

Module Details	
Module Title	Software Systems Design and Testing
Module Code	COS6028-B
Academic Year	2024/5
Credits	20
School	School of Computer Science, AI and Electronics
FHEQ Level	FHEQ Level 6

Contact Hours	
Type	Hours
Lectures	12
Laboratories	24
Directed Study	164

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 2

Module Aims
<p>Design and testing are fundamental phases of every software development project. For the successful delivery of a project, it is critical to apply systematically sound design principles and techniques, as well as effective testing approaches at various stages of development. This facilitates future design changes as the software evolves and minimises software failures.</p> <p>This module aims to develop an ability to use appropriate design, implementation and testing methods in the context of software engineering. Students will be exposed to a variety of software engineering issues through the development of a software system. The module will examine the role of design principles and best practice in software engineering and provide a detailed study of widely-used software testing methods and their application to validate requirements of software systems.</p>

Outline Syllabus
<p>Principles of software engineering; systematic approaches to developing software design; software design architectures; contemporary challenges in software design; design for reuse, modularity and integration; software testing approaches; large scale integration testing; unit testing using basic methods such as code coverage, condition coverage; testing methods: regression, input data partitioning, mutation; system testing.</p>

Learning Outcomes	
Outcome Number	Description
01	Demonstrate a critical awareness and ability to use practical techniques for software development with regard to design, implementation and testing.
02	Demonstrate an understanding of practical challenges associated with the development of a significant software system.
03	Demonstrate an ability to use testing methods appropriate in finding errors in different stages of the software development life cycle.

Learning, Teaching and Assessment Strategy
<p>The delivery of the module will consist of directed reading, lectures to expand upon key points in the reading and lab sessions where practical problems are discussed and solved.</p> <p>The coursework will assess the students' understanding of the theoretical concepts, as well as technical and practical skills required by the module, evaluating their ability to apply these technical skills to the design, development and testing of a software system.</p>

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Coursework - Written	Intermediate software deliverable and report (2000 words)	40%
Summative	Coursework - Written	Final software deliverable and report (2000 words)	60%
Formative		During the lab sessions students are given feedback on the exercises that they completed, in order for them to identify areas for improvement.	N/A

Reading List
To access the reading list for this module, please visit <a href="https://bradford.rl.talis.com/index.html">https://bradford.rl.talis.com/index.html</a>

*Please note:*

*This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.*