UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title:	Concurrent and Distributed Systems
Module Code:	COS6012-B
Academic Year:	2019-20
Credit Rating:	20
School:	Department of Computer Science
Subject Area:	Computer Science
FHEQ Level:	FHEQ Level 6
Pre-requisites:	
Co-requisites:	

Contact Hours	
Type	**Hours**
Lectures	24
Laboratory	12
Directed Study	164

Availability	
Occurrence	**Location / Period**
BDA	University of Bradford / Semester 2 (Feb - May)

Module Aims

To introduce the nature and applications of concurrent programming with typical problems requiring synchronisation of, and communication between, concurrent processes; to introduce a variety of language primitives for inter-process communication and synchronisation, and to illustrate their applications.

Outline Syllabus

1) Introduction to modelling concurrent programs; modelling and implementing processes; implementing processes in a multi-threaded program. 2) Modelling mutual exclusion; language primitives for implementing mutual exclusion. 3) Modelling condition synchronisation; langauge primitives for implementing mutual exclusion. 4) Modelling deadlock, safety and liveness;

analysing programs to demonstrate safety and liveness. 5) Synchronous and asynchronous message passing. 6) Introduction to distributed systems; problems in distributed systems such as distributed mutual exclusion, distributed clock synchronisation, and distributed shared memory. 7) Architectures for concurrent and distributed systems.

Learning Outcomes	
1	demonstrate a sound knowledge and understanding of the construction of concurrent and distributed systems.
2	model, construct and analyse concurrent and distributed systems.
3	demonstrate an analytical approach to the construction of software.

Learning, Teaching and Assessment Strategy

The delivery of the module will consist of lectures and lab classes supplemented by directed study. The coursework will involve modelling a concurrent system. The examination will assess theoretical and analytical aspects. Supplementary assessment is by examination only.

Mode of Assessment

Type	Method	Description	Length	Weighting
Referral	Examination - closed book	Supplementary: closed book examination	3 hours	100%
Summative	Examination - closed book	Examination - closed book	2 hours	70%
Summative	Coursework	Controlled Assessment. Modelling an real concurrent system in a controlled environment	1 hour	30%

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.