

## GUÍA DOCENTE ABREVIADA DE LA ASIGNATURA

### G2008 - Programming

Grado en Ingeniería Civil

Grado en Ingeniería Civil

Programa Cornell

Curso Académico 2022-2023

1. DATOS IDENTIFICATIVOS			
Título/s	Grado en Ingeniería Civil Grado en Ingeniería Civil		Tipología v Curso
			Básica. Curso 1 Básica. Curso 1
Centro	Escuela Técnica Superior de Ingenieros de Caminos, Canales y Puertos		
Módulo / materia	FORMACIÓN BÁSICA MATEMÁTICAS BÁSICAS PARA LA INGENIERÍA		
Código y denominación	G2008 - Programming		
Créditos ECTS	6	Cuatrimestre	Cuatrimestral (2)
Web			
Idioma de impartición	Inglés	Forma de impartición	Presencial

Departamento	DPTO. MATEMATICA APLICADA Y CIENCIAS DE LA COMPUTACION		
Profesor responsable	JAVIER GONZALEZ VILLA		
E-mail	javier.gonzalezvilla@unican.es		
Número despacho	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 1. DESPACHO PROFESORES (1026)		
Otros profesores			

3.1 RESULTADOS DE APRENDIZAJE
- Know the basic fundamentals of computers and operating systems.
- Solve problems by programming computers.
- Know programming environments with application in civil engineering.
- Learn techniques and tools that allow effective data management.

#### 4. OBJETIVOS

Identify the basic components of the computer and the operating system and their impact on its use.

Use the tools, processes and techniques necessary for the development and fine-tuning of computer programs.

Use development environments with application in civil engineering.

Use techniques and tools that allow proper data management.

#### 6. ORGANIZACIÓN DOCENTE

##### CONTENIDOS

1	Computer fundamentals and basic computing: Computer structure. Operating systems and application architectures. Basic and office tools. Databases.
2	Introduction to programming and algorithms: Visual Studio programming environment. Elements of the language. Basic data types and conversion types. Expressions and sentences. Input / Output mechanisms. Basic mathematical operations. Control structures. Analysis and design of algorithms. Code debugging.
3	Data structures and code organization: Data structures. Functional decomposition. File management. Object oriented programming. Creation of desktop applications.
4	Programming with Python: Jupyter Notebooks. Markdown. Basic algorithms with data structures. Graphic representation of data.

#### 7. MÉTODOS DE LA EVALUACIÓN

Descripción	Tipología	Eval. Final	Recuper.	%
Basic programming exam with C#	Examen escrito	No	Sí	35,00
Programming exam with functions and data structures	Examen escrito	No	Sí	35,00
Basic programming exam with Python	Evaluación en laboratorio	No	No	20,00
Final project based on the topics included in the course	Trabajo	No	No	10,00
TOTAL				100,00

##### Observaciones

For students under part-time schemes, the need to attend 50% of the internships may be replaced by a practical test in the laboratory or by the delivery of a work.

Given the uncertain situation that the social distancing measures established by the health authorities are not allow the practical tests to be carried out face-to-face in the classroom for all students enrolled with the necessary guarantees, a remote evaluation modality will be adopted using telematic means.

##### Criterios de evaluación para estudiantes a tiempo parcial

For students under part-time schemes, the need to attend 50% of the practices may be replaced by a practical test in the laboratory or by the delivery of a work.

**8. BIBLIOGRAFÍA Y MATERIALES DIDÁCTICOS****BÁSICA**

Miles, R. (2019). C# Programming: Yellow Book. Rob Miles.

Matthes, E. (2019). Python Crash Course, 2nd Edition: A Hands-On, Project-Based Introduction to Programming. No Starch Press.

Esta es la Guía Docente abreviada de la asignatura. Tienes también publicada en la Web la información más detallada de la asignatura en la Guía Docente Completa.