

Module code: MOD007891	Version: 1 Date Amended: 28/Oct/2020
-------------------------------	--

1. Module Title
Programming with Python

2a. Module Leader
Mahdi Maktab Dar Oghaz

2b. School
School of Computing and Information Sciences at Anglia Ruskin University

2c. Faculty
Faculty of Science and Engineering

3a. Level
7

3b. Module Type
Standard (fine graded)

4a. Credits
30

4b. Study Hours
300

5. Restrictions			
Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	MSc Applied Data Science		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

This module introduces high-level computer programming using Python, one of the most powerful yet intuitive programming languages. It is designed to benefit students with no prior programming experience. This module enables you to understand the underlying concepts, principal components, design elements of computer programming and then it gradually leans towards technical aspects of programming by putting theoretical programming concepts into practice. This module employs real-world scenarios and case studies from various industrial domains and practices such as healthcare, marketing, finance, business, etc. to induct programming concepts and skills. Best programming practice will be taught and used to ensure a maximum level of productivity and quality. In addition, methods and techniques will be introduced and applied to the validation and verification of software quality and standards.

6b. Outline Content

This module covers a comprehensive range of topics, starting with the fundamentals of computer programming and Python basics, which are essential for learners with no prior knowledge of programming. Students will learn how to interact with Python's Integrated Development Environment (IDE), code and execute their programs. This module comprises the essential programming concepts including data types and objects in Python (numeric, strings, lists, dictionaries, tuples, files), working with Strings, working with lists, dictionaries and tuples, assignment and expressions in Python, statements in Python including conditional (if, elif, else) and iterative statements in Python (for, while, comprehensions). This module also covers the intermediate and upper-intermediate programming concepts such as functions in Python, arguments and parameters, working with files, libraries and packages and, Object-Oriented Programming (OOP) in Python.

6c. Key Texts/Literature

The reading list to support this module is available at: <https://readinglists.aru.ac.uk/>

6d. Specialist Learning Resources

Computer with a processor speed of 1.8GHz (or better), at least 8GB RAM and 256MB hard disk. Access to a programming environment including Anaconda and Pycharm.

7. Learning Outcomes (threshold standards)

No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	Develop understanding of computer programming, problem formulation and analysis and data modelling.
2	Knowledge and Understanding	Acquire the knowledge of the underlying structures, functionality, constraints, and syntax of high-level computer programming language.
3	Intellectual, practical, affective and transferrable skills	Demonstrate the ability to formulate, design and develop software solutions for real-world challenging scenarios and showcase their skills in deployment of software design elements into practical applications.
4	Intellectual, practical, affective and transferrable skills	Design and develop software solutions with the focus on real-world case studies from various business and industrial domains and applications.

8a. Module Occurrence to which this MDF Refers				
Year	Occurrence	Period	Location	Mode of Delivery
2025/6	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	36	1,2,3,4	3 hours lecture per week
Other teacher managed learning	24	1,2,3,4	2 hours tutorial per week
Student managed learning	240	1,2,3,4	Self-directed learning
TOTAL:	300		

9. Assessment for the above Module Occurrence					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1 2 3 4	100 (%)	Fine Grade	40 (%)
Assignment (Report/project, 2,500 words)					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Practical	1 2 3 4	0 (%)	Pass/Fail	100 (%)
Lab Logbook (1,500 words equivalent)					

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:

- (a) achieve the qualifying mark for each element of fine graded assessment as specified above
- (b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]