Term Information

Effective Term	Spring 2027

General Information

Course Bulletin Listing/Subject Area	Design
Fiscal Unit/Academic Org	Design - D0230
College/Academic Group	Arts and Sciences
Level/Career	Undergraduate
Course Number/Catalog	4156
Course Title	Immersive Media Design 2
Transcript Abbreviation	ImmersMediaDsn2
Course Description	Advanced practices for extended reality (XR) design and development. Focus on skills in conceptualization, pre-production, planning, and production of working XR prototypes. Examine current trends in developing technologies and the use of real-time graphics. Assess, hack, and experiment with new methods, software and hardware for creating and delivering digital XR experiences.
Semester Credit Hours/Units	Fixed: 3

Offering Information

Length Of Course	14 Week
Flexibly Scheduled Course	Never
Does any section of this course have a distance education component?	No
Grading Basis	Letter Grade
Repeatable	No
Course Components	Laboratory
Grade Roster Component	Laboratory
Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites	Design 4106
Exclusions	
Electronically Enforced	Yes

Cross-Listings

Cross-Listings	

Subject/CIP Code

Subject/CIP Code	11.0804
Subsidy Level	Baccalaureate Course
Intended Rank	Junior

Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors

Course Details

Course goals or learning objectives/outcomes
- Explain differences in types of extended reality (XR).
- Compare XR immersive experiences.
- Discuss technical considerations and limitations.
- Research and plan XR projects.
- Create assets for XR environments.
- Create XR prototypes.
- Use industry standard XR software and tools for prototyping.

Content Topic List
- User experience; XR; prototyping; world building; user testing; optimization; augmented reality; virtual reality; asset building

Sought Concurrence Yes

Attachments

- DESIGN4156ImmersiveMediaDesign2.pdf: Syllabus

  (Syllabus. Owner: Beecher,Mary Anne)

- ACCAD_concurrence.pdf: Concurrence

  (Concurrence. Owner: Beecher,Mary Anne)

- Art_concurrence.pdf: Concurrence

  (Concurrence. Owner: Beecher,Mary Anne)

- CSE_concurrence.pdf: Concurrence

  (Concurrence. Owner: Beecher,Mary Anne)

- TFMA_concurrence.pdf: Concurrence

  (Concurrence. Owner: Beecher,Mary Anne)

- DESIGN4156_ImmersiveMediaDesign2revised.pdf: Revised syllabus

  (Syllabus. Owner: Beecher,Mary Anne)

Comments

- Religious accommodations statement has been added. Disabilities services statement has been updated. *(by Beecher,Mary Anne on 10/19/2023 11:48 AM)*
- Please see Subcommittee feedback email sent 10/10/2023. *(by Hilty,Michael on 10/10/2023 10:57 AM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Beecher,Mary Anne	08/24/2023 12:45 PM	Submitted for Approval
Approved	Munch,Fabienne	08/24/2023 05:07 PM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	09/19/2023 11:16 AM	College Approval
Revision Requested	Hilty,Michael	10/10/2023 10:57 AM	ASCCAO Approval
Submitted	Beecher,Mary Anne	10/19/2023 11:49 AM	Submitted for Approval
Approved	Munch,Fabienne	10/19/2023 01:49 PM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	10/19/2023 01:57 PM	College Approval
Pending Approval	Jenkins,Mary Ellen Bigler Hanlin,Deborah Kay Hilty,Michael Neff,Jennifer Vankeerbergen,Bernadette Chantal Steele,Rachel Lea	10/19/2023 01:57 PM	ASCCAO Approval

Design 4156: Immersive Media Design 2

Instructor	*Name*
Contact	*name.#@osu.edu, office room/building, office hours*
Semester	*SP 2027*
Location/Time	*room/building, meets 2x/week for 2 hr. 40 minutes each meeting*
Format	Studio, 3 credits
Prerequisites	Design 4106: Immersive Media Design I
Description	Advanced practices for extended reality (XR) design and development. Focus on skills in conceptualization, pre-production, planning, and production of working XR prototypes. Examine current trends in developing technologies and the use of real-time graphics. Assess, hack, and experiment with new methods, software and hardware for creating and delivering digital XR experiences.

Course Goals

Upon completion of this course, students should be able to do the following:

1. Design and produce advanced XR experiences for engagement, including integrated interaction
2. Analyze project work and practices in relationship with current practices and audience needs
3. Practice XR prototyping as an individual designer and as a member of a collaborative team
4. Integrate user testing practices into prototype evaluation
5. Create blended immersive experiences integrating both physical and virtual artifacts
6. Expand knowledge of industry standard XR software and tools for prototyping by using them in appropriate applications
7. Document project work and outcomes in online portfolio

Associated Program Learning Outcomes

1. ***Design of Experiential Media:***
   a. Identify design opportunities and respond with functioning prototypes to demonstrate innovative and engaging experiential media concepts. *Associated course goals: (1) and (5)*
   b. Demonstrate practice of the processes for the development and coordination of digitally based design strategies (for example, storyboarding, prototyping, concept mapping, and the use of scenarios and personas). *Associated course goals: (6)*
   c. Employ the use of concepts related to the visual, spatial, sound, motion, interactivity, coding, and temporal elements/features of technology in the creation and application of quality experiential media design. *Associated course goals: (1),(5) and (6)*

d. Create experiential media environments that are technically proficient, aesthetically engaging, and conceptually sophisticated. *Associated course goals: (1) and (5)*
2. ***Critical Thinking and Analysis:***
    a. Evaluate works of creative technology in terms of their formal, conceptual, ethical, historical, and social impacts. *Associated course goals: (1) and (2)*
    b. Apply fundamental critical thinking skills to the analysis and interpretation of experiential media projects with particular attention to user-centered practices. *Associated course goals: (1),(2) and (4)*
    c. Appraise the context and implication of one's own work with regard to social responsibility. *Associated course goals: (1) and (2)*
    d. Organize and represent content structures in ways that are responsive to technological, social, and cultural systems. *Associated course goals: (1) and (6)*
    e. Correlate what is useful, usable, effective, and desirable with respect to user/ audience-centered digitally and physically based experiences. *Associated course goals: (1),(2) and (5)*
3. ***Adaptability:***
    a. Integrate new media technologies with traditional media in the creation of tangible experiential media experiences. *Associated course goals: (1) and (5)*
    b. Anticipate and adapt to new technologies, concepts, and processes in experiential media creation. *Associated course goals: (5)*
    c. Demonstrate problem-solving and collaborative skills in both technical and creative arenas in ways that enhance the ability to work successfully on teams and to organize collaborations among people on teams. *Associated course goals: (1),(3), and (4)*
4. ***Professional Practice:***
    a. Employ both verbal and visual aspects of communication in the presentation of resulting creative works. *Associated course goals: (3) and (7)*
    b. Present and defend work from an informed conceptual, ethical, historical, and social point of view. *Associated course goals: (1) and (2)*
    c. Market and promote one's work through portfolio development. *Associated course goals: (7)*

Course Methodology

This course will consist of lectures and demonstrations and hands-on studio production work for individual and group work during class hours. The instructor will present examples of XR applications in the form of documentation, readings, and demonstration. Students are encouraged to share with the class examples found during research on topics of interest relative to the course. Students will complete assignments and exercises designed to aid in learning topics and evaluation of progress.

Students must demonstrate satisfactory achievement of course objectives through the fulfillment of course projects and by contributing to class discussions and critiques. Students are expected to seek and apply their own unique creative voice to all course assignments and projects.

Assignments

Course Projects and Process: Each of the course projects will be broken down into weekly graded process steps. To be successful in the course, students will need to complete process steps for each project. Placing a value on completing the process steps addresses two pedagogical issues: 1) it helps students to learn and value the production steps necessary for making immersive media; 2) it realigns the grading to value both process and outcome, by distributing the grading throughout all phases of production.

Course Textbooks and Chapter Discussion: Readings for this course consist of a text book, referred to as *Convergence* and journal articles *(See Reading List for more details)*. Students will find this book online via the OSU Library or may choose to purchase it online.
Biweekly, a reading for the course will be presented by assigned discussion leaders. The discussion leaders are responsible for engaging class participants in the article or book chapter's subject matter through creative means. This may include hands-on exercises, games, worksheets, and other creative activities. The leaders should keep in mind the overall summary of the material, and allow us to discuss the key takeaways, unanswered puzzles, and practical use in the classroom. This period should last between 20-30 minutes and will typically happen within the first hour of class.

PROJECT DESCRIPTIONS

Project One: Virtual House Museum / 5 Weeks
Historic Virtual Reality (VR) experiences provide an opportunity for participants to re-visit historic periods and re-live moments that helped transform society and the world around us. For this project, students will work in teams to develop a virtual reality house museum experience. The experience should be based around one of the six types of house museums (Young, 2016). Students will conduct and present research on their chosen event/context, design and develop assets and create prototypes using Panaform. Students will develop the final VR experience for the Oculus Quest using Unity Game Engine. Each experience should be room-scale and address one social implication that might prevent participants from experiencing their virtual museum. Implications may include hearing and mobility impairments, language, and other communicative barriers.

Project Two: Augmented Reading / 5 Weeks
Like the course textbook *Convergence,* many educators, writers, and publishers are leveraging the power of augmented reality to turn static book pages into dynamic interactive reading experiences. For this project, students will leverage the affordances of augmented reality to turn their favorite book (picture book, comic book, textbook, magazine, or any other publications of their choosing) into a dynamic reading experience using image markers to trigger verbal and visual cues. Be mindful when choosing your book to ensure it includes high contrast images that can be used as AR markers. You don't need to do the entire book, but you must have a minimum of five interactive AR markers.

Project Three: Augmenting Reality / 5 Weeks
For the final project, in teams of four, students will design a system that leverages the affordances of AR and AI to help people make informed decisions. The final deliverable will consist of a hi-fi prototype of the system's interface and a scenario video showcasing the AR experience in context. The design of the AR system must be rooted in Brett Oppegaard's Mobile Media Alignment framework. The AR experience should include at least one touchpoint for each tier of the framework.

Reading and Viewing Materials

Course Books and Journal Articles – On reserve at OSU Fine Arts Library

- Fink, Charlie. *Convergence How The World Will Be Painted With Data*. Convergence Press. 2019
- B. Oppegaard, "Designing, Arranging, and Assessing Augmented Places through Mobile Media Alignment," in Augmented Reality: Innovative Perspectives across Art, Industry, and Academia, S. Morey, and J. Tinnell, Eds. Anderson, South Carolina: Parlor Press, pp. 26-44.
- L. Young (2007) *Is There a Museum in the House? Historic Houses as a Species of Museum*, Museum Management and Curatorship, 22:1, 59-77

Grading

Evaluations for each project deliverable will consist of a numerical grade following the grading scale listed below.

Type		Description	Point Value
Project 1		**Virtual House Museum**	
	Process Step 1	Proposal and Concept Development	5
	Process Step 2	Asset Building & Prototype 1	5
	Process Step 3	Refined Prototype 1	5
	Process Step 4	Refined Prototype 2	5
		Presentation Prototype	25
Project 2		**Augmented Reading**	
	Process Step 1	Proposal and Concept Development	5
	Process Step 2	Asset Building & Prototype 1	5
	Process Step 3	Refined Prototype 1	5
	Process Step 4	Refined Prototype 2	5
		Presentation Prototype	25
Project 3		**Augmenting Reality**	
	Process Step 1	Proposal and Concept Development	5
	Process Step 2	Asset Building & Prototype 1	5
	Process Step 3	Refined Prototype 1	5
	Process Step 4	Refined Prototype 2	5
		Presentation Prototype	25
Readings/Discussion		**Leading Chapter Discussion**	15
		Total	**150**

Grading Scale

142-150 A	133-131 B+	117-114 C+	101-97 D+
141-135 A-	129-125 B	113-109 C	96-90 D
	123-118 B-	108-102 C-	below 90 E

Work evaluations fall within four equally weighted categories. Excellence in each of these categories constitutes a grade of "A": **Degree of exploration • Degree of resolution • Quality, depth, and synthesis of research • On-time completion.**

Grading Policy

To receive a passing grade in the course, students must demonstrate satisfactory achievement of course learning objectives through fulfillment of course assignments and by contributing to class discussions. Adherence to deadlines is expected. It is the individual student's responsibility to keep track of the goals and deadlines and to present the work to the class and instructor on the specified dates. All assignments must be completed and turned in to receive a passing grade in the course.

Late or missed goals will be graded as follows:

- An assignment turned in after the original due date but by the start of the next class will have the grade reduced 10%
- An assignment turned in after the original due date and after the subsequent next class start time but before the start time of the 3rd subsequent class (1 week) will have the grade reduced 30%
- Late assignments turned in more than 4 classes (2 weeks) past the original due date will receive a grade (D).

Attendance Policy

All students are required to be on time and in attendance for each class. Arrive less than 10 minutes late to be counted as present. Four (4) absences will lower a final grade by 1/3 a letter. Five (5) absences will lower a final grade by one letter. Six (6) absences will result in a failing grade ("E") for the course. The need for excused absences should be discussed with the instructor (e.g., your own illness, family illness or death, conference presentations) **Do not come to class if you are feeling ill, have a temperature or have been told to isolate or quarantine. Let me know if you are ill and you will be excused without penalty.**

Disability Services

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that

you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

If you are isolating while waiting for a COVID-19 test result, please let me know immediately. Those testing positive for COVID-19 should refer to the Safe and Healthy Buckeyes site for resources. Beyond five days of the required COVID-19 isolation period, I may rely on Student Life Disability Services to establish further reasonable accommodations. You can connect with them at slds@osu.edu; 614-292-3307; or slds.osu.edu.

Mental Health Statement

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614--292--5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614--292--5766 and 24 hour emergency help is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

Religious Statement

It is Ohio State's policy to reasonably accommodate the sincerely held religious beliefs and practices of all students. The policy permits a student to be absent for up to three days each academic semester for reasons of faith or religious or spiritual belief.

Students planning to use religious beliefs or practices accommodations for course requirements must inform the instructor in writing no later than 14 days after the course begins. The instructor is then responsible for scheduling an alternative time and date for the course requirement, which may be before or after the original time and date of the course requirement. These alternative accommodations will remain confidential. It is the student's responsibility to ensure that all course assignments are completed.

Academic Misconduct Statement

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5- 487). For additional information, see the Code of Student Conduct http://studentlife.osu.edu/csc/.

Calendar of Topics and Assignments

Week 1

Topic: Introduction, Overview, Resources. Hardware and software overview
Assignment/Project: Project 1, *Virtual House Museum* **ASSIGNED**
                    Proposal and Concept Development **DUE**
Readings: Linda Young (2007) Is There a Museum in the House? Historic Houses as a Species of Museum, Museum Management and Curatorship, 22:1, 59-77

Week 2

Topic: User Experience for XR
Assignment/Project: Project 1 Asset Building and Prototype 1 **DUE**
Readings: Reading Discussion

Week 3

Topic: Prototyping, World Building
Assignment/Project: Project 1, Refined Prototype 1 **DUE**
Readings: Oppegaard's "Designing, Arranging, and Assessing Augmented Places through Mobile Media Alignment," 26-44.

Week 4

Topic: User Testing, Unity Workshop
Assignment/Project: Project 1, Refined Prototype 2 **DUE**
Readings: Reading Discussion

Week 5

Topic: Optimization for Mobile VR
Assignment/Project: Project 1, *Virtual House Museum* **DUE**
Readings: *Convergence*, Introduction pg. 12-19 and Chapt. 1 pg. 20-32

Week 6

Topic: Designing AR Experiences
Assignment/Project: Project 2, *Augmented Reading* **ASSIGNED**
                    Proposal and Concept Development **DUE**
Readings: Reading Discussion

Week 7

Topic: Developing with Vuforia
Assignment/Project: Project 2 Asset Building and Prototype 1 **DUE**
Readings: *Convergence,* Chapt. 2 & 3, pgs. 32-47

Week 8

Topic: Augmented Reality Technologies and Approaches
Assignment/Project: Project 2, Refined Prototype 1 **DUE**
Readings: Reading Discussion

Week 9

Topic: Augmented Reality Experiences

Assignment/Project: Project 2, Refined Prototype 2 **DUE**
Readings: *Convergence,* Chapt. 4 & 5, pgs. 48-63

Week 10
    Topic: Augmented Reality as Engagement
    Assignment/Project: Project 2, *Augmented Reading* **DUE**
    Readings: Reading Discussion

Week 11
    Topic: AR in Real Life
    Assignment/Project: Project 3, *Augmenting Reality* **ASSIGNED**
                                    Proposal and Concept Development **DUE**
    Readings: *Convergence,* Chapt. 6 & 7, pgs. 64-93

Week 12
    Topic: AR and AI
    Assignment/Project: Project 3, Asset Building and Prototype 1 **DUE**
    Readings: Reading Discussion

Week 13
    Topic: AR Systems
    Assignment/Project: Project 3, Refined Prototype 1 **DUE**
    Readings: *Convergence,* Chapt. 16 & 7, pgs. 166-185

Week 14
    Topic: AR Systems
    Assignment/Project: Project 3, Refined Prototype 2 **DUE**
    Readings: Reading Discussion

Finals Week
    Assignment/Project: Project 3, Augmenting Reality **DUE**