

Course Title	Principles of Programming for Python				
Course Code	AEM620				
Course Type	Elective				
Level	Master (2 nd Cycle)				
Year / Semester	1 st Year / 1 st Semester				
Teacher's Name	TBA				
ECTS	10	Lectures / week	3 Hours / 14 weeks	Laboratories / week	None
Course Purpose and Objectives	The course aims to Introduce students to the key theoretical concepts of the computer science discipline from theoretical concepts and areas of study to the role of computer scientists in today's society. The course specifically focuses on Python programming.				
Learning Outcomes	<p>Upon successful completion of this course student will be able to:</p> <ul style="list-style-type: none"> • Critically assess the key theoretical concepts of the Computer Science discipline; • Argue about the role and ethical responsibility of Computer Scientists in our society; • Explain and use basic concepts in programming; • Construct and execute basic programs in Python; • Design and implement basic algorithms in Python; • Use external libraries with Python; • Use Python to download financial data from web sources; • Graphically visualise data and results of statistical calculations; 				
Prerequisites	None		Co-requisites	None	
Course Content	<p>Key theoretical concepts of the computer science discipline. General introduction to programming and students will learn and practice programming concepts along with tackling practical issues in statistical computing in Python.</p> <ul style="list-style-type: none"> • Programming in Python <ul style="list-style-type: none"> ➤ Review of the main packages and key points in Python ➤ Reading and writing efficient code in Python ➤ Basic Plotting and visualization ➤ The NumPy and Pandas Libraries • Introduction to basic statistical applications with practical examples in Python <ul style="list-style-type: none"> ➤ Descriptive statistics ➤ Simulations and random numbers ➤ Extracting financial data from the web 				

Teaching Methodology	Face-to-Face								
Bibliography	<ol style="list-style-type: none"> 1. Deitel and Deitel: Intro to Python for Computer Science and Data Science, Learning to Program With AI, Big Data and the Cloud. Latest Edition. Pearson. 2. Python for Data Analysis, W. McKinney, First Edition, O' Reilly 								
Assessment	<table border="1"> <tr> <td>Examinations</td> <td>50%</td> </tr> <tr> <td>Assignments</td> <td>40%</td> </tr> <tr> <td>Class Participation and Attendance</td> <td>10%</td> </tr> <tr> <td></td> <td>100%</td> </tr> </table>	Examinations	50%	Assignments	40%	Class Participation and Attendance	10%		100%
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Language	English								