COURSE SPECIFICATION DOCUMENT

Academic School / Department:	Science, Innovation, and Technology
Programme:	Year 1 Programme
***FHEQ* Level:**	3
Course Title:	Fundamentals of Computing
Course Code:	COMP 3101
Total Hours:	160 (Lev 3-5) (4 US Credit)
Timetabled Hours:	45
Guided Learning Hours:	15
Independent Learning Hours:	100
Credit	16 UK CATS credits 8 ECTS credits 4 US credits

Course Description:

The Foundations of Computing course offers an introduction to the core principles and concepts of computing such as computer systems, algorithms, data representation, and basic programming. Throughout the course, students will develop both theoretical knowledge and practical skills that are critical for further study for careers in computing and related fields, exploring how computers process and store information. Additionally, learners will gain hands-on experience in designing simple algorithms and writing programs using programming languages such as Python. Key ethical and societal issues surrounding the use of computing technology will also be examined, encouraging students to think critically about topics such as data privacy, security, and the impact of artificial intelligence.

Prerequisites:

None

Aims and Objectives:

The Foundations of Computing course is designed to introduce students to the core concepts and principles of computing. The module provides a solid foundation in essential topics such as computer systems, algorithms, basic programming, data representation, and the role of computing in modern society. The content is aimed at preparing students for further study in computing or related disciplines and for practical application in a range of vocational contexts.

Programme Outcomes:

A3I, B3I

A detailed list of the programme outcomes are found in the Programme Specification.

This is located at the archive maintained by Registry and found at:
https://www.richmond.ac.uk/programme-and-course-specifications/

Learning Outcomes:

By the end of this course, successful students should be able to:

- Understand the fundamental components and architecture of computer systems.
- Demonstrate knowledge of how data is represented and processed in computing systems.
- Design simple algorithms to solve common computational problems.
- Write basic programs using a high-level programming language (e.g., Python).
- Explain the role of operating systems and software applications in computing.

Indicative Content:

- Introduction to Computing
- Computer Systems
- Data Representations
- Introduction to Algorithms
- Programming Fundamentals
- Software Applications
- Ethical and Social Issues

Assessment:

This course conforms to the University Assessment Norms approved at Academic Board and located at: https://www.richmond.ac.uk/university-policies/

Teaching Methodology:

This course will be delivered face to face through a combination of lectures and interactive sessions. In addition to classroom activities, there are guided learning elements that are tutor led and arranged through Blackboard. These activities can be asynchronous online sessions, flipped classrooms, set readings with discussion boards or set guest lectures for example. Set activities are monitored by the instructor to ascertain student engagement. Students are encouraged to prepare for class and to play an active part, to raise questions, following-up ideas and interact with a wide range of provided material.

Indicative Text(s):

Core Textbooks:

Brookshear, J.G., (2019) *Computer Science: An Overview.* 13th ed. New York: Pearson.

Das, U. Lawson, A. Mayfield, C. Norouzi, N. (2024) *Introduction to Python Programming.* Houston, TX: RICE University.

Zelle, J., (2024) *Python Programming: An Introduction to Computer Science.* 4th edn. Portland: Franklin, Beedle & Associates Inc.

See: https://openstax.org/details/books/introduction-python-programming (Accessed: November 2024).

Supplementary Reading:

O'Leary, T.J. and O'Leary, L.I., (2024) *Computing Essentials 2025: making IT work for you*. 30th edn. New York: McGraw-Hill Education.

Journals

Primiero, G. (2023). *On the Foundations of Computing: Limits and Open Issues.*

Global Philosophy, 33(16), 1–12. https://doi.org/10.1007/s10516-023-09688-w

Websites

Web developer site: www.w3schools.com (Accessed: November 2024).

See syllabus for complete reading list.

Change Log for this CSD:

Nature of Change	Date Approved & Approval Body (School or AB)	Change Actioned by Registry Services
First edition	Nov 2024	
Updated Programme	Feb 2025	