

1.	Course Title	Data Structure & Algorithm		
2.	Course Code	CCPS2513		
3.	Status	Major		
4.	Credit Hour	3 (2+1) 2 lecture (2 hours lecture x 14 weeks) 1 tutorials (1.5 hours per x 14 weeks)		
5.	Semester/Year	1/2		
6.	Prerequisites	CCPS2123 object oriented programming		
7.	Teaching method:	Distance Learning (Electronic)		
8.	Evaluation	Assessment and Marking Percentage: Participation 5% Quizzes 15% Project 15% Mid Sem Exam 15% Final Examination 50%		
9.	Lecturer			
10.	Objective of the Subject	The main objective of this course is to provide students with the theoretical background and practical experience relating to the design and implementation of several types of data structures. Students, during this course, are trained to deal with Abstract Data Types (ADT) and to implement different data structures using different methods. Topics include: - Stack - Queues - Lists and Strings		
11.	Learning Outcomes	Upon successful completion of this course, students will have the skills to deal with ADT and implement data structures using different methods. Students : - Should be able to know basic terms associated with data structures, and the main principles that each deal by such as Stacks, Queues, Lists and Strings. - Should be able to deal with recursive functions. - Should be able to choose suitable data structure that use for any applications at hand. - Should be able to use and create data structure by C++ language..		
12.	Synopsis			
13.	Topics	Details	Lecture (Hrs)	Tutorial (Hrs)
	Week 1	- Course Introduction - C++ Revision (Classes, inheritance, overloading)	2	1.5
	Week 2	Introduction to Stack	2	1.5
	Week 3	Applications	2	1.5
	Week 4	Queue	2	1.5
	Week 5	Simulation	2	1.5
	Week 6	Linked Stack	2	1.5
	Week 7	Linked Stack / Linked Queue	2	1.5
	Week 8	Linked Queue.	2	1.5
	Week 9	Recursion.	2	1.5
	Week 10	Recursion:	2	1.5

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	Week 11	Lists	2	1.5
	Week 12	Lists	2	1.5
	Week 13	Strings	2	1.5
	Week 14	Strings	2	1.5
		Total contact hours	28	21
		Equivalent lecture hours	28	14
		Total lecture hours	42	
		Credit hours	3	
14.	Main reference: Textbook:	- Larry Nyhoff, ADTs, Data Structures and Problem Solving with C++, 2nd Ed. , Printice Hall, 2005.. - Augenstein & Tenenbaum Langsam, Data Structure Using C & C++, 2nd Ed (Paperback - 2007) - Ellis Horowitz, Sartaj Sahni, and Susan Anderson-Freed, Fundamentals of Data Structures in C (2007)		
15.	Additional References: Other Materials:	- Malik, Data Structures using C++, Thomson , 2003. - Clifford Shaffer, A practical Introduction to Data Structures and Algorithm Analysis, 2nd Ed. , Prentice Hall, 2001. - Frank M. Carrano, Data Abstraction & Problem Solving with C++ (5th Edition) (2006) - Frank M. Carrano, Data Abstraction and Problem Solving with C++: Walls and Mirrors (4th Edition) by (2004) All materials will be available to the students online.		