

Software Verification

Module Code:	COS6020-B
Academic Year:	2018-19
Credit Rating:	20
School:	Department of Computer Science
Subject Area:	Computer Science
FHEQ Level:	FHEQ Level 6
Module Leader:	Dr Savas Konur

Additional Tutors:
Professor Marian Gheorghe

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Lectures	24
Laboratory	24
Directed Study	152
Examinations DO NOT USE	3

Availability Periods

Occurrence	Location/Period
NLA	Namal College / Semester 1 (Sep - Jan)
BDA	University of Bradford / Semester 1 (Sep - Jan)

Module Aims

To examine the role of formal methods in software engineering and provide a detailed study of a widely-used formal verification methods and their application to specify and verify requirements of software systems and programmes.

Outline Syllabus

- Basic principles of classical logic.
- Formal specification languages and their use in system requirements.
- Model checking for automatic verification of reactive systems.
- Programme verification for analysing and checking the correctness of programmes.

Module Learning Outcomes

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

- 1 Demonstrate how the mathematical foundations of computer science underpin the formal analysis of computer systems.
- 2 Explain the relevance of formal methods for software development, and develop technical skills required to use the concepts of formal methods in software engineering.
- 3 Specify and verify requirements of software systems; analyse the correctness of reactive systems and programmes.
- 4 Compare and evaluate different formal verification techniques according to their applicability to different systems.

Learning, Teaching and Assessment Strategy

The delivery of the module will consist of directed reading, lectures to expand upon key points in the reading, lab sessions and tutorials where practical problems are introduced and solved. The examination assesses students' understanding of the theoretical concepts, technical and practical skills required by the module, while the coursework assesses their ability to apply these technical skills to model and analyse software systems using some tools.

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Summative	Examination - closed book	Exam	2 hours	50%	Yes
Referral	Examination - closed book	Supplementary exam.	3 hours	100%	No
Summative	Coursework	Coursework - analysing a case study.		50%	No

Legacy Code (if applicable)

CM-0365D

Reading List

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