

Program Structure and Syllabus of B. Tech II Year (I & II Semesters)

Computer Science and Engineering

R20 Regulations



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B.TECH II YEAR I SEMESTER**[5 T + 4 P + 1 M]**

S. No	Course Code	Category	Course	Hours per week			Credits
				L	T	P	
1	A53024	ESC	Digital Logic Design	3	0	0	3.0
2	A53025	PCC	Data Structures	3	0	0	3.0
3	A53027	BSC	Discrete Mathematics	3	0	0	3.0
4	A53028	PCC	Formal Languages and Automata Theory	2	1	0	3.0
5	A53026	PCC	Python Programming	2	0	0	2.0
6	A53211	PCC LAB	Python Programming Lab	0	0	3	1.5
7	A53212	PCC LAB	Data Structures Lab	0	0	3	1.5
	A53213	PCC LAB	Linux Programming Lab	0	1	2	2.0
8	A53214	ESC LAB	Design Thinking Lab	0	0	2	1.0
9	A53007	MC	Gender Sensitization	2	0	0	0
TOTAL				15	2	8	20

B. TECH II YEAR II SEMESTER**[5 T + 3 P + 1 M]**

S.No	Course Code	Category	Course	Hours per week			Credits
				L	T	P	
1	A54023	PCC	Computer Organization and Architecture	3	0	0	3.0
2	A54024	BSC	Probability and Statistics	3	0	0	3.0
3	A54025	PCC	Java Programming	2	1	0	3.0
4	A54026	PCC	Database Management Systems	3	0	0	3.0
5	A54027	PCC	Design and Analysis of Algorithms	3	1	0	4.0
6	A54214	PCC LAB	Database Management Systems Lab	0	0	3	1.5
7	A54215	PCC LAB	Java Programming Lab	0	0	3	1.5
8	A54216	HSS & MC LAB	Soft Skills for Success Lab	0	0	2	1.0
9	A54022	MC	Environmental Science	2	0	0	0
TOTAL				16	2	8	20

Data Structures

B. Tech II Year I Semester					Dept. of Computer Science and Engineering			
Code	Category	Hours / Week			Credits	Marks		
	PCC	L	T	P	C	CIE	SEE	Total
		3	0	0	3	40	60	100

Pre requisites

Any Programming Language

Course Objectives

1. Understand various static and dynamic representations of data structures
2. Understand fundamental algorithmic problems of various nonlinear data structures.
3. To be familiar with Graph representations and traversals.
4. Know the basic concepts of Hashing.

Course Outcomes

1. Examine Static and Dynamic data structures in implementing Stack applications (L4)
2. Apply Tree traversal algorithms in solving real time applications (L3)
3. Analyze the concepts of Advanced Trees to generate search efficiently (L4)
4. Interpret the importance of Graphs in solving real time applications (L5)
5. Examine the concepts of hashing, collision and its resolution methods using hash function (L4)

UNIT I

Introduction: What is data structure, Types of data structures, Static and Dynamic representation of data structure and comparison. Stacks-Definition, Operations, Applications of stacks – Representation and evaluation of expressions using Infix, Prefix and Postfix, Algorithms for conversions and evaluations of expressions from infix to prefix and postfix using stack, Towers of Hanoi, Parenthesis checker.

UNIT II

Trees: Basic terminology, Types of trees: Binary Tree: terminology, Complete and Full Binary Tree, Extended Binary Trees, Threaded Binary Trees-Inorder Threading. Representation of Trees using Arrays and Linked lists (advantages and disadvantages). Tree Traversal and Representation of Algebraic expressions; Algorithms for Tree Traversals.