Rajshahi University Engineering & Technology
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE PLAN

COURSE CODE: **CSE 1201**
COURSE TITLE: **Data Structure**

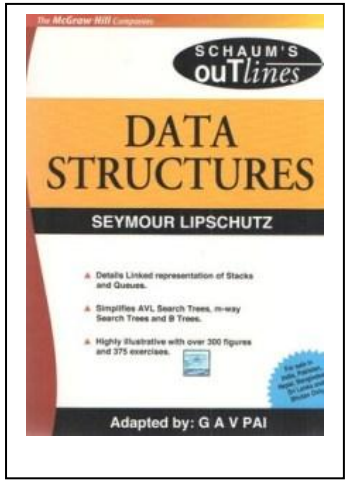
SEMESTER: **ODD**
CONTACT HOUR: **03/WEEK**
YEAR & CLASS: **I year**

COURSE CREDIT: **03**
Time: B/C/D/E days
LOCATION: **Seminar Room, GF, Academic Bldg-1**

FACULTY DETAILS:

S.No	Name	Designation	Dept.	Mail ID	Mobile No.
1.	Dr Md. Shahid Uz Zaman	Professor	CSE	zaman@ruet.ac.bd	01713228537

REFERENCE BOOKS:
1. S. Lipschutz, "Data Structures", Schaum's Outlines



RESOURCES:

Recommended PREREQUISITE:

1. Basic Computer Programming
2. Logical thinking

OBJECTIVES & OUTCOMES:

Instructional objectives	Instructional outcomes
Critical thinking, problem solving and information literacy: Students will use critical thinking and problem solving skills in analyzing information gathered through different media and from a variety of sources.	At the end of this course, the students will be able to, 1.Familiarize the student with good programming design methods, particularly TopDown design. 2. Develop algorithms for manipulating arrays, stacks, queues, linked lists and trees. 3. Develop the data structures for implementing the above algorithms. 4. Develop recursive algorithms as they apply to sorting and searching. 5. Familiarize the student with the issues of Time complexity and examine various algorithms from this perspective.

DETAILED LESSON PLAN:

Week	Lecture /day	Topics	Reference	Testing method	Instructional Objective	Instructional outcome
		Introduction to Computer Programming				
1	2B/2C	**Chap 1: Introduction:** Concepts and Examples of Elementary Data Objects, Necessity of Structured Data, Types of Data Structure, Ideas on Linear and Nonlinear Data Structure.	Lecture Note	Discussion	To explore the basic concepts of Data Structure and their types	Explain the major concepts of data structure and its functionalities along with problem solving technique
	2D/1E	**Chap 2 Linear Array:** Linear Array & its Representation in Memory, Traversing LA, Insertion & Deletion in LA, Bubble Sort	Lecture Note	Discussion and Assignment		
2	3B/3C	**Chap 2 Linear Array:**, Linear Search & Binary Search,	Lecture Note	Discussion	Train the students about array processing	Able to write algorithm to insert, delete, search elements using arrays
	3D2E	**Chap 2 Linear Array** Multidimensional Array & its Representation in Memory, Algebra of Matrices, Sparse Matrices.	Lecture Note	Discussion and Assignment		

3	4B/4C	**Chap 3: Stack:** Stack Representation & Applications, PUSH and POP Operation on Stack.	Lecture Note	Discussion and Assignment	Train the students about stack and its operations	Able develop algorithms ussing stack for different implementation
	4D/3E	**Chap 3:** Polish Notation, Reverse Polish Notation, Evaluation of a Postfix Expression, Transforming Infix Expression into Postfix Expression.	Lecture Note	Discussion and Assignment	Train the students about notations and expressions	Able to use notations and expression for problem solving
4	5B/5C	**Chap 4: Queue:** Its Representation, Insertion & Deletion in Queue, Priority Queues,	Lecture Note	Discussion and Assignment	Provide concepts of Queue and its operations	Able develop algorithms using Queue for different implementation
	5D/4E	**Chap 4:** Recursion Factorial Function, Fibonacci Sequence, Ackermann Function, Towers of Hanoi	Lecture Note	Discussion and Assignment	Provide concepts of Recursion technique	Able develop algorithms using Recursion method for appropriate implementation
5	6B/6C	**Chap 5: Linked List:** Linked List & its Representation in Memory, Traversing,	Lecture Note	Discussion and Assignment	Provide concepts of different Link Lists and Operations	Able develop algorithms using appropriate Link Lists for better performance
	6D/5E	**Chap 5: Linked List:** Searching, Insertion & Deletion	Lecture Note	Discussion and Assignment		
6	7B/7C	**Chap 5: Linked List:** Operation on Linked List, Circular List, Header Linked Lists, Two Way Lists.	Lecture Note	Discussion and Assignment		
	7D/6E	Revise				

	27/13E		R1--> Chap 12(p427)	Discussion and Assignment		
		REVISION				