COURSE SPECIFICATION DOCUMENT

Academic Department: Science, Innovation & Technology

Programme: Software Engineering (AI)

FHEQ **Level:** 5

Course Title: Intermediate Software Development with AI

Course Code: SENG 5101

Total Hours 160

Timetabled Hours: 45

Guided Learning Hours: 15

Independent Learning Hours: 100

Credits: 16 UK CATS credits
8 ECTS credits
4 US credits

Course Description:
This course builds on the course Software Development and Responsible AI. It covers software architectures. The course will include understanding design problems and planning and structuring for an object-oriented programming solution. There will be an opportunity to implement software process models including using std libraries and how to test and debug code as part of this. the course will also provide information on recognising and managing intellectual property.

Prerequisites:
40 credits AND SENG 4101 Software Development and Responsible AI

Aims and Objectives:
By the end of this course, students will have implemented a software process model. They will use their knowledge to designing software architecture systems, plan and structure for object-oriented programming, code using std libraries, test and debug code. Students will be able to make responsible decisions on intellectual property.

Programme Outcomes:

L5: AI, AII, BI, BII, CI, CII, DI, DII,

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 design problems
- Implement software process models
- Plan and structure Object oriented Programming to solve design problems
- Understand and use std libraries to code
- Employ AI to generate and analyse code
- Test and debug code
- Recognise and manage intellectual property

Indicative Content:
- Design problems
- Object Oriented Programming planning and structure
- Accessing and using std libraries
- Basic facilities and subtraction mechanisms
- Testing
- Debugging
- Intellectual Property

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

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

Websites
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
First Edition	Nov 2024	