

Course unit title:	Computer Applications for Engineers
Course unit code:	CSC134
Type of course unit: (Compulsory/optional)	Optional
Level of course unit: (First, second or third cycle)	Bachelor (1st cycle)
Year of study:	3
Semester when the unit is delivered:	5
Number of ECTS credits allocated:	6
Name of lecturer(s):	TBA
Learning outcomes of the course unit:	
<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> • Recall the basic principles of a high-level technical computing language. • Use Language Syntax: variable declaration, matrices, control structures, methods and arrays, input and output of data and interfacing with other programming languages such as C, C++ and JAVA • Create solutions to basic programming problems by devising and implementing appropriate algorithms • Operate basic debugging and testing of the developed program. 	
Mode of delivery:	Face- to- face
Prerequisites and co-requisites:	CSC131
Recommended optional program components:	None
Course Contents:	
Objective:	
<p>To introduce the elements and practicalities of computer programming through the MATLAB mathematical computing environment. The students will gain practical experience with a high-level technical computing language and interactive environment for algorithm development, data visualization, data analysis, and numerical computation. Students will use MATLAB for the construction and execution of complete programs that solve simple algorithmic / mathematical problems using basic data types, input/output conventions and selection and iteration structures.</p>	

Description:									
Introduction: Using MATLAB, Functionality, Programming Style.									
MATLAB Fundamentals: Variables and the Workspace, Arrays: Vectors and Matrices, Operators Expressions and Statements, Input and Output, Loops, Code flow control and decisions, Complex Numbers.									
MATLAB Functions: Programming design and algorithm development, load and save commands, import and export data.									
Matrices of Numbers and arrays of strings, Logical Vectors: Create Matrices and manipulate them, use MATLAB matrix operations, Strings.									
Graphics: Basic 2D and 3D plots, Labels, Line Styles, axis, Logarithmic plots, polar plots, property editor, mesh surfaces.									
Graphical User Interface: Basic Structure of a GUI									
Applications: Numerical Methods, Simulation Examples - Linear Equations, Free Fall, Electric Current, Newton's Method, Integration.									
Recommended or required reading:	Brian Hanh, Daniel T. Valentine., Essential MATLAB for Engineers and Scientists, 3 rd Edition								
Planned learning activities and teaching methods:	<table border="1"> <tr> <td>Class Instruction</td> <td>42 Hours</td> </tr> <tr> <td>Consultation</td> <td>30 Hours</td> </tr> </table>	Class Instruction	42 Hours	Consultation	30 Hours				
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Assessment methods and criteria:	<table border="1"> <tr> <td>Examinations</td> <td>35%</td> </tr> <tr> <td>Assignments</td> <td>60%</td> </tr> <tr> <td>Class Participation</td> <td>5%</td> </tr> <tr> <td></td> <td>100%</td> </tr> </table>	Examinations	35%	Assignments	60%	Class Participation	5%		100%
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Assignments	60%								
Class Participation	5%								
	100%								
Language of instruction:	English								
Work placement(s):	No								
Place of Teaching:	Theoretical part: Regular Classroom, European University Cyprus, Nicosia Practical part: Computer Laboratory, European University Cyprus, Nicosia								