ZSYS H2202: Systems Analysis, Design & Testing

Module Title:	Systems Analysis, Design & Testing
Credits:	10
NFQ Level:	6
Module Delivered In	No Programmes
Teaching & Learning Strategies:	Mix of lectures, tutorials and workshops. Formative and summative assessments. A suitable case study will be selected and used throughout the course.
Module Aim:	To introduce students to the principles and practice of object-oriented systems analysis, design and testing.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Understand the pricipal software development processes.
LO2	Apply objected-oriented techniques to the analysis and design of a software system.
LO3	Use the principal UML diagramming techniques.
LO4	Understand and apply software testing techniques.

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*
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.*
No requirements listed

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Module Content & Assessment

Indicative Content
Approaches to Systems Analysis & Design Overview - structured, object-oriented, soft system, other.
Object Oriented Concepts Objects. Classes. Relationships - association, aggregation, inheritance. Encapsulation. Polymorphism.
Software Development Processes Waterfall vs Agile. Unified Process - iterative, evolutionary development; phases - inception, elaboration, construction, transition.
Requirements Fact-finding techniques - functional & non-functional requirements, FURPS+. Use Cases - brief and detailed formats. Use case diagrams. Tool (e.g. UMLet). System sequence diagrams. Collaboration diagrams. Domain Models - domain classes, attributes and associations. CRC cards. Animate using object diagrams.
Design Design class diagrams. Sequence diagrams. System architecture - layering, partitioning. File systems - organisation, access and file types. Database management systems - relational, object, object-relational. User interface design - characteristics, usability, style guides.
Implementation System testing. Data conversion. User manuals. Training. Changeover strategies - direct, parallel, phased, pilot.
Review & Maintenance System review. Evaluation Report. Amendment procedures.
Testing White-box and black-box methods. Levels of testing - unit, integration, system, acceptance. Test plans, schedules & reports. Testing tools.

Assessment Breakdown	%
Continuous Assessment	40.00%
End of Module Formal Examination	60.00%

Continuous Assessment

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Examination	Individual Written Exam	1,2	10.00	Week 6
Case Studies	Take-home Case Study Exercise	2,3	5.00	Week 12
Examination	Individual written exam	3,4	10.00	Week 20
Open-book Examination	Test Case Design	4	10.00	Week 25
Performance Evaluation	Active Participation	1,2,3,4	5.00	Every Week

No Project

No Practical

End of Module Formal Examination

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	Terminal Examination	1,2,4	60.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecturer Supervised Learning	30 Weeks per Stage	3.00
Estimated Learner Hours	30 Weeks per Stage	3.67
	Total Hours	200.00