Title:	IT Solutions Architecture APPROVED
Long Title:	IT Solutions Architecture

Module Code:	COMP8056	**Duration:**	1 Semester

Credits:	5
NFQ Level:	Advanced
Field of Study:	Computer Science
Valid From:	Semester 1 - 2021/22 (September 2021)
Module Delivered in	1 programme(s)
Next Review Date:	May 2022
Module Coordinator:	Sean McSweeney
Module Author:	PAT MC CARTHY
Module Description:	This module provides the opportunity for the student to study, analyse and evaluate a variety of IT solutions architectures. Including frameworks and private and public architecture designs, component, layers, technologies and services. On completion of this module, the student will be able to assess, design and implement the optimal solution, for proposed case studies from a theoretical and applied perspective.

Learning Outcomes	
On successful completion of this module the learner will be able to:	
LO1	Describe the core components and objectives behind information architecture design.
LO2	Critically appraise the IASA information architecture model including its design structure, layers and functionality.
LO3	Assess how various IT solutions are defined, implemented, managed and operated.
LO4	Evaluate various enterprise architecture options (Service Oriented Architecture and Cloud Architecture) can be used in developing IT solutions.
LO5	Analyse specific case study requirements so designing and implementing the most appropriate technological architectural solution to meet these requirements.

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named MTU module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).*
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module. You may not earn additional credit for the same learning and therefore you may not enrol in this module if you have successfully completed any modules in the incompatible list.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed. You may not enrol on this module if you have not acquired the learning specified in this section.*
No requirements listed

Module Content & Assessment

Indicative Content
Solution Architecture Fundamentals Granularity of domains, goals, drivers, inputs, documentation techniques, design diagramming notation, architecture views and viewpoints and various architecture description languages
Solutions Information Architecture Model IASA 5 Pillar architecture model, Data, Business, Software, Application and Infrastructure layers, design structures, security, networking, and service management.
Structured Design and Implementation of Solution Architectures Evaluation of objectives, design and implementation of technology solutions to match requirements, security, compliancy, scalability and redundancy addressed to recommended architecture standards, a focus on consistency in solutions deployment, implementation, and operations monitoring.
Solution Architecture Frameworks Review of key architectural options and tools such as Enterprise Architecture Frameworks (Zachman and The Open Group's (TOGAF)), Service Oriented Architecture (SOA), Cloud Architecture (NIST) , tools for Enterprise Architecture: ARIS, Archimate, Enterprise Architecture Toolkit (EATK).
Solution Architect(s) definition; scope; roles and responsibilities of the architect; role comparison of enterprise, cloud, software architects, range of skills; challenges, responsibilities.
Solutions Architecture Case Studies and Technologies Enterprise Architecture (EA), Service Oriented Architecture (SOA) and Cloud Architecture (CA) designs and implementations, use of technological services and applications such as AWS, MS Azure and VMware vCloud for various case studies.

Assessment Breakdown	%
Course Work	100.00%

Course Work

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Multiple Choice Questions	Students will undertake an in class theoretical exam based on the core concepts of IT Enterprise and Solutions Architecture.	1,2,3	25.0	Week 8
Reflective Journal	Students will submit a Lab Report reflecting the lab tasks that they will complete over the duration of the module. These labs will involve designing and implementing IT Solutions Architectures using architectural platforms such as AWS, MS Azure and vCloud.	3,4,5	25.0	Week 10
Project	In this project the student may be expected to design an IT Solution Architecture for a given case study.	2,3,4,5	50.0	Sem End

No End of Module Formal Examination

Reassessment Requirement
Coursework Only *This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination.*

The institute reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time				
Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Lecture delivering theory underpinning learning outcomes.	2.0	Every Week	2.00
Lab	Lab to support learning outcomes.	2.0	Every Week	2.00
Independent & Directed Learning (Non-contact)	Independent Study.	4.0	Every Week	4.00
			Total Hours	8.00
			Total Weekly Learner Workload	8.00
			Total Weekly Contact Hours	4.00

Workload: Part Time				
Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Lecture delivering theory underpinning learning outcomes.	2.0	Every Week	2.00
Lab	Lab To support Learning Outcomes.	2.0	Every Week	2.00
Independent & Directed Learning (Non-contact)	Independent study.	4.0	Every Week	4.00
			Total Hours	8.00
			Total Weekly Learner Workload	8.00
			Total Weekly Contact Hours	4.00

Module Resources

Recommended Book Resources

- **Lankhorst, Marc et al 2017, *Enterprise Architecture at Work: Modelling, Communication and Analysis*, 4th Ed., Springer U.S.A [ISBN: 3642013090]**
- **Nick Rozanski & Eoin Woods 2014, *Software Systems Architecture - Working with Stakeholders Using Viewpoints and Perspectives*, 2nd Ed., Addison - Wesley Professional [ISBN: 9780321112293]**
- **Ben Piper & David Clinton 2019, *AWS Certified Solutions Architect Study Guide: Associate SAA-C01 Exam*, 2nd Ed., Sybex U.S.A [ISBN: 111950421X]**
- **John Yani Arrasjid 2016, *IT Architect: Foundation in The Art of Infrastructure Design A Practical Guide For IT Architects*, 1st Ed., IT Architect Resource LLC [ISBN: 9780996647717]**

Supplementary Book Resources

- **Steven Spewak & Stven Hill 1993, *Enterprise Architecture Planning*, 2nd Ed., Wiley - QED Publication [ISBN: 9780471599852]**
- **Jeanne Ross, Peter Weill & David Robertson 2006, *Enterprise Architecture as a Strategy - Creating Foundation For Business Education*, 2nd Ed., Harvard Business Review Press [ISBN: 9781591398394]**

Recommended Article/Paper Resources

- **British Computer Society 2010, *Reference Model for ISEB Certificates in Enterprise and Solution Architecture***

Other Resources

- **Website: The Open Group*Journal of Entreprise Architecture* https://blog.opengroup.org/tag/journal-o f-enterprise-architecture/**

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_KITMN_8	Bachelor of Science (Honours) in IT Management	8	Mandatory