Title:	Requirements Engineering APPROVED
Long Title:	Requirements Engineering

Module Code:	SOFT7007	**Duration:**	1 Semester

Credits:	5
NFQ Level:	Intermediate
Field of Study:	Computer Software
Valid From:	Semester 1 - 2017/18 (September 2017)
Module Delivered in	8 programme(s)
Module Coordinator:	Sean McSweeney
Module Author:	MARY DAVIN
Module Description:	Engineering requirements for software systems has been perceived as one of the key steps in a successful software development endeavor, since the early days of software engineering.The ultimate goal of requirements engineering is in fact to facilitate a common view and a shared understanding among all parties involved in the development effort. This module introduces a student to the application of techniques, methodologies and available tool support to requirements engineering(RE).

Learning Outcomes	
On successful completion of this module the learner will be able to:	
LO1	Describe how best known methods in traditional requirements processes can apply to Agile methods.
LO2	Differentiate between functional and non-functional requirements.
LO3	Apply elicitation techniques to gather requirements from a customer and communicate these using agile approaches.
LO4	Develop requirements using an iterative and agile approach using an appropriate tool.
LO5	Create and maintain a product backlog by prioritizing requirements and product features that are most important to fulfill the business objectives of the customer.

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 CIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).

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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
Introduction What is Requirements Engineering. Why is it important in the Systems development.
Agile and Traditional Requirements Engineering. Comparison between the traditional and Agile approaches to Requirements Engineering
Classification of software requirements Functional and non-functional requirements.
Requirements elicitation techniques. The challenge of requirements elicitation, interviewing,contextual inquiry, brainstorming and idea reduction, story boarding.
Communicating Requirements. Use Cases, Scenarios, User Stories, Rules for creating good stories. Use of INVEST model to specify the quality of a User Story. Epic Stories.
Requirements validation Reviews,prototyping ,Usage scenario testing, why-because analysis
Agile Requirements Engineering artifacts Product Vision, Business rules, Glossary, User Story , Story Card, Storyboard Task, Persona.
Managing change. Why requirements change. How change is handled in an Agile environment.
Requirements management tools. Overview of CASE tools applicable for use in requirements engineering.
Requirements Prioritization How to prioritize requirements so that the most important customer needs are delivered first. Assigning a story to a Sprint.

Assessment Breakdown	%
Course Work	100.00%

Course Work

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	A student would identify different types of requirements from a problem statement. Use cases/User stories would be created from identified requirements.	2,3	25.0	Week 7
Short Answer Questions	A student would be expected to answer a selection of short questions based on material covered in lectures.	1,2,3	25.0	Week 12
Project	Each student would be assigned to work on a team project. The team would be required to elicit and communicate the requirements for an application. They would use a CASE tool such as Visual Paradigm to communicate their findings.	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	Presentation of indicative content.	2.0	Every Week	2.00
Lab	Students will create suitable models to capture requirements.	2.0	Every Week	2.00
Independent & Directed Learning (Non-contact)	Reading, writing and study.	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	Presentation of indicative content	2.0	Every Week	2.00
Lab	Students will create suitable models to capture requirements	2.0	Every Week	2.00
Independent & Directed Learning (Non-contact)	Reading,writing and study.	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

- **Suzanne Robertson, James Robertson 2012, *Mastering the Requirements Process: Getting Requirements Right*, 3 Ed., Addison-Wesley Professional [ISBN: 9780321815743]**

Supplementary Book Resources

- **Karl Wiegers,Joy Beatty 2013, *Software Requirements*, 3 Ed., Microsoft Press [ISBN: 9780735679665]**
- **Dean Leffingwell 2011, *Agile Software Requirements: Lean Requirements Practices for Teams, Programs, and the Enterprise*, Addison-Wesley Professional [ISBN: 9780321635846]**
- **Jeff Patton 2014, *User Story Mapping Discover the Whole Story, Build the Right Product*, O'Reilly Media [ISBN: 9781491904909]**
- **Mike Cohen 2004, *User Stories Applied: For Agile Software Development*, Addison-Wesley Professional [ISBN: 9780321205681]**
- **Alistair Cockburn 2000, *Writing effective use cases*, Addison-Wesley Professional [ISBN: 9780201702255]**
- **Ian Alexander ,Ljerka Beus-Dukic 2009, *Discovering Requirements: How to Specify Products and Services*, Wiley [ISBN: 9780470712405]**
- **Gojko Adzic , David Evans 2014, *Fifty Quick Ideas To Improve Your User Stories*, Neuri Consulting LLP [ISBN: 9780993088100]**
- **Venkadesh Narayanan 2015, *Mastering User Stories*, CreateSpace Independent Publishing Platform [ISBN: 9781519429971]**
- **Jefferson Hanley 2015, *Scrum - User Stories: How to Leverage User Stories For Better Requirements*, CreateSpace Independent Publishing [ISBN: 9781512368031]**

This module does not have any article/paper resources

Other Resources

- **Website: *User Stories***
  https:/www.mountaingoatsoftware.com/agil e/user-stories
- **Website: *Home Page of International Requirements Engineering Conference***
  http://requirements-engineering.org/
- **Website: *Alistair Cockburn***
  http://alistair.cockburn.us/

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_KSDEV_8	Bachelor of Science (Honours) in Software Development	3	Mandatory
CR_KDNET_8	Bachelor of Science (Honours) in Computer Systems	3	Mandatory
CR_KITMN_8	Bachelor of Science (Honours) in IT Management	3	Mandatory
CR_KITSP_7	Bachelor of Science in Information Technology	3	Mandatory
CR_KCOMP_7	Bachelor of Science in Software Development	3	Mandatory
CR_KCOME_6	Higher Certificate in Science in Software Development	3	Mandatory
CR_KCMSD_8	Higher Diploma in Science in Cloud & Mobile Software Development	1	Mandatory
CR_KCLCO_8	Higher Diploma in Science in Cloud Computing	1	Mandatory