

Pre-Requisite Modules code(s)	Co-Requisite Modules code(s)	ECTS Credits	Module Code	Module Title
		5	CMPU2021	System Infrastructure and Architecture I

8.2.5. System Infrastructure and Architecture I

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Module Description:

One of the roles of the IT professional is to design and build systems and integrate them into an organization. This module develops the skills to elicit, document and validate requirements through a requirements engineering process. This module also aids students in the choice of a suitable systems development methodology for a specific system. This module is a precursor to *Systems Infrastructure & Architecture 2*.

Module aim

The aim of this module is to:

- Identify different types of requirements through various requirements modelling techniques and convert these requirements into use-cases.
- Gain a detailed knowledge of use-case modelling and how it affects the rest of a project life cycle.
- Investigate numerous systems development methodologies.

Learning Outcomes:

On completion of this module, the learner will be able to:

- Compare and contrast the various requirements modelling techniques for non-functional and functional requirements.
- Explain and give examples of use cases.
- Select appropriate user tasks for the application under consideration.
- Create the requirements section of an RFP.
- Develop system models as part of requirements engineering.
- Compare and contrast a number of software development methodologies.

Learning and Teaching Methods:

This module is taught through lectures and exercises in class combined with practical application through use of web and CASE tools.

Module Content:

Requirements: Stakeholders of a system and their needs; requirements modelling techniques; non-functional and functional requirements; roles played by external users of a system; requirements gathering in a system development lifecycle; system models; appropriate deliverables for this phase of the lifecycle; requirements section of an RFP.

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Use-Case Model: Use cases; types of event flows in a use case and under which conditions they occur; how use cases drive testing throughout the system lifecycle.

Methodologies: Overview and appraisal of methodologies such as Rational Unified Process, Information Engineering, Jackson Systems Development, Soft Systems Methodology, Agile Development.

Module Assessment:

Written Examination – 70%

Continuous Assessment – 30%

Essential Reading:

Sommerville, I. (2011), Software Engineering 9, Ninth Ed., Pearson.

Supplemental Reading:

Avison & Fitzgerald (2006), Information Systems Development, Fourth Ed. McGraw-Hill

Maciaszek, L.A. & Liong, B. L. (2005). Practical Software Engineering: A Case Study Approach. Pearson.

Skidmore, S. & Eva, M. (2004), Introducing Systems Development, Palgrave and MacMillan.

Pressman R.S. (2010), Software Engineering: A Practitioner's Approach, Seventh Ed., McGraw-Hill.

Further Details:

contact hours. To be delivered in one semester. 3 contact hours per week

Date of Academic Council approval