

DIGITAL MANUFACTURE: INTRODUCTION TO 3D MODELING AND PRINTING



Transversal Activitiy of Doctorate Universidad Politécnica de Cartagena Academic year 2023-2024

1. Información general de la actividad /General course information				
Nombre/ Name	Digital manufacture: introduction to 3D modeling and printing			
Nivel /Level	Doctorate			
Modaliad de impartición / Teaching mode	On line			
Lengua impartición/ Language	English			
ECTS 1	hours / ECTS 30 Total hours 30			

2.Datos del profesorado / Lecture data					
Profesor /Lecturer in charge	Francisco Cavas Martínez				
Departamento o Servicio/ Department/Service	Department of Structures, Construction and Graphical Expression				
Area de conocimiento /Knowledge area	Graphic Expression in Engineering				
Despacho /Office location	Building of Industrial Engineering, 3º floor				
Teléfono /Telephone	968 338856 email	Francisco.cavas@upct.es			
URL / WEB	https://personas.upct.es/perfil/francisco.cavas				
Horario de Atención /Office hours	Tuesday 9.00H – 12.00H am				

3. Fechas por edición / Dates		
Edition	Academic year 2023-2024	
Fecha/Date	Open all academic year. On line	
Horario/Hours	30	

4. Objetivos del curso/Course objectives

Digital manufacturing, based on modeling and 3D printing, is presented as an unstoppable reality and capable of solving many of the problems that arise in today's society. The creation of three-dimensional models and physical manufacturing focused on additive manufacturing technologies can speed up and reduce the production of objects that must be made to measure. The course basically aims to: understand the operation of the technology currently available, enter the design of the three dimensions and the syntax of the spatial language focused on the creation of models for 3D printing.

5. Contenidos teóricos / Theory programme

1. Digital manufacturing. Theoretical introduction to modeling and 3D printing.

- 2. Main tools and operating instructions of the Tinkercad Design program.
- 3. Sketches or two-dimensional elements. Types and possibilities.
- 4. Advanced tools. Importing and exporting files.

6. Contenidos prácticos / Practical programme

We will apply the theoretical concepts in the following case studies:

1. 3D modeling practice.

2. 3D printing practice

7. Sistema de evaluación/ Sistem of evaluation

The final evaluation will be based on a practical final work related to the doctoral student's research.

8. Distribución horaria de los contenidos, incluyendo las tareas de los Alumnos / Hours distribution

Activity	Location	Student work Hours	Hours
Theory programme	Virtual	Attend Virtual class	7
		Homework: study of the theory contents	7

Practice Virtua	Virtual	Attend Virtual Practice	3
		Homework: practical problems resolution	10
Tutoring	Virtual	Virtual	3
			30