Title:	Agile Processes APPROVED
Long Title:	Agile Processes

Module Code:	COMP7039	**Duration:**	1 Semester

Credits:	5
NFQ Level:	Intermediate
Field of Study:	Computer Science
Valid From:	Semester 1 - 2017/18 (September 2017)
Module Delivered in	**5 programme(s)**
Module Coordinator:	Sean McSweeney
Module Author:	Larkin Cunningham
Module Description:	The streamlining of software development and deployment using agile processes can help organizations to plan, design, develop and deliver software solutions more effectively. This module takes a holistic approach to help students understand their roles and responsibilities in the software development and deployment pipeline, as well as to establish and manage the constituent processes.

Learning Outcomes	
On successful completion of this module the learner will be able to:	
LO1	Manage source code throughout an application's lifecycle.
LO2	Design a software development and deployment pipeline.
LO3	Evaluate and employ tools to automate the building, testing and deployment of software components.
LO4	Identify the roles and responsibilities of the people involved in the agile software development and deployment pipeline.

Pre-requisite learning
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
Co-requisites
No Co Requisites listed

Module Content & Assessment

Indicative Content
Source Code Management Establishing a source code repository and baseline, pulling, stashing, merging of code, branching, versioning and labeling.
DevOps DevOps (Development-Operations) and the roles and responsibilities of the people involved. Evaluate the tools available in the DevOps tool chain.
Agile Processes How software development and deployment fits into an overall agile process that includes agile project management tools and techniques, automation, continuous integration, continuous delivery and deployment, test-driven development.
Automated Deployment Automation of deployment to various environments, including the cloud, using configuration management tools and technologies, such as containers, virtual machines and platform-as-a-service.
Automation of Build and Test Integrating source code repositories with continuous integration tools to automate build and test, providing status updates and metrics to assist in team-based software development.

Assessment Breakdown	%
Course Work	50.00%
End of Module Formal Examination	50.00%

Course Work

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	An example skills assessment may be to create and manage a source code repository.	1	20.0	Week 5
Project	Design and configure a tool chain to support the development, deployment and maintenance of a software project.	1,2,3	30.0	Week 9

End of Module Formal Examination

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	End-of-semester formal examination	1,2,3,4	50.0	End-of-Semester

Reassessment Requirement

Repeat examination
Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.

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	Lectures on theory and practice.	2.0	Every Week	2.00
Lab	Practical use of tools.	2.0	Every Week	2.00
Independent & Directed Learning (Non-contact)	Independent and guided learning and research.	3.0	Every Week	3.00
			Total Hours	7.00
			Total Weekly Learner Workload	7.00
			Total Weekly Contact Hours	4.00

Workload: Part Time				
Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Lectures on theory and practice.	2.0	Every Week	2.00
Lab	Practical use of tools.	2.0	Every Week	2.00
Independent & Directed Learning (Non-contact)	Independent and guided learning and research.	3.0	Every Week	3.00
			Total Hours	7.00
			Total Weekly Learner Workload	7.00
			Total Weekly Contact Hours	4.00

Module Resources

Recommended Book Resources

- **John Loeliger and Matthew McCullough 2012, *Version Control with Git: Powerful tools and techniques for collaborative software development*, 2nd ed. Ed., O'Reilly Media [ISBN: 9781449316389]**
- **John Ferguson Smart 2011, *Jenkins: The Definitive Guide*, O'Reilly Media [ISBN: 9781449305352]**

Supplementary Book Resources

- **G. Kim, P. Debois and J. Willis 2016, *The Devops Handbook: How to Create World-Class Agility, Reliability, and Security in Technology Organizations*, Trade Select [ISBN: 9781942788003]**

This module does not have any article/paper resources

Other Resources

- **Website: *Git for computer scientists***
  http://eagain.net/articles/git-for-compu ter-scientists/
- **Website: *Git cheatsheet***
  http://ndpsoftware.com/git-cheatsheet.ht ml#loc=index
- **Website: *Jenkins Documentation***
  https://jenkins.io/doc/

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_KSDEV_8	Bachelor of Science (Honours) in Software Development	5	Mandatory
CR_KDNET_8	Bachelor of Science (Honours) in Computer Systems	5	Mandatory
CR_KITMN_8	Bachelor of Science (Honours) in IT Management	5	Mandatory
CR_KITSP_7	Bachelor of Science in Information Technology	5	Elective
CR_KCOMP_7	Bachelor of Science in Software Development	5	Mandatory