2024 / 25

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Module Descriptor

Software Validation and Evolution (Computing and Mathematics)

Software Validation and Evolution (A14181)

Short Title: SW Validation and Evolution
Department: Computing and Mathematics
Credits: 5 **Level:** Advanced

Description of Module / Aims

This module aims to provide students with fundamental knowledge and skills related to software validation and verification.

Programmes

		stage/semester/status
COMP-0082	Higher Diploma in Science in Business Systems Analysis (WD_KBUSY_G)	1 / 2 / M

Indicative Content

- Validation planning
- Testing fundamentals, including test plan creation and test cases
- Black-box and white-box testing techniques, reviews, and static analysis techniques
- Unit, integration, validation, performance, regression, and system testing
- Object-oriented testing
- Inspections
- Software mainteneance, reuse and versioning

Learning Outcomes

On successful completion of this module, a student will be able to:

1. Compare and explain testing approaches based on their types, methods and levels.
2. Compare and explain the validation and verification processes.
3. Produce a test plan for a small- or medium-size project.
4. Design and perform manual and automated tests using relevant tools.

Learning and Teaching Methods

- This module will be presented by a combination of lectures and computer-based practicals.
- The lectures will be used to introduce new topics and their related concepts.
- The practicals will be used so that students put their knowledge into parctice to either design or implement test plans and test cases.

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	24	
Lab	24	
Independent Learning	87	

Assessment Methods

	Weighting	Outcomes Assessed
Continuous Assessment	100%	1,2,3,4

Assessment Criteria

<40%: Unable to interpret and describe key concepts of the specific knowledge domain(s).

40%–49%: Be able to interpret and describe key concepts of the specific knowledge domain(s).

50%–59%: Ability to discuss key concepts of the specific knowledge domain and ability to discover and integrate related knowledge in other knowledge domains.

60%–69%: Be able to solve problems within the specific knowledge domain(s) by experimenting with the appropriate skills and tools.

70%–100%: All the above to an excellent level. Be able to analyse and design solutions to a high standard for a range of both complex and unforeseen problems through the use and modification of appropriate skills and tools.

Supplementary Material(s)

- Rakitin, S. *Software Verification and Validation for Practitioners and Managers, 2 Edition.* 2nd. MA, USA: Artech House Print on Demand, 2001.
- Saleh, H. *JavaScript Unit testing.* Mumbai, India: Packt Publishing, 2013.

Requested Resources

- Room Type: Computer Lab
- Equipment: MAC PCs