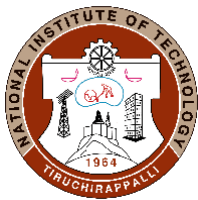




DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	B.TECH / CSE		
Course Title	DATA STRUCTURES		
Course Code	CSPC32	No. of Credits	3
Course Code of Pre-requisite subject(s)	Nil	Semester	III
Session	July 2021	Section (if, applicable)	A
Name of Faculty	Dr. R. Mohan	Department	CSE
Official Email	rmohan@nitt.edu	Telephone No.	9442421326
Name of Course Coordinator(s) (if, applicable)	NIL		
Official E-mail	NIL	Telephone No.	NIL
Course Type (please tick appropriately)	Programme Core		
Syllabus (approved in Senate)			
<p>Unit – I Development of Algorithms - Notations and analysis - Storage structures for arrays - Sparse matrices - Stacks and Queues: Representations and applications.</p> <p>Unit – II Linked Lists - Linked stacks and queues - Operations on polynomials - Doubly linked lists - Circularly linked lists - Dynamic storage management - Garbage collection and compaction.</p> <p>Unit – III Binary Trees - Binary search trees - Tree traversal - Expression manipulation - Symbol table construction - Height balanced trees - Red-black trees- AVL trees.</p> <p>Unit – IV Graphs - Representation of graphs - BFS, DFS - Topological sort - Shortest path problems. String representation and manipulations - Pattern matching.</p> <p>Unit – V Sorting Techniques - Selection, Bubble, Insertion, Merge, Heap, Quick, and Radix sort - Address calculation - Linear search - Binary search - Hash table methods.</p>			



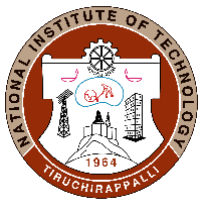
TEXT BOOKS	
1. J. P. Tremblay and P. G. Sorenson, "An Introduction to Data Structures with applications", Second Edition, Tata McGraw Hill, 1981	
2. M. Tenenbaum and Augestien, "Data Structures using C", Third Edition, Pearson Education 2007.	
REFERENCE BOOKS	
1. Sartaj Sahni, "Data Structures, Algorithms and Applications in C++", Universities Press (I) Pvt. Ltd.	
COURSE OBJECTIVES	
1. To understand the various techniques of sorting and searching	
2. To design and implement arrays, stacks, queues, and linked lists	
3. To understand the complex data structures such as trees and graphs	
MAPPING OF COs with POs	
Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
1. Ability to develop programs to implement linear data structures such as stacks, queues, linked lists, etc.	1, 2, 3, 5
2. Ability to apply the concept of trees and graph data structures in real world scenarios	1, 3, 4, 6
3. Ability to comprehend the implementation of sorting and searching algorithms	1, 3, 5, 6

COURSE PLAN – PART II			
COURSE OVERVIEW			
This course emphasizes linear and nonlinear data structures, various programming paradigms, sorting and searching problems.			
COURSE TEACHING AND LEARNING ACTIVITIES			(Add more rows)
S.No.	Contact Hours	Topic	Mode of Delivery
1	3 Hours	Development of Algorithms, Notations and analysis, Storage structures for arrays	Online Mode
2	3 Hours	Sparse matrices, Stacks: Representations and applications, Queues: Representations and applications,	Online Mode



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3	4 Hours	Linked Lists - Linked stacks and queues, Operations on polynomials Doubly linked lists, Circularly linked lists	Online Mode
4	1 Hour	Dynamic storage management, Garbage collection and Compaction,	Online Mode
		Cycle Test I	Online Mode
5	4 Hours	Binary Trees, Binary search trees Tree traversal, Expression manipulation	Online Mode
6	5 Hours	Symbol table construction, Height balanced trees, Red-black trees, AVL trees	Online Mode
7	3 Hours	Graphs Representation of graphs - BFS, DFS	Online Mode
8	2 Hours	Topological sort, Shortest path problems	Online Mode
9	3 Hours	String representation and manipulations, Pattern matching	Online Mode
		Cycle Test II	Online Mode
10	2 Hours	Sorting Techniques - Selection, Bubble sort	Online Mode
11	1 Hour	Insertion, Merge sort	Online Mode
12	2 Hours	Heap, Quick sort Radix sort	Online Mode



13	1 Hour	Linear search, Binary search	Online Mode
14	2 Hours	Address calculation. Hash table methods	Online Mode
15	1 Hour	Doubts Clarification	Online Mode

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cycle Test 1	06/09/2021 to 08/09/2021	1 Hour	25
2	Cycle Test 2	06/10/2021 to 08/10/2021	1 Hour	25
3	Programming Assignment -1	25/09/2021 to 02/10/2021	-	10
4	Programming Assignment -2	29/10/2020 to 8/11/2020	-	10
CPA	Compensation Assessment*	26/11/2020 to 01/12/2020	1 Hour	20
5	Final Assessment *	As per academic schedule	2 hours	30

*mandatory; refer to guidelines on page 4

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

1. Students' feedback through PAC meetings
2. Feedbacks are collected before final examination through MIS or any other standard format followed by the institute
3. Students, through their Class Representatives, may give their feedback at any time to the course faculty which will be duly addressed.

COURSE POLICY (including compensation assessment to be specified)

MODE OF CORRESPONDENCE (email/ phone etc)

Email / Phone

COMPENSATION ASSESSMENT POLICY

1. One compensation assessment will be given after completion of Cycle Test 1 and 2 for the students those who are absent for any assessment due to genuine reason.
2. Compensatory assessments would cover the syllabus of Cycle tests 1 & 2
3. The prior permission and required documents must be submitted for absence signed by HoD/CSE.



ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

ACADEMIC DISHONESTY & PLAGIARISM

- Talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION, IF ANY

1. The Course Coordinator is available for consultation during the time intimated to the students then and there
2. Relative grading adhering to the instructions from the office of the Dean (Academic) will be adopted for the course.

FOR APPROVAL

Course :
Faculty
(Dr. R. Mohan)

CC- Chairperson:
(Dr. S. Mary Saira Bhanu)

HOD:
(Dr. Rajeswari Sridhar)