

Summer Curriculum Development Grant Report (August 6, 2021)

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Title: *Developing a Virtual and Augmented Reality Course*

Summary:

This research is to create a 300 level VR/AR course in the near future for students focusing on graphic design, digital arts, and new media studies, but also for students studying studio art and illustration. The course has been developed to incorporate traditional art skills such as drawing, painting, and sculptures with immersive experiences which become highly demanded practice in media technology and visual communication. To create this course, I analyzed the curriculum structures from other institutions that offer similar programs. I chose 7 different syllabuses, and came up with the essential learning objectives that fit the vision of our departments. To achieve these learning objectives, 5 assignments have been developed.

Activities:

June-July 20201

- Research the curriculum structure of the other schools in and outside of Connecticut that offers similar programs. Compare that to what Eastern offers in a related subject.

	Course Title	Conce ntratio n	Institutio n	Summary	Objective
1	Special Topics in Digital Animation: Storytelling in VR	Animatio n	Washington University	Created a compelling story playable in VR	Learn current VR tools for storytelling Experiment with VR tools to discover storytelling options for the pre-production of one story Compare traditional methods for animated short films with current options in VR for the same story Created a compelling story playable in VR
2	Integrating VR/AR/MR with Design and Construction	Engineer ing	McCormick School of Engineering, Northwestern University	A foundation of integrating VR/AR/MR	<u>Understand and be able to describe the advanced technologies of Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR) and Extended Reality (XR)</u> <u>Apply VR, AR, MR, and XR in the</u>

					<u>real-world scenarios during the project lifecycle</u>
3	Intro to AR/VR Application Design		University of Michigan	Learn how to prototype and develop your first AR/VR interfaces.	<u>Understand the differences in AR/VR concepts and technologies</u> <u>Evaluate usability of AR/VR applications and critique their use of AR/VR capabilities</u> Design and prototype effective AR/VR applications using state-of-the-art tools
4	Augmented, Virtual & Mixed Reality	Cinematic Arts	USC Viterbi	implement immersive environments in current and future virtual, augmented and mixed reality platforms.	A critical framework for evaluating current and emerging immersive reality technologies and applications <u>Design and Technological foundations for Immersive Experiences</u> VR programming
5	Augmented and Virtual Reality Art	Time Based Art	Purdue University	create immersive Virtual Reality (VR) content	<u>Knowledge of key words in the emerging field of augmented and virtual reality art.</u> <u>Skills to use emerging AR and VR technologies</u>
6	Immersive Media for Games and VR	Media Production	FLORIDA ATLANTIC UNIVERSITY	Produce virtual reality (VR), augmented reality (AR) and mixed reality (MR) games in Unity.	<u>Apply fundamental design principles and software tools to produce expressive 3D game experiences</u> <u>Reference & vocabulary in critical discussions of immersive games and interactive media.</u> <u>online research and software documentation to creatively solve technical and design problems</u>
7	Virtual Reality Design and Development	Media	The University of Adelaide	Learn technologies through hands-on experience,	<u>Differentiate between Virtual, Mixed and Augmented Reality platforms.</u> <u>Identify appropriate design methodologies for immersive technology development, especially from a physiological perspective.</u> Demonstrate foundational literacy in game engine use.

• Essential Learning Objectives for this course.

1. Understand and be able to describe the advanced technologies of Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR) and Extended Reality (XR)
2. Obtain a knowledge of key words in the emerging field of augmented and virtual reality art.
3. Learn & experiment with current VR tools
4. Online research to creatively solve technical and design problems.
5. Apply fundamental design principles and software tools to incorporate with their creative process and produce students'

own immersive 3D experiences.

July - August 2021

- Research the VR/AR art and design outcomes from other Artists and Museums.

<https://www.museumnext.com/article/how-museums-are-using-augmented-reality/>

<https://www.artsy.net/article/artsy-editorial-collecting-virtual-reality-art>

<https://www.theartnewspaper.com/analysis/extended-reality-ar-vr>

<https://www.aam-us.org/programs/center-for-the-future-of-museums/immersion-in-museums-ar-vr-or-just-plain-r/>

<https://www.museumnext.com/article/how-museums-are-using-augmented-reality/>

- Create assignments and validate learning objectives.

Exercises : Exercises will be assigned in a classroom for students to earn relevant software(Unity, After Effects, Adobe Aero) skills.

Students will be able to

learn & experiment with current VR tools.

creatively solve technical and design problems with online research.

Assignment 1: Research and presentation on VR AR

Students will do internet research on VR/AR Art & application examples and introduce it to their classmates. It will allow students to understand the VR/AR concepts and possibilities.

Students will be able to

creatively solve technical and design problems with online research.

understand and be able to describe the advanced technologies of Virtual Reality (VR),

Augmented Reality (AR), Mixed Reality (MR) and Extended Reality (XR)

obtain a knowledge of key words in the emerging field of augmented and virtual reality art.

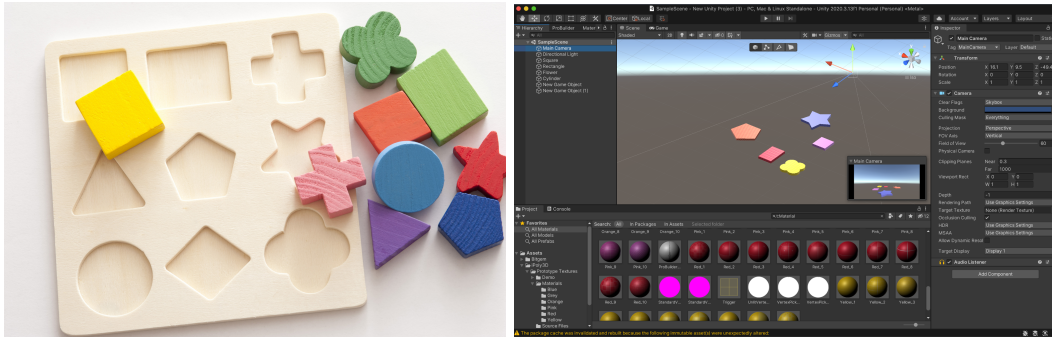
Assignment2: Create a geometric shape 3D puzzle.

Students will be able to

learn & experiment with current VR tool(Unity) on 3d modeling and how to turn it into a VR application.

creatively solve technical and design problems with online research.

apply fundamental design principles and software tools to incorporate with their creative process and produce students’.



Assignment3 : Virtual Gallery Tour

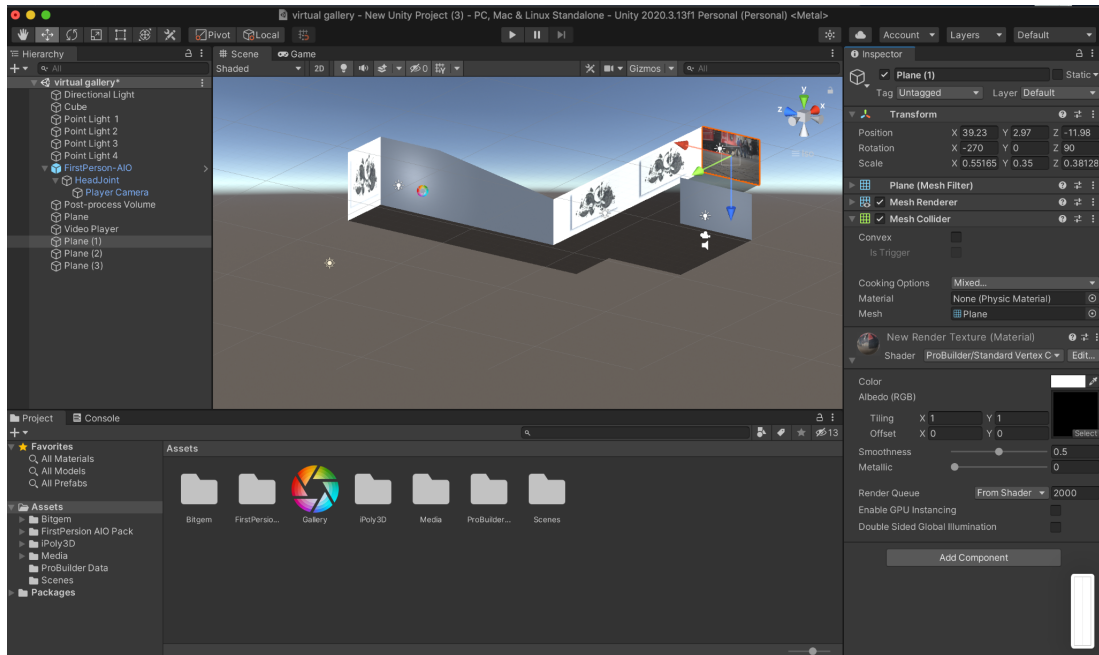
The real gallery space can be rebuilt in virtual space and artworks(2D, 3D, and time based) can be displayed, then will be transformed into a virtual tour application.

Students will be able to

learn & experiment with current VR tool(Unity) on 3d modeling of space and how to turn it into a VR tour application.

creatively solve technical and design problems with online research.

apply fundamental design principles and software tools to incorporate with their creative process and produce students’.



Assignment4 : Bonnard's interior



Students will be introduced to modernist painter Bonnard and his interior paintings. Students will research and choose one of the Bonnard interior paintings and will recreate it in virtual space. This time students will insert interaction into virtual objects and scenes in the scene(pop up text, movement, sound, etc).

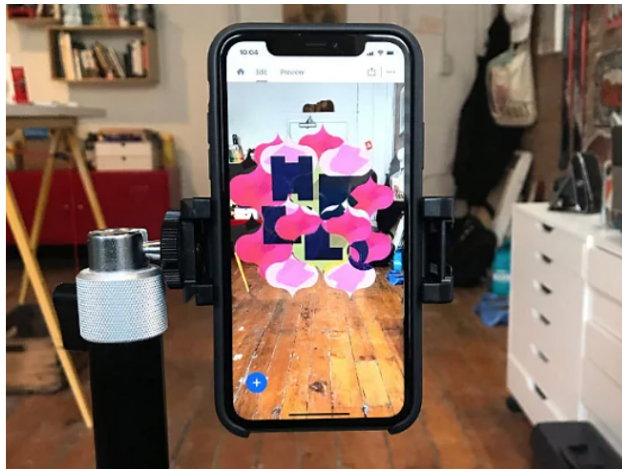
Students will be able to

learn & experiment with current VR tool(Unity) on 3d modeling of space and how to turn it into a VR tour and interaction application.

creatively solve technical and design problems with online research.

apply fundamental design principles and software tools to incorporate with their creative process and produce students'.

Assignment5 : Augmented Reality



Students will create augmented reality art in Adobe Aero. They will incorporate their own drawing, painting or animation to create Augmented reality.

Students will be able to

learn & experiment with current AR tool(Adobe Aero) on 3d modeling of space and how to turn it into an AR art.

creatively solve technical and design problems with online research.

apply fundamental design principles and software tools to incorporate with their creative process and produce students’.

Future Activities:

August-September 2021

- Make a prototype of assignments while testing out devices and software.
- Write a course syllabus proposal draft.
- Meet with the department chair and NMS coordinator to review the draft.
- Present the course outcome (prototypes) to Digital Art & Design and New Media Studies faculty.