? Yes

Specific materials and/or services needed have been identified and discussed. Librarian comments:  
Please provide a list of recent, recommended supplementary (non-textbook) titles to the acquisitions librarian.

C. Readings listed in A and B above are: (See definition of college level):

Primarily college level

**16. DESIGNATE OCCUPATIONAL CODE:**

B - Advance Occupational

**17. LEVEL BELOW TRANSFER:**

Y = Not Applicable

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**SUPPLEMENTAL PAGE**

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Use only if additional space is needed. (Type the item number which is to be continued, followed by "continued."  
Show the page number in the blank at the bottom of the page. If the item being continued is on page 2 of the outline, the first supplemental page will be "2a." If additional supplemental pages are required for page 2, they are to be numbered as 2b, 2c, etc.)

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**STUDENT LEARNING OUTCOMES**

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1. **Outcome:** Design and create an AR/VR project from concept to final product.  
**Assessment:** Instructor and class critique of final AR or VR production according to Rubric distributed and discussed in class.

2. **Outcome:** Collaborate effectively with production team.

**Assessment:** Instructor evaluation of student activities during class projects.

3. **Outcome:** Adapt professional skills to most current VR and AR technology industry standards

**Assessment:** Instructor evaluation of student competency in most current VR industry tools

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