

Module: Software Analysis & Design 371

Module name:	Software Analysis & Design 371
Code:	SAD371
NQF level:	7
Type:	Core – Bachelor of Information Systems
Contact Time:	64 hours
Structured time:	10 hours
Self-directed time:	66 hours
Notional hours:	140 hours
Credits:	14
Prerequisites:	PMM281

Purpose

This module, Software analysis and design deals with systems development processes, methods, techniques and tools focusing on the elicitation and initial modelling of information systems requirements that enable identification of information problems and the subsequent analysis and modelling of an efficient solution to those problems. It critically examines the issues and professional responsibilities that need to be considered at different phases in the development of information systems for an organization; including the impact of the systems on intended users and maintenance of quality.

Outcomes

Upon successful completion of this module, the student will be able to:

- Demonstrate integrated knowledge of the types of business needs that can be addressed using information technology-based solutions and the important differences types of testing.
- Understand a range of methods of enquiry in the discipline and their suitability to be applied in specific investigation to resolve problems related to the context of methodologies, writing of clear, concise business requirements documents and converting them into technical specifications.
- Demonstrate an understanding of knowledge as contested and the ability to implement IT service management processes and creating a cycle of continuous improvement within the area of systems analysis and design.
- Identify, analyse, evaluate, critically reflect on and address complex problems, applying evidence-based solutions and theory-driven arguments in designing of high-level logical system characteristics.
- Identifies opportunities for improvements in the efficiency, effectiveness of the processes and optimisation of the costs associated with service provision.
- Select and apply articulate ethical, cultural, and legal issues and their feasibilities among alternative solutions.

- Develop and communicate complex information, evidence-based solutions and theory-driven arguments reliably and coherently using appropriate academic conventions, formats and technologies for a given context.

Assessment

- Continuous evaluation of theoretical work through two written assignments, one formative, and one summative test.
- Continuous evaluation of project work, whereby the student must analyse, recommend, redesign and report on the outcome for a given scenario.
- Final assessment through a written examination.

Teaching and Learning

Learning materials

- Software Analysis & Design (2017) – IT without frontiers.
- Presentation notes, lecturer hand-outs, samples and lab exercises.

Additional Reference Material:

- 📖 Dennis, A., Wixom, B. H., and Tegarden, D. (2005): *Systems Analysis and Design with UML Version 2.0*, 2nd Edition. John Wiley & Sons [ISBN 0-471-34806-6]
- 📖 Uml.org. (2018). Welcome To UML Web Site! [online] Available at: <http://uml.org/> [Accessed 13 Jun. 2018].
- 📖 Bernard, P., (2012): *Foundations of ITIL 2011 Edition*, First Edition. Van Haren Publishing [ISBN 978-90-8753-674-9].
- 📖 Harvey, M., (2010): *Essential Business Process Modelling*, O'Reilly Media, Inc [ISBN 978-0-596-00843-7]

Learning activities

The module is taught through presentation of formal lectures on theoretical and practical concepts, solving real-world problems through exercises, demonstrations of feasible solution in a specific context and discussions of high-level design specifications. It is dialogue-oriented with a mandatory project, formative and summative assessments and written examination which must be completed during the module.

Notional learning hours

Activity	Units	Contact Time	Structured Time	Self-Directed Time
Lecture		52.0		23.0
Formative feedback		8		
Project	1	4		9.0
Assignment	1			3.0
Test	4		8.0	16.0
Exam	1		2.0	15.0

64.0**10.0****66.0**

Syllabus

- Introduction to systems analysis and design.
- Analysis and specification of system requirements.
- Business process modeling.
- Fundamentals of Information Systems project management.
- System design and deployment concepts.
- Fundamentals of software testing.
- IT service management terminology, processes and best practice.