ACADEMIC PROGRAM

TECHNOLOGY FOR DESIGNERS

B.F.A. IN **INTERACTIVE PRODUCT DESIGN**

MODALITY: ON CAMPUS

ACADEMIC YEAR: 2023-2024

Name of the course:	Technology for Designers	
Degree :	Interactive Product Design	
Location:	Centro Universitario de Tecnología y Arte Digital	
Modulo:	Art, Science and Technology	
Area:	Foundations of development	
Year:	1º	
Teaching period:	1º	
Type:	OB	
ECTS credits:	3	
Teaching modality:	On campus	
Language:	English	
Lecturer / Email	David Pinto Fernández/david.pinto@u-tad.com	
Web page:	http://www.u-tad.com/	

SUBJECT DESCRIPTION

Area description

This area refers to the study and practice of the set of fundamental concepts that allow the foundation of the concepts of video game development from the technological, programming and mathematical aspects.

Subject description

This subject is a general introduction to the technology of interactive products, linked to "Fundamentals of Mathematics and Physics", "Introduction to Programming", "Scripting I", "Scripting II" and "Scripting III", with which it forms a stable technical corpus. It is a fundamental subject for knowing and mastering the theoretical and practical bases of the digital technologies that are used to create interactive products.

COMPETENCIES AND LEARNING OUTCOMES

Competencies

Basic and general competences

GC17 - Demonstrate the ability to analyse, synthesise and gather information from different sources.

GC18 - Manage information appropriately.

GC1 - Lifelong learning through self-study and lifelong learning.

CB1 - That students have demonstrated possession and understanding of knowledge in an area of study that builds on the foundation of general secondary education, and is usually at a level that, while relying on advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study.

CB2 - Students are able to apply their knowledge to their work or vocation in a professional manner and possess the competences usually demonstrated through the development and defence of arguments and problem solving within their field of study.

CB3 - Students have the ability to gather and interpret relevant data (usually within their field of study) in order to make judgements that include reflection on relevant social, scientific or ethical issues.

CB4 - Students are able to communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.

CB5 - That students have developed those learning skills necessary to undertake further study with a high degree of autonomy.

Specific competences

SC6 - Apply the practical fundamentals of mathematics and physics to the creation of an interactive digital product.

SC7 - Knowing the practical fundamentals of the use and programming of computers and interactive product development tools.

SC8 - Evaluate the ethical, technical and creative implications of technology in the design of interactive products.

Learning outcomes

Use elementary technical knowledge in the creative design process.

Evaluate the possibilities and restrictions imposed by technology in the construction of the videogame.

Apply the elements of kinematics and dynamics to the design.

Know the syntax and basic use of the programming languages intended for the design of video games.

Develop basic programs accompanied by simple test batteries

Manage the most common operating systems and work environments

Develop simple games in scripting languages

CONTENTS

- Processes of conceptualization of programming in videogame engines according to the market.

- Knowledge of technology in the field of video games and interactive products

SUBJECT SYLLABUS

TOPIC 1. Introduction to computing and digital technology.

      1.1   History of computing.

      1.2   Basics of digital technology.

      1.3   Introduction to computer architecture.

      1.4   Introduction to graphics cards.

TOPIC 2. Main hardware platforms for interactive systems.

      2.1   Personal computer, peripherals, storage, embedded systems, consoles, mobile devices, wearable computers...

TOPIC 3. Introduction to computer networks.

      3.1   Types of networks.

      3.2   Introduction to communication protocols (TCP/IP).

      3.3   Network networks (Internet).

TOPIC 4. Advanced Interactive Systems.

      4.1   Virtual Reality and Extended Reality.

      4.2   Brain-Machine and Brain-Brain Interfaces.

TRAINING ACTIVITIES AND TEACHING METHODOLOGIES

TRAINING ACTIVITIES

LEARNING ACTIVITIES	Total hours	Hours of presence
Theoretical classes	20,38	20,38
Seminars and workshops	1,54	1,54
Practical classes	5,77	5,77
Tutorials	2,69	2,69
Evaluation Activities	3,46	3,46
Group work and study	10,00	0,50
Autonomous and individual study and work	31,15	0,00

TOTAL	75	34

Teaching methodologies

Expository method/Master lecture

Case studies

Exercise and problem solving

TEMPORAL DEVELOPMENT

TOPIC 1. Introduction to computing and digital technology: 4 weeks

TOPIC 2. Main hardware platforms for interactive systems: 3 weeks

TOPIC 3. Introduction to computer networks: 4 weeks

TOPIC 4. Advanced Interactive Systems: 5 weeks

EVALUATION SYSTEM

ASSESSMENT SYSTEM	MINIMUM SCORE RESPECT TO THE FINAL ASSESSMENT (%)	MAXIMUM SCORE RESPECT TO THE FINAL ASSESSMENT (%)
Assessment of participation in class, exercises or projects of the course	10	30
Assessment of assignments, projects, reports, memos	30	60
Objective test	30	70

GRADING CRITERIA

ASSESSMENT SYSTEM	ORDINARY EVALUATION	EXTRAORDINARY EVALUATION

Assessment of participation in class, exercises or projects of the course	10	10
Assessment of assignments, projects, reports, memos	60	60
Objective test	30	30

General comments on the evaluations/assessments

• The marks for the work carried out during the course (inside and outside the classroom) will account for 60% of the final mark.

• The final exam will account for 30% of the final grade.

• Those students who fail some work will have the possibility of repeating it for the next exam.

• Both parts (all case studies and exam) must have a grade higher than 5 to pass the course.

• In the extraordinary call, all the work done during the course must be handed in and the exam must be taken.

• Any written work submitted by the student (case study reports, problems, exams, programme commentaries, etc.) must be well presented, correctly written (with the appropriate punctuation) and free of spelling mistakes. Reports with spelling mistakes will not be corrected, as a university student is required to be of the highest quality in his or her written expression.

• Although this is a highly theoretical subject, students are expected to participate actively and will be encouraged to ask specific questions and show their interest in particular topics on the syllabus. Students will be encouraged to carry out specific research into particular technologies and these will be presented and discussed in class, and students will present a design project that makes use of a particular technology.

• Any detection of plagiarism, copying, or use of malpractice (such as the use of AIs) in a paper or exam will result in the failure of that paper with a zero, a report to the faculty and academic coordinator, and the application of the current regulations, which can lead to very serious penalties for the student.

• Smartwatches and/or mobile phones are prohibited during exams. They must be out of sight of the student.

• The use of smartphones is prohibited in class during the lessons.

LIST OF REFERENCES (BOOKS, PUBLICATIONS, WEBSITES):

Key references

BASALLA, George, La evolución de la tecnología. Ed.: Crítica. ISBN: 978-84-9892-186-1 PATTERSON, David A., y Henessy, John L., Estructura y diseño de computadores: interficie circuitería/programación. Reverté, 2000.

STALLINGS, William, Organización y arquitectura de computadores: diseño para optimizar prestaciones. Prentice Hall, 1997.

Recommended references

DONOVAN, Tristan, Replay: The History of Video Games. Yellow Ant. ISBN: 978-0- 9565072-0-4

MIKKONEN, Tommi. Programming Mobile Devices: An Introduction for Practitioners. John Wiley &Sons, Ltd.ISBN: 978-0-478-05738-4

V.V. A.A, Electrónica Digital. Introducción a la Lógica Digital. 2ª edicion. Teoría, problemas y simulación. ISBN 978-84-7897-735-2 Editorial RA-MA. 2006.

V.V. A.A, Artificial Intelligence: A Modern Approach. (Third edition). Prentice Hall. ISBN: 0-13-604259-7

V.V. A.A. Data base systems: The Complete Book (DS:CB)

Computer Structure and Logic. Pearson Certification. Print ISBN-10: 0-7897-4793-6

REQUIRED MATERIALS, SOFTWARE AND TOOLS

Type of classroom
Projection equipment

Materials:
Laptop computer

Software:
Powerpoint

Doc

Excel