

## Materia 1\_4: Fundamental of Computer Science

<b>Materia:</b>	Fundamentals of Computer Science	<b>ECTS:</b>	10
<b>Descriptores</b>	<ul style="list-style-type: none"><li>• Problems, algorithms, and programs; Data types and variables: definition and use; Selection control structures; Iteration control structures; Functions and modules; Structured data types: strings, lists, and dictionaries.</li><li>• Recursive algorithm design; Algorithm analysis. Efficiency. Searching and sorting; Object-oriented programming; Input and output: files; Linear data structures: stacks, queues, and lists.</li></ul>		
<b>Objetivos generales</b>	This subject has the objective of providing a solid programming foundation to design small-scale algorithmic solutions for specific engineering problems of a certain complexity. To provide procedures for Analysing the correctness and efficiency of algorithms. To instruct in the use of imperative and object-oriented programming paradigms.		
<b>Competencia específica</b>	CE[1-4]: Apply the fundamentals of programming and its application to solve engineering problems.		
<b>Resultados de aprendizaje</b>	<ul style="list-style-type: none"><li>• Design algorithms that solve elementary programming problems in engineering, properly using control structures and simple and structured data types.</li><li>• Correctly implement simple programs in Python as an imperative language.</li><li>• Design and analyse algorithms that efficiently solve engineering problems of some complexity.</li><li>• Implement and validate efficient programs following the fundamental principles of object-oriented programming in Python language.</li></ul>		
<b>Métodos de evaluación</b>	<ul style="list-style-type: none"><li>• Evaluation: Written open-ended test, written test and academic work.</li><li>• Assessment instruments: rubrics, checklists and assessment scales.</li></ul>		