Module Details	
Module Code:	COMP C7013
Full Title:	Data Structures APPROVED
Valid From::	Semester 1 - 2019/20 (June 2019)
Language of Instruction:	English
Duration:	1 Semester
Credits::	5
Module Owner::	Bernadette Brosnan
Departments:	Unknown
Module Description:	Students completing this module will be able to select and implement appropriate data structures for a range of problems.

Module Learning Outcome			
On successful completion of this module the learner will be able to:			
#	Module Learning Outcome Description		
MLO1	Select and use appropriate data structures for the solution of a variety of problems.		
MLO2	Implement and test a variety of data structures.		
MLO3	Discuss the advantages and disadvantages of a variety of data structures.		
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 DkIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).

No recommendations listed

Comparison with arrays, creation. insert elements, delete elements. Stacks and Queues Array and link list based implementations. Sets Dearview, implementation, hashing, chaining, collisions. Maps mplementation, hashing, chaining, collisions. Data Structure Analysis Big O notation, time and space efficiency analysis, data structure selection. MODULE ASSESSMENT Assessment Breakdown Course Work Final Examination	Module Indicative Content				
Array and link list based implementations. Sets Overview, implementation, hashing, chaining, collisions. Maps mplementation, hashing, chaining, collisions. Data Structure Analysis Big O notation, time and space efficiency analysis, data structure selection. Module Assessment Breakdown % Course Work 60.00% Final Examination 40.00%	Linked Lists Comparison with arrays, creation. insert elements, delete elements.				
Overview, implementation, hashing, chaining, collisions. Maps mplementation, hashing, chaining, collisions. Data Structure Analysis Big O notation, time and space efficiency analysis, data structure selection. Module Assessment Assessment Breakdown % Course Work 60.00% Final Examination 40.00%	Stacks and Queues Array and link list based implementations.				
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Big O notation, time and space efficiency analysis, data structure selection. Module Assessment % Assessment Breakdown % Course Work 60.00% Final Examination 40.00%	Maps Implementation, hashing, chaining, collisions.				
Assessment Breakdown % Course Work 60.00% Final Examination 40.00%	Data Structure Analysis Big O notation, time and space efficiency analysis, data structure selection.				
Course Work 60.00% Final Examination 40.00%	Module Assessment				
Final Examination 40.00%	Assessment Breakdown	%			
	Course Work	60.00%			
Vodule Special Regulation	inal Examination 40.00%				
	Module Special Regulation				

Assessments

Full Time On Campus				
Course Work				
Assessment Type	Class Test	% of Total Mark	20	
Marks Out Of	0	Pass Mark	0	
Timing	Week 4	Learning Outcome	2	
Duration in minutes	0	·		
Assessment Description				
Practical test				
Assessment Type	Class Test	% of Total Mark	20	
Marks Out Of	0	Pass Mark	0	
Timing	Week 10	Learning Outcome	1,2	
Duration in minutes	0			
Assessment Description Practical Test				
Assessment Type	Continuous Assessment	% of Total Mark	20	
Marks Out Of	0	Pass Mark	0	
Timing	Every Second Week	Learning Outcome	1,2,3	
Duration in minutes	0			
Assessment Description				
	s will work both individually and in pairs on varie	ous problems		
No Project				
No Practical				
Final Examination				
Assessment Type	Formal Exam	% of Total Mark	40	
	0	Pass Mark	0	
Marks Out Of	0	1 033 Mark	0	
	0 End-of-Semester	Learning Outcome	1,3	
Marks Out Of Timing Duration in minutes				
Timing Duration in minutes Assessment Description End of semester written examination.	End-of-Semester			
Timing Duration in minutes Assessment Description	End-of-Semester			
Timing Duration in minutes Assessment Description End of semester written examination.	End-of-Semester			
Timing Duration in minutes Assessment Description End of semester written examination. Part Time On Campus Course Work	End-of-Semester			
Timing Duration in minutes Assessment Description End of semester written examination. Part Time On Campus Course Work	End-of-Semester 0	Learning Outcome	1,3	
Timing Duration in minutes Assessment Description End of semester written examination. Part Time On Campus Course Work Assessment Type Marks Out Of	End-of-Semester 0 Class Test	Learning Outcome	20	
Timing Duration in minutes Assessment Description End of semester written examination. Part Time On Campus Course Work Assessment Type Marks Out Of Timing	End-of-Semester 0 Class Test 0	Learning Outcome	1,3 20 0	
Timing Duration in minutes Assessment Description End of semester written examination. Part Time On Campus Course Work Assessment Type Marks Out Of Timing Duration in minutes Assessment Description	End-of-Semester 0 Class Test 0 Week 4	Learning Outcome	1,3 20 0	
Timing Duration in minutes Assessment Description End of semester written examination. Part Time On Campus Course Work Assessment Type Marks Out Of Timing Duration in minutes Assessment Description Practical test	End-of-Semester 0 Class Test 0 Week 4	Learning Outcome	1,3 20 0	
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Timing Duration in minutes Assessment Description End of semester written examination. Part Time On Campus Course Work Assessment Type Marks Out Of Timing Duration in minutes Assessment Description Practical test Assessment Description Practical Test Assessment Type Marks Out Of Timing Duration in minutes Assessment Type Marks Out Of Timing Duration in minutes Assessment Type Marks Out Of Timing Duration in minutes Assessment Type Marks Out Of Timing Duration in minutes Assessment Type Marks Out Of Timing Duration in minutes Assessment Type Marks Out Of Timing Duration in minutes Assessment Type Marks Out Of Timing	End-of-Semester 0 Class Test 0 Week 4 0 Class Test 0 Week 10 0 Continuous Assessment 0 Every Second Week 0	Learning Outcome	1,3 20 0 2 20 0 2 20 0 1,2 20 0 1,2 20 0 1,2	
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Timing Duration in minutes Assessment Description End of semester written examination. Part Time On Campus Course Work Assessment Type Marks Out Of Timing Duration in minutes Assessment Description Practical test Assessment Description Practical Test Assessment Type Marks Out Of Timing Duration in minutes Assessment Type Marks Out Of Timing Duration in minutes Assessment Description Practical Test Assessment Type Marks Out Of Timing Duration in minutes Assessment type Marks Out Of Timing Duration in minutes Assessment Description Fractical Test Assessment Type Marks Out Of Timing Duration in minutes Assessment Mere students No Project	End-of-Semester 0 Class Test 0 Week 4 0 Class Test 0 Week 10 0 Continuous Assessment 0 Every Second Week 0	Learning Outcome	1,3 20 0 2 20 0 2 20 0 1,2 20 0 1,2 20 0 1,2	

Timing Duration in minutes Assessment Description End of semester written examination. End-of-Semester 0 Learning Outcome

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Workload: Full Time On Workload Type	Campus Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Practical	Contact	There will be two 2-hour sessions of lab based classes per week where theory and practical content will be integrated.	Every Week	4.00	4
Directed Reading	Non Contact	Course related materials for discussion in class.	Every Week	2.00	2
Independent Study	Non Contact	Practice to reinforce class work	Every Week	2.00	2
				Total Weekly Learner Workload	8.00
	4.00				
Workload: Part Time On	Campus				
Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Practical	Contact	There will be two 2-hour sessions of lab based classes per week where theory and practical content will be integrated.	Every Week	4.00	4
Directed Reading	Non Contact	Course related materials for discussion in class.	Every Week	2.00	2
Independent Study	Non Contact	Practice to reinforce class work	Every Week	2.00	2
			•	Total Weekly Learner Workload	8.00
				Total Weekly Contact Hours	4.00

Supplementary Book Resources

Dale, Joyce, Weems. (2016), Object Oriented Data Structures using Java, 4. Jones & Bartlett, [ISBN: 9781284089097]. Timothy Henry, Frank Carrano. (2015), Data Structures and Abstractions with Java, 4. Pearson, [ISBN: 978129207718]. John Lewis. (2014), Java Software Structures: Designing and Using Data Structures, 4. Pearson, [ISBN: 978-01332501].

This module does not have any article/paper resources

Other Resources

Website, Java API, https://docs.oracle.com