

Concurrent and Distributed Systems

Module Code:	COS6012-B
Academic Year:	2018-19
Credit Rating:	20
School:	Department of Computer Science
Subject Area:	Computer Science
FHEQ Level:	FHEQ Level 6
Module Leader:	Irfan Awan

Additional Tutors:

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Lectures	24
Laboratory	12
Directed Study	161
Examinations DO NOT USE	3

Availability Periods

Occurrence	Location/Period
NLA	Namal College / Semester 2 (Feb - May)
BDA	University of Bradford / Semester 2 (Feb - May)
BDA	University of Bradford / Semester 3 (June - Oct)

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; language 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.

Module Learning Outcomes

On successful completion of this module, students will be able to...

- 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	Final Assess'
Summative	Examination - closed book	Examination - closed book	2 hours	70%	Yes
Referral	Examination - closed book	Supplementary: closed book examination	3 hours	100%	No
Summative	Coursework	Controlled Assessment. Modelling an real concurrent system in a controlled environment	1 hour	30%	No

Legacy Code (if applicable)

CM-0518D

Reading List

To view Reading List, please go to [rebus:list](#).