

Course Code	TITLE OF THE COURSE	L	T	P	S	C	CH	Course Type*
	Competitive Coding – II	0	0	2	0	1	2	EE
20CSP351							Course Code(s) 20CSP-351	
PRE-REQUISITE	Basics of C, C++, Data Structure							
CO-REQUISITE	-							
ANTI-REQUISITE	-							

a. Course Description

Competitive programming is the course in which students will learn how to apply algorithms in order to solve complex problems. The goal of this course is to teach students how to apply familiar algorithms to non-intuitive problems.

b. Course Objectives

Competitive programming is the course in which students will learn how to apply algorithms in order to solve complex problems.

The goal of this course is to teach students how to apply familiar algorithms to non-intuitive problems.

c. Course Outcomes

CO1	Understand the problem and find out better approach to solve particular problem
CO2	To gain critical understanding of problem solving on Leetcode platform
CO3	Apply advance programming concepts for logic building
CO4	To implement the logic and find out the solution of problem and achieve all test cases
CO5	To acquire proficiency in developing and implementing efficient solutions of given problems by using different approaches and achieve desirable results.

d. Syllabus

Unit-1	Data Structures	Contact Hours:15
Arrays, Stacks, Queues linked list	https://leetcode.com/problems/3sum/ https://leetcode.com/problems/jump-game-ii/ https://leetcode.com/problems/simplify-path/ https://leetcode.com/problems/implement-queue-using-stacks/ https://leetcode.com/problems/merge-two-sorted-lists/ https://leetcode.com/problems/remove-duplicates-from-sorted-list-ii/	
String Matching	https://leetcode.com/problems/rotate-string/ https://leetcode.com/problems/find-the-index-of-the-first-occurrence-in-a-string/ https://leetcode.com/problems/camelcase-matching/	

	https://leetcode.com/problems/repeated-string-match/ https://leetcode.com/problems/longest-happy-prefix/	
Heap model	https://leetcode.com/problems/kth-largest-element-in-a-stream/ https://leetcode.com/problems/last-stone-weight/ https://leetcode.com/problems/cheapest-flights-within-k-stops/ https://leetcode.com/problems/distant-barcodes/ https://leetcode.com/problems/furthest-building-you-can-reach/	
Hashing	https://leetcode.com/problems/missing-number/ https://leetcode.com/problems/word-pattern/ https://leetcode.com/problems/longest-substring-without-repeating-characters/ https://leetcode.com/problems/longest-duplicate-substring/ https://leetcode.com/problems/shortest-palindrome/	
Unit-2	Advanced Data Structures	Contact Hours:15
Trees	https://leetcode.com/problems/same-tree/ https://leetcode.com/problems/symmetric-tree/ https://leetcode.com/problems/balanced-binary-tree/ https://leetcode.com/problems/path-sum/ https://leetcode.com/problems/count-complete-tree-nodes/ https://leetcode.com/problems/delete-node-in-a-bst/ https://leetcode.com/problems/diameter-of-binary-tree/	
Graph	https://leetcode.com/problems/is-graph-bipartite/ https://leetcode.com/problems/gray-code/ https://leetcode.com/problems/group-the-people-given-the-group-size-they-belong-to/ https://leetcode.com/problems/the-skyline-problem/ https://leetcode.com/problems/find-the-difference/ https://leetcode.com/problems/predict-the-winner/	
Divide and conquer	https://leetcode.com/problems/count-and-say/ https://leetcode.com/problems/1-bit-and-2-bit-characters/ https://leetcode.com/problems/jewels-and-stones/ https://leetcode.com/problems/snakes-and-ladders/ https://leetcode.com/problems/water-and-jug-problem/ https://leetcode.com/problems/find-and-replace-in-string/	
UNIT-3	Advanced Data Structures	Contact Hours:15
Greedy	https://leetcode.com/problems/candy/ https://leetcode.com/problems/best-time-to-buy-and-sell-stock-ii/ https://leetcode.com/problems/remove-duplicate-letters/ https://leetcode.com/problems/can-place-flowers/ https://leetcode.com/problems/assign-cookies/ https://leetcode.com/problems/three-equal-parts/	
Backtracking	https://leetcode.com/problems/binary-watch/ https://leetcode.com/problems/stickers-to-spell-word/ https://leetcode.com/problems/all-paths-from-source-to-target/ https://leetcode.com/problems/word-ladder-ii/	

	https://leetcode.com/problems/subsets/ https://leetcode.com/problems/combinations/
Dynamic Programming	https://leetcode.com/problems/best-time-to-buy-and-sell-stock/ https://leetcode.com/problems/decode-ways/ https://leetcode.com/problems/scramble-string/ https://leetcode.com/problems/climbing-stairs/ https://leetcode.com/problems/maximum-subarray/ https://leetcode.com/problems/longest-palindromic-substring/ https://leetcode.com/problems/house-robber-ii/

e. Assessment Pattern - Internal and External

The performance of students is evaluated as follows:

Components	Theory	
	Continuous Internal Assessment (CAE)	Semester End Examination (SEE)
Marks	60	40
Total Marks	100	

f. Internal Evaluation Component

Sr. No.	Type of Assessment	Weightage of actual conduct	Frequency of Task	Final Weightage in Internal Assessment	Remarks
1	Conduct	10 Marks per Practical	1 per practical	60 Marks per course	
2	Report	10 Marks per Practical	1 per practical		
3	Viva- Voce	20 Marks per Course	1 per Course		

g. CO-PO Mapping

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 0	PO 1	PO 2	PSO 1	PSO 2
CO1	3	-	3	2	3	-	-	1	1	-	-	-	-	-
CO2	3	-	-	3	2	3	-	-	-	-	-	-	-	-
CO3	3	2	-	3	2	-	-	-	-	-	-	3	3	-
CO4	3	3	-	-	3	2	-	-	2	-	-	3	3	-

CO5	3	-	-	-	-	-	-	1	2	3	2	3	-	2
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