STRU: Discrete Structures

Module Title:	Discrete Structures
Language of Instruction:	English

Credits:	5

NFQ Level:	6

Module Delivered In	3 programme(s)

Teaching & Learning Strategies:	As well as traditional lectures students will undertake in-class exercises on material presented in class. Small group tutorials will encourage further problem solving and discussion.

Module Aim:	To develop the language of computational structures and to outline a range of algorithms.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	outline a range of algorithms for the basic data structures in the areas of graph theory and analyse computer networks using the mathematics of discrete graphs;
LO2	formulate problems using propositional logic and give examples of standard techniques of proof;

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.*
1st Year Mathematics

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Module Content & Assessment

Indicative Content
Basic Graph Theory Understand and use definitions and examples of walks, paths, cycles, circuits etc.., Understanding and working with simple graphs. graphical representation graphs and spanning trees, Identifying bi-partite graphs Applying graph theory algorithms to un-directed weighted graphs. Using Kruscal's algorithm.
Mathematical Logic Reviewing truth tables,propositional logic,valid Inferences. Understanding and using methods of proof. Using CNF and the resolution principle for valid statements Understanding formal proofs and proving compound statements.

Assessment Breakdown	%
Continuous Assessment	50.00%
End of Module Formal Examination	50.00%

Continuous Assessment

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Examination	CA marks will be based on the results of in class written test	1	50.00	n/a

No Project

No Practical

End of Module Formal Examination

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	Final Exam written paper	2	50.00	End-of-Semester

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

Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	12 Weeks per Stage	4.00
Estimated Learner Hours	15 Weeks per Stage	6.00
Tutorial	12 Weeks per Stage	1.00
	Total Hours	150.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_KCSOF_B	Bachelor of Science (Honours) in Software Development	4	Mandatory
CW_KCSOF_D	Bachelor of Science in Software Development	4	Mandatory
CW_KCCOM_C	Higher Certificate in Science in Computing Programming	4	Mandatory