# COURSE SPECIFICATION DOCUMENT

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| **Academic School / Department:** | Science, Innovation & Technology |
| **Programme:** | Software Engineering (AI) |
| ***FHEQ* Level:** | 4 |
| **Course Title:** | Software Development and Responsible AI |
| **Course Code:** | SENG 4101 |
| **Total Hours** | 160 |
| Timetabled Hours: | 45 |
| Guided Learning Hours: | 15 |
| Independent Learning Hours: | 100 |
| **Credits:** | 16 UK CATS credits<br>8 ECTS credits<br>4 US credits |

**Course Description:**
This course introduced students to software development including the processes and basics of programming languages such as C++. This will introduce ethical consideration that need to be embedded in practice along with requirements gathering processes and writing specifications together with an introduction to use of AI for code.

**Prerequisites:**
None

**Aims and Objectives:**
By the end of this course, students will have gained an understanding of software process models and the values within each step. They will have the necessary knowledge to plan and manage a software project and will know the types of ethical questions that need to be embedded in practice. Students will be able to generate code using AI and manually using basic C++.

**Programme Outcomes:**
L4: AI, BI, CI, DI

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 and plan using software process models
- Plan and manage small software projects
- Gather requirements and write specifications to include ethical and sustainable considerations
- Create code to solve problems using AI and manually

**Indicative Content:**

- Software Process Models
- Project planning and management
- Ethics and sustainability in practice
- Requirements gathering
- Requirements specifications
- Basics of C++ and code constructions
- Using AI to write code

**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):***

Dooley, J.F. and Kazakova, V.A. (2024) *Software Development, Design, and Coding: With Patterns, Debugging, Unit Testing, and Refactoring*. 3rd edn. Apress.

Slobodan, D. (2023) *Modern C++ for Absolute Beginners: A Friendly Introduction to the C++ Programming Language and C++11 to C++23 Standard.* 2nd edn. Apress.

***Journals/Additional Texts:***

Weisfeld, M. (2018) *The Object-Oriented Thought Process.* 5th edn. New York: Addison-Wesley.

***Online resources:***

W3 Schools. Available at: https://www.w3schools.com/cpp/ (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 |
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| First Edition | Nov 2024 | |
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