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# ALTERNATIVE PRACTICES: DIGITAL STUDIES

## Bachelor in Architectural Studies BAS SEP-2023 APDSop- AS.5.M.A

Area Architecture and Design

Number of sessions: 30

Academic year: 23-24

Degree course: FIFTH

Number of credits: 6.0

Semester: 1º

Category: OPTIONAL

Language: English

Professor: **ANGEL FLORES SANCHEZ**

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Angel Flores is an architect who studied at Universidad Politécnica de Valencia in Spain, with a year of study abroad at Hokkaido University in Japan, where he collaborated with renowned architect Shigeru Ban. After completing his studies, Angel specialized in using real-time engines for architectural visualizations, virtual reality experiences, interactive apps, and media entertainment.

He currently works as a Principal Programmer at Tanglewood Games, a game company based in the UK. Additionally, Angel is involved in teaching roles at IE in Madrid and the AA in London.

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## PREREQUISITES

To participate in the program, students are required to have prior familiarity with 3D modeling software, specifically either Rhinoceros or 3D Studio Max. Additionally, basic knowledge of video editing software, such as Adobe Premiere, is necessary.

Moreover, students are expected to have their own laptops with Unreal Engine 5 installed. Here is a link to instructions for installing Unreal Engine 5 on your laptop: <https://www.unrealengine.com/en-US/download>.

While Mac laptops can be used, it is highly recommended to have a PC laptop due to potential limitations.

## SUBJECT DESCRIPTION

In recent years, real-time technology has brought about radical transformations in the field of architecture, revolutionizing the way we approach design, communication, and project review. In the course "Alternative Practices: Realtime," participants will acquire the skills to utilize Unreal Engine, the leading software driving this transformative change. The focus will be on incorporating Unreal Engine into architectural practice as a complementary tool that enhances traditional methods rather than replacing them. The course will concentrate on two primary applications:

1. Real-time for design: Participants will explore how real-time technology allows for the interrogation of ideas and early concepts, enabling better and faster decision-making in the initial stages of a project.
2. Real-time for communication: The course will demonstrate how proposals can be materialized through full pre-rendered visualizations or interactive experiences, aiding in the effective explanation and presentation of ideas or projects.

## **LEARNING OBJECTIVES**

Alternative Practices: Realtime aims to develop the following competencies in students:

1. Acquire knowledge of real-time technology: Students will gain a deep understanding of real-time technology and its applications, enabling them to utilize it in design processes with enhanced efficiency, cost-effectiveness, and engagement.
2. Use real-time technology for captivating design presentations: Students will learn how to leverage real-time technology to create visually appealing formats, including animations and interactive experiences. They will be able to accomplish this in a significantly shorter time compared to traditional software.
3. Familiarize with the evolving trends in real-time technology: Students will explore the rapid evolution of real-time technology, including emerging trends such as virtual reality (VR) and Digital Twins. They will stay updated with the latest developments in the field.
4. Understand limitations and opportunities: Students will develop an understanding of the limitations and opportunities presented by real-time technology. They will learn how to work around these limitations effectively, maximizing the potential of the technology.
5. Adopt best practices in project management and client communication: Students will acquire skills related to time management, effective pitching and presentation techniques, and managing client expectations. These skills will enable them to navigate real-world projects successfully.
6. Learn cinematic language and narrative techniques: Students will gain a foundational understanding of cinematic language, narrative techniques, and composition principles. They will explore how to apply these principles specifically in the context of architecture, enhancing the storytelling and visual impact of their designs.

Additionally, Per the Decree EDU/2075/2010, 29 of July

Basic Competencies:

- CB1: Students have demonstrated knowledge and an understanding of a given area of study, building upon the foundation of secondary education, supported by advanced texts, and including aspects that engage the latest advances in their area of study.
- CB2: Students know how to apply their knowledge professionally to their work or vocation

and possess the competencies that are often demonstrated through elaboration and defense of arguments and the resolution of problems within their area of study.

- CB3: Students can gather and interpret relevant facts (usually within their area of study) in order to make judgments that include reflection on relevant social, scientific, and ethical topics.
- CB4: Students can transmit information, ideas, problems, and solutions to both specialized and non-specialized audiences.
- CB5: Students have developed the necessary learning skills to continue their studies with a high degree of autonomy.

**General Competencies:**

- CG1: Knowledge of the history and theories of architecture, as well as that of the arts, technologies and human sciences related to the field.

**Specific Competencies:**

- CE48: Adequate knowledge of the general theories of form, composition, and architectural typologies.
- CE54: Adequate knowledge of aesthetics, and the history and theory of fine and applied arts.

**Crossed Competencies:**

- CT1: Ability to identify the main characteristics of cultural identities that characterize the contemporary world through the knowledge of central ideological currents.
- CT2: Ability to exercise professional behavior in accordance with constitutional principles and ethical values of the respective profession.
- CT3: Manage unforeseen situations with the capacity to respond to changes within organizations.
- CT4: Use disciplinary knowledge to analyze and evaluate current situations.
- CT5: Integrate oneself into interdisciplinary and multicultural teams to achieve common goals in a context of diversity.
- CT6: Work actively at in an international context.

## **TEACHING METHODOLOGY**

The course will revolve around a comprehensive assignment in which students will pitch and showcase an exhibition within a provided 3D model of a building. Using freely available assets, students will mock up the exhibition, create a draft animation, and present it to their classmates. Throughout the course, they will refine both the exhibition and animation using advanced techniques. The final result will be presented as an animated cinematic visualization or an interactive experience.

This assignment reflects a realistic timeframe and delivery approach in a commercial context, mirroring the expectations students may encounter in the industry. Students will not only propose the content and concept of the exhibition but also consider how it will be presented to clients. They will learn to prioritize and leverage real-time technology to achieve optimal results, focusing on both visual excellence and efficiency.

Real-time work encompasses various disciplines and techniques. The course structure will include short lectures that break down these techniques, followed by in-class exercises directly applicable to the final deliverable. Alternating with these lecture sessions will be workshop-style group work sessions, allowing students to collaborate, ask questions, and troubleshoot potential issues before group presentations.

While the majority of the work will be done in class, students are encouraged to continue practicing and completing additional assignments, especially if they feel the need to reinforce basic concepts or catch up before more complex tasks are introduced. This additional practice will contribute to their overall understanding and mastery of the course material.

Learning Activity	Weighting	Estimated time a student should dedicate to prepare for and participate in
Lectures	13.33 %	20.0 hours
Discussions	6.67 %	10.0 hours
Exercises in class, Asynchronous sessions, Field Work	13.33 %	20.0 hours
Group work	33.33 %	50.0 hours
Individual studying	33.33 %	50.0 hours
TOTAL	100.0 %	150.0 hours

## PROGRAM

### SESSION 1 (LIVE IN-PERSON)

#### A. INTRODUCTION AND COURSE ASSIGNMENT.

Why did you choose this class and what do you expect to learn  
 What is Realtime and what are the applications in Architecture  
 What makes a good visualization/interactive experience  
 What are other industries doing and what can we learn from them  
 Limitations and opportunities  
 Objectives and structure of the course

#### B. INSTALLING UNREAL

Windows vs Mac  
 Epic Games Launcher  
 Engine Versions

### SESSION 2 (LIVE IN-PERSON)

#### THE UNREAL EDITOR

Creating a new project  
 Finding your way in the editor  
 The content browser  
 Worlds and levels  
 Assets vs Actors  
 Saving our work

### SESSION 3 (LIVE IN-PERSON)

#### PROJECT COLLABORATION: USING SOURCE CONTROL

What is Source Control  
 Installing and setting up Plastic SCM  
 Syncing projects

## **Individual Assignment 1**

### **SESSION 4 (LIVE IN-PERSON)**

#### **IMPORTING MODELS**

Exporting from Rhino or 3d Max  
Datasmith vs FBX  
Layering models  
Reimporting

### **SESSION 5 (LIVE IN-PERSON)**

#### **BASIC MATERIALS**

The material editor  
PBR materials and Introduction to Strata  
Material instances

### **SESSION 6 (LIVE IN-PERSON)**

#### **USING BRIDGE THE MARKETPLACE**

Sourcing free high-quality Assets from Bridge and the Marketplace  
Adding vegetation and objects to the project  
Migrating assets from other projects

#### **Individual Assignment 2**

### **SESSION 7 (LIVE IN-PERSON)**

#### **ANIMATING CAMERAS**

Level sequencer  
Rule of thirds, hero shots, 180 rule  
Using curves  
Working with shots

### **SESSION 8 (LIVE IN-PERSON)**

#### **ANIMATING CAMERAS**

Working to a soundtrack  
Depth of field  
Exporting from the sequencer  
Render queue  
Basic video editing/encoding

#### **Individual assignment 3**

### **SESSION 9 (LIVE IN-PERSON)**

#### **GROUP WORK**

Preparing the exhibition

### **SESSION 10 (LIVE IN-PERSON)**

#### **BASIC LIGHTS AND GRADING**

Static, dynamic, movable  
Light parameters  
Time of Day and Sky  
Volumetric fog  
Post-processing Volumes

## **SESSIONS 11 - 12 (LIVE IN-PERSON)**

GROUP WORK AND TUTORING  
Working on cameras and preparing the first draft presentation

## **SESSION 13 (LIVE IN-PERSON)**

### **ROUGH CUT PRESENTATIONS AND DISCUSSION**

Students to present their first draft (rough cut) of their animations + exhibition proposal

## **SESSIONS 14 - 15 (LIVE IN-PERSON)**

GROUP WORK AND TUTORING  
Work on feedback from the first draft presentation

## **SESSION 16 (LIVE IN-PERSON)**

### **INTRO TO BLUEPRINTS: EDITOR UTILITIES**

Variables and classes  
Editor Widget Utility

**Individual assignment 4**

## **SESSIONS 17 - 18 (LIVE IN-PERSON)**

GROUP WORK AND TUTORING  
Work in preparation for advanced draft presentation

## **SESSION 19 (LIVE IN-PERSON)**

### **INTRO TO BLUEPRINTS: INTERACTION**

Level Blueprint, Actors  
Events  
Builds

**Individual assignment 5**

## **SESSIONS 20 - 21 (LIVE IN-PERSON)**

GROUP WORK AND TUTORING  
Work in preparation for advanced draft presentation

## **SESSION 22 (LIVE IN-PERSON)**

### **ADVANCED DRAFT AND DISCUSSION**

Students to present their second draft (advanced cut) of their animations

## **SESSIONS 23 - 24 (LIVE IN-PERSON)**

### **GROUP WORK AND TUTORING**

Work on feedback from the first draft presentation

## **SESSIONS 25 - 27 (LIVE IN-PERSON)**

### **GROUP WORK AND TUTORING**

Work in preparation for final presentation

## **SESSIONS 28 - 30 (LIVE IN-PERSON)**

### **FINAL PRESENTATIONS AND DISCUSSION**

## **EVALUATION CRITERIA**

<b>criteria</b>	<b>percentage</b>	<b>Learning Objectives</b>	<b>Comments</b>
Individual work	25 %		This course covers extensive content. Before progressing to advanced topics, there will be individual exercises specifically designed to help students acquire and reinforce essential skills and knowledge. These exercises serve as crucial building blocks for a strong foundation in the subject matter.
Group Work	30 %		The group project evaluation emphasizes both the process and results. It ensures students have acquired the expected skills and presents a coherent proposal. The quality of the iterative process is as important as the final outcome.

Group Presentation	20 %		The evaluation will also consider the individual contribution of each student to the group presentation. This includes assessing their level of engagement during tutoring sessions and their active participation in the collaborative process.
Class Participation	25 %		Students are encouraged to actively engage and pursue knowledge in areas relevant to their own projects or personal interests, shaping the direction of the course.

#### **RE-SIT / RE-TAKE POLICY**

#### **BEHAVIOR RULES**

Please, check the University's Code of Conduct [here](#). The Program Director may provide further indications.

#### **ATTENDANCE POLICY**

Please, check the University's Attendance Policy [here](#). The Program Director may provide further indications.

#### **ETHICAL POLICY**

Please, check the University's Ethics Code [here](#). The Program Director may provide further indications.