Course Name	Data Structures & Algorithms		Course Code	COMP 321		
Credit Hours	3		Contact Hours	Theory	Lab	Total
				2	2	4
Offered as	☐ University Requirement ☐ College Requirement ☒ Program Requirement ☒ Core ☐ Elective ☐ ITEC ☒ COMP ☐ CNET					
Level	7		Prerequisite	None		

Course Description:

This course focuses on the study and implementation of various data Structures-Arrays, Linked lists, Stacks, Queues, Trees and Graphs. The course introduces the asymptotic complexity and performance measurement of simple algorithms. The topic includes the concepts of hashing, hash-tables, implementation and analysis of Sorting Algorithms-Bubble Sort, Insertion Sort, Selection Sort and Searching algorithms- Linear Search, Binary Search.

Course objectives:

- Explain various linear and nonlinear data structures.
- Introduces the concepts of asymptotic complexity and compute the efficiency of algorithms.
- Describe how to choose the appropriate data structure required to solve some simple problems.
- Demonstrate the implementation of the various data structures and their algorithms using Java programming.
- Illustrate the methods to analyze and calculate the complexity and efficiency of algorithms and data structures.

Grading	☒ Exam 1	15%	☐ Exam 2	-	☒ Assignment(s)	25%
	☒ Final	40%	☒ Lab	20%	☐ Mini Project	-

Text Book:

- Nell Dale, Daniel T. Joyce, and Chip Weems., Object-Oriented Data Structures Using Java, Fourth Edition, 2018, Jones & Bartlett Learning, ISBN-13: 9781284089097

References:

- Narasimha Karumanchi, Data Structures and Algorithms Made Easy in Java: Data Structure and Algorithmic Puzzles, Second Edition, 2020, Career Monk Publications, ISBN-13: 978-1468101270.
- Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, Data Structures and Algorithms in Java, 6th Edition, 2014, John Wiley & Sons Inc., ISBN: 978-1-118-77133-4