

Pre-Requisite Modules code(s)	Co-Requisite Modules code(s)	ECTS Credits	Module Code	Module Title
CMPU2021		5	CMPU3044	Systems Infrastructure and Architecture 2

8.3.4. Systems Infrastructure and Architecture 2

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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 takes knowledge gathered in *System Infrastructure & Architecture 1* and uses it to source, evaluate and integrate components into a single system. It also covers the fundamentals of project management.

Module aim

The aim of this module is to:

- Identify the issues in the acquisition of software and hardware, and the sourcing of IT services.
- Address project management issues.
- Introduce the area of testing in an IT system.

Learning Outcomes:

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

- Differentiate between build and buy in software and hardware acquisition.
- Differentiate between in-sourcing and out-sourcing for the acquisition of IT services, including support.
- Explain the importance of testing, evaluation and benchmarking in any IT sourcing decision.
- Explain the elements in a well-structured contract in an IT sourcing decision.
- Define integration in terms of components and interfaces providing examples of middleware platforms.
- Discuss the planning, budgeting, and scheduling issues in project management.
- Give examples of current testing standards and techniques.

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:

Acquisition and Sourcing: advantages and drawbacks of building and buying; in-sourcing and out-sourcing for the acquisition of IT services; testing, evaluation and benchmarking in any IT sourcing; primary components in an RFP; advantages and drawbacks of using RFPs in an IT sourcing decision;

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importance of a well-structured contract in any IT sourcing decision; given an RFP, recommend and justify one or more products that satisfy the criteria of the RFP.

Integration and Deployment: integration in terms of components and interfaces; examples of middleware platforms.

Project Management: key components of a project plan; importance of a cost/benefit analysis for a project plan; roles and responsibilities for key project personnel and stakeholders; project planning and tracking tools.

Testing and Quality Assurance: examples of current testing standards and techniques; evaluation and execution of acceptance tests; tools and techniques to create a testing environment.

Module Assessment

Written Examination – 70%

Continuous Assessment – 30%

Essential Reading:

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

M. A. Parthasarathy (2007), Practical Software Estimation: Function Point Methods for Insourced and Outsourced Projects, O Reilly.

Supplemental Reading:

Tardugno, A.F, DiPasquale, Matthews, R.E (2000) IT Services: Costs, Metrics, Benchmarking, and Marketing, Prentice Hall.

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. Two hours lecture, one hour lab per week. To be delivered in one semester.

Date of Academic Council approval