Module Details

Module Title	Software Design and Development
Module Code	COS4017-B
Academic Year	2022/3
Credits	20
School	Department of Computer Science
FHEQ Level	FHEQ Level 4

Contact Hours

Type	Hours
Lectures	12
Online Tutorials (Synchronous)	4
Laboratories	36
Directed Study	148

Availability

Occurrence	Location / Period
BDA	University of Bradford / Semester 2

Module Aims

To introduce object orientation (OO) in the context of software analysis and design and relate them to OO programming concepts. To further develop theoretical understanding and practical skills for developing software. To introduce basic software engineering principles of software project management.

Outline Syllabus

1. Object oriented analysis and design
2. Software development methodologies
3. Facets of software design
4. Software testing
5. Software architecture

Learning Outcomes

Outcome Number	Description
O1	a. discuss and apply fundamental theoretical concepts in software project development; b. use fundamental principles of software design and express aspects of design in an appropriate modelling language;
O2	a. apply advanced object oriented analysis, design and programming concepts to construct reliable software; b. interpret and utilise software designs expressed in an appropriate modelling language.
O3	Apply skills of research, problem-solving, project management and communication to express solutions of software design and development to case studies.

Learning, Teaching and Assessment Strategy

Learning outcomes are developed through lecture, tutorial and laboratory sessions. These sessions will introduce specific design notations related to OO concepts, such as UML, as well as basic software engineering methods and techniques utilised in complex software project development. There will be emphasis on intermediate to advanced level of Java programming language and making link between OO concepts and programming in Java.

The assessment of Learning Outcomes 1(b), 2(b) will take the form of coursework requiring an understanding of key programming concepts and basic OO notations utilised in software analysis and design, methods, tools and techniques, commercial and economic context, recognising risks: on data protection legislation and information security. 1(a), 2(a), 2(b), 3 will be assessed through a software project, including programming, testing and documentation.

Directed study includes reading activities, individual exercises and revision of concepts taught in the teaching sessions, and individual reading and application of documentation and programming examples from technical reports and book sections. Student re-taking the assessment during resit period will deliver it as individual project.

Mode of Assessment

Type	Method	Description	Weighting
Summative	Coursework	Group project including coding, testing and documentation; Supp is Individual Project	50%
Summative	Coursework	ndividual project testing theoretical understanding of core computer science concepts and ability to solve problems	50%

Reading List

To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

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.