

Digital Worlds: Exploration of Virtual Production through Unreal Engine

Spring 2026

Course Meetings: Tue 4:05 -7:05 pm period 9-11

Course Modality: Face to Face, GYM-VPS / ORC lab

Course Description

This comprehensive course introduces students to modern virtual production workflows using Unreal Engine as the primary creative platform. Students will explore the intersection of real-time rendering, cinematography, and production design, developing practical skills applicable to the film, television, gaming, and live entertainment industries. The course emphasizes hands-on learning through weekly projects, culminating in three LED Volume demonstration sessions where students experience professional virtual production infrastructure.

Course Prerequisites

This class has no prerequisites.

Learning Outcomes

- Understand the historical context and current applications of virtual production in the entertainment industries
- Navigate Unreal Engine interface and manage complex virtual production projects professionally
- Create optimized virtual environments using advanced lighting, materials, and atmospheric techniques
- Apply cinematic principles to virtual camera work and shot composition
- Develop interactive elements using Blueprint visual scripting
- Integrate motion capture data with virtual environments
- Collaborate effectively on large-scale virtual production projects
- Demonstrate professional workflows using LED Volume technology

Materials & Books

Required

- Computer capable of running Unreal Engine 5.x (specifications available on course website)
- Unreal Engine 5.x (free download from Epic Games)
- External hard drive or cloud storage for project files (minimum 100GB recommended)

- All additional course materials provided via Canvas

Textbook (Optional)

- Resources and readings will be provided via Canvas. Epic Guides to Virtual Production Vol 1 and 2.

Materials, Supply, and Equipment Fees

Material, supply, and equipment use fee information is available from the academic departments or from the schedule of courses (Florida Statutes 1009.24). The total course fee is listed on the UF Schedule of Courses. (<https://registrar.ufl.edu/soc/>)

Course Schedule

This schedule is only a guide and is subject to change.

WEEK	SUBJECT	ASSIGNMENT/QUIZ
Principles and Foundations		
W1	Course Introduction Virtual Production History & Case Studies	Research Portfolio Entry Quiz 1
W2	Unreal Engine Fundamentals Interface Navigation & Project Management	First Virtual Space Quiz 2
W3	Lighting and Atmosphere Real-time Lighting Principles	Mood Environment Challenge Quiz 3
W4	Materials and Textures	Material Library Creation Quiz 4
W5	Virtual Cinematography I	Shot Recreation Challenge Quiz 5
W6	Virtual Cinematography II LED Volume Demo #1	Cinematic Sequence LED Volume Demo #1
W7	Asset Creation Pipeline	Asset Optimization Challenge Quiz 6
W8	Mid-Term Project Week	Virtual Environment Portfolio
Advanced Techniques and Production		
W9	Blueprint Scripting	Interactive Set Piece Quiz 7
W10	LED Volume Simulation LED Volume Demo #2	Virtual Production Preset LED Volume Demo #2
W11	Motion Capture Integration	Character Integration Scene Quiz 8
W12	Advanced Rendering Techniques	Technical Showcase Reel Quiz 9

WEEK	SUBJECT	ASSIGNMENT/QUIZ
W13	Collaborative Production Planning	Production Bible Quiz 10
W14	Collaborative Production LED Volume Demo #3	Final Collaborative Project LED Volume Demo #3
W15	Final Presentations and Industry Panel	Portfolio Review & Presentation Final Group Report

Grading Criteria

Assignment / Assessment	Sub points	% of Grade
Participation and Feedback: Students are expected to actively participate in class discussions and LED Volume demonstrations. Students will provide thoughtful feedback during presentations.		10
Quizzes: Students will have quizzes hosted through Canvas. Quiz materials include lectures, assignments, readings, and other external resources.		15
Weekly Projects: Hands-on projects applying course concepts in Unreal Engine. Projects build progressively in complexity throughout the semester.		35
Mid-Term Project: Complete virtual environment demonstrating mastery of lighting, materials, optimization, and cinematic presentation.		20
Final Collaborative Project: Teams complete ambitious virtual production project integrating all course concepts. (May include LED Volume demonstration with industry professionals.) Production Bible: 5 pts Final Presentation: 10 pts Final Portfolio: 5 pts	20	20
LED Volume Demonstrations: Three hands-on sessions with professional LED Volume infrastructure throughout the semester.		0
TOTAL		100%

** Please note that the final collaborative project is 20% of your grade. Students should be comfortable working in an interdisciplinary group. Students will work in a group of 4 to 5 members and can choose their own group. Please contact the instructor by week 3 to choose your own group.*

Letter Grade	% Equivalency
A	94 – 100%
A-	90 – 93%
B+	87 – 89%
B	84 – 86%

Letter Grade	% Equivalency
B-	80 – 83%
C+	77 – 79%
C	74 – 76%
C-	70 – 73%
D+	67 – 69%
D	64 – 66%
D-	60 – 63%
E, I, NG, S-U, WF	0 – 59%

More information on grades and grading policies is here: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

Course Policies

Late Submission

All course work must be submitted no later than the due date unless prior arrangements are made with the instructor.

- Late submission: If a student submits an assignment after the due date without having made arrangements, 1 point will be deducted for each day.
- Deadline extension: To request an extension for a deadline due to foreseeable reasons (e.g., exam conflicts with other classes, religious holidays, or personal events), please contact the instructor at least 3 days before the deadline. Failure to adhere to this requirement will result in a 1-point deduction from your grade per day. Exceptions will only be considered for unexpected emergencies.

Policy for Missing Quizzes

Unless students have acceptable reasons for missing quizzes, the maximum grade the students can receive is half points of their original grade. For example, if you missed your quiz without prior arrangement, you could receive 50% of your grade when you retake the quiz (e.g., 10 points → 5 points).

Policy for Missing LED Volume Demonstrations

LED Volume demonstration sessions (Weeks 6, 10, and 14) are mandatory and essential learning experiences. Students must attend all scheduled demonstrations. Missing a demonstration without prior arrangement with the instructor will result in a 2-point deduction from your participation grade. There are no makeup sessions for missed demonstrations.

Attendance

Attendance is mandatory. The instructor will distribute the attendance sheet randomly throughout the semester. If there is no prior arrangement made with the instructor, missing one class will lead to a deduction of 1 point from the participation grade.

Acceptable Reasons for Absence or Failure

Acceptable reasons for absence from or failure to engage in class include the following: illness; Title IX-related situations; special curricular requirements (e.g., field trips, professional conferences); military obligation;

severe weather conditions that prevent class participation; religious holidays; participation in official university activities (e.g., music performances, athletic competition, debate); serious accidents or emergencies affecting the student; and court-imposed legal obligations (e.g., jury duty or subpoena). Please provide valid documentation, such as a doctor's note, an email containing information about your special curricular requirements, or any other documentation related to your absence.

For all planned absences, please inform the instructor at least 3 days prior to the class activity. For all unplanned absences because of accidents or emergency situations, students should contact their instructor as soon as conditions permit.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

Course Technology

The students will be required to have access to and use a personal computer with access to the Internet. Unreal Engine 5.x and related software will be required for projects.

The University of Florida and Digital Worlds requires that students have access to and ongoing use of a laptop/mobile computer for DIG courses in order to be able to function in the current learning environment. Digital Worlds requires each DAS major's laptop computer to meet certain minimum specs for heavy graphics use, the requirements documented at: <https://digitalworlds.ufl.edu/programs/ba-in-digital-arts-sciences/technology-requirements/>

Course Communications

Students can communicate directly with the instructor regarding the course material through the course management system (CANVAS) using "Canvas Mail".

Creation of Original Content Ethics

For original projects and all assignment deliverables, students should remember that representations of acts of violence, coarse and offensive language, sexual behavior, bodily function and ability, neurodiversity, and personal identity are likely to cause extreme audience response, regardless of the creator's intentions. In addition, the recreation of such actions and subjects for fictional purposes may unintentionally traumatize or negatively impact those who collaborate in the creation of the images. While the university encourages students to explore themes and tell stories that may include this difficult subject matter, they should be cautioned against modes or styles of representation that might be considered unnecessarily offensive or potentially triggering. Instructors, faculty, and university administrators reserve the right to not show or share any student work they feel is inappropriate for their classroom or for public exhibition, as there may be concerns about the impact of such work on the community. We encourage students to consult with their faculty when producing work that might be considered controversial, and to err on the side of being cautious when it comes to making decisions about a project's content - in other words, make the PG-13 version of your story, not the R version, and certainly not the "unrated" version. This is also to help students understand that most professional creative situations have strict guidelines and limitations on such content and how it is produced: your ability to tell stories effectively with "less" is a strong professional skill that will aid in the dissemination of your work to a broader audience.

Course Technology Support

UF Computing Help Desk

For support related to account services, technical consulting, mobile device services, software services, administrative support, application support center, and learning support services, please contact the UF Computing Help Desk available 24 hours a day, 7 days a week at 352-392-4357 or helpdesk@ufl.edu.

University Policies

Information about university-wide policies and resources can be found here: <https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/>

Disclaimer: This syllabus represents the instructor's current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.