LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(An Autonomous Institution since 2010)
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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COs, POs and PSOs Assessment &Attainment

Faculty Name : **Dr. S.Nagarjuna Reddy, A.S.R.C.Murthy, S.Govindu, S. Srinivasa Reddy**

Course Name & Code : **Data Structures – 23CS02**

Academic year : **2023-24**

Semester : **II**

Course Outcomes (CO): After the completion of the course, students should be able to

CO1	Understand the role of linear and nonlinear data structures in organizing and accessing data **(Understand-L2)**
CO2	Implement abstract data type (ADT) and data structures for given application. **(Apply-L3)**
CO3	Design algorithms based on techniques like linked list, stack, queue, trees etc. **(Apply-L3)**
CO4	Apply the appropriate linear and nonlinear data structure techniques for solving a problem. **(Apply-L3)**
CO5	Design hash-based solutions for specific problems. **(Apply-L3)**

Course Articulation matrix:

COs	Program Outcomes (POs)												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2											2		
CO2	3	2	2	1									2		
CO3	3	2	2	1									2		
CO4	3	2	2	1									2		
CO5	3	2	2	1									2		
S=3=SUBSTANTIAL (100%), M=2= MODERATELY (66%), L=1=LIGHTLY (33%)															

Course Assessment and Evaluation:

	What	To Whom	When/ Where/How (Frequency in the course)	Max Marks	Evidence Collected	Contribution to Course Outcomes
Direct Assessment Methods	**Cumulative Internal Examination (CIE)**	**Students**	Twice in a semester Max (M1, M2) *0.80+ Min (M1, M2) *0.20 Computed	**15**	Answer Scripts	Frist 2 Units in MID-I & Next 3 Units in MID-II
			Quiz-1 &Quiz-2	**10**	Answer Scripts	Frist 2 Units in MID-I & Next 3 Units in MID-II
			Assignment	**5**	Reports	Frist 2 Units in MID-I & Next 3 Units in MID-II
	Semester End Examinations (SEE)		End of Course (Answering 5 of 5 internal choice questions from 5 Units) Class Average marks for each question is considered for Assessment	**70**	Answer Scripts	1,2,3,4 & 5

1. Attainment of Course Outcomes through Mid Examinations, Assignments and Online Quiz Examinations:

CIE Attainment					Question-CO Articulation Matrix				
Descriptive Test	Question No.	% Students Attempted	%Attainment	Attainment Level	CO 1	CO 2	CO 3	CO 4	CO 5
DISC-I	Q1a	79.77	**92.68**	**3**	1				
	Q1b	75.10	**83.42**	**3**	1				
	Q1c	28.79	**98.65**	**3**	0.75				
	Q1d	25.68	**83.33**	**3**	1				
	Q2a	90.27	**71.12**	**3**		1			
	Q2b								
	Q2c	3.89	**50.00**	**2**		1			
	Q2d								
	Q3a	79.38	**93.63**	**3**	1				
	Q3b	76.26	**90.82**	**3**	1				
	Q3c	18.29	**83.33**	**3**		1			
	Q3d	18.29	**76.60**	**3**			1		
DISC-II	Q1a	81.32	**92.82**	**3**		1			
	Q1b	79.38	**88.73**	**3**				1	
	Q1c	20.62	**86.79**	**3**			1		
	Q1d	19.84	**90.20**	**3**				1	
	Q2a	74.32	**87.96**	**3**		1			
	Q2b	72.76	**84.49**	**3**				1	
	Q2c	16.34	**73.81**	**3**			1		
	Q2d	15.56	**80.00**	**3**			0.75		
	Q3a	36.58	**75.53**	**3**					0.75
	Q3b	37.35	**77.08**	**3**				1	
	Q3c	63.04	**79.63**	**3**			1		
	Q3d	58.37	**89.33**	**3**					1
Descriptive Test Attainment					**2.88**	**2.80**	**2.85**	**3.00**	**2.63**
Assignment	A1	100	**100.00**	3	1	1	1		
	A2	100	**100.00**	3			1	1	1
Assignment Attainment					**3**	**3**	**3**	**3**	**3**
Quiz	Q1	99	**52.14**	**2**	**1**	1	1		
	Q2	100	**77.11**	3			1	1	1
Quiz Attainment					**2**	**2**	**2.5**	**3**	**3**

2. Attainment of Course Outcomes through Semester End Examinations (SEE):

SEE Attainment			Question-CO Correlation						
SEE	**Question No.**	**% Students Attempted**	**% CO Attainment**	**Attainment Level**	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
PART A	**Q1**	**99.61**	**54.69**	**2**	**0.75**	**0.75**	**1**	**0.75**	
PART B	Q2a	**95.33**	85.71	3	1				
	Q2b	**91.83**	87.71	3	1				
	2								
	Q3a	**9.34**	83.33	3	1				
	Q3b	**8.95**	73.91	3	1				
	3								
	Q4a	**86.38**	67.57	3		0.75			
	Q4b								
	4								
	Q5a	**9.34**	33.33	1		0.75			
	Q5b	**6.61**	17.65	1		0.75			
	5								
	Q6a	**84.05**	85.19	3			0.75		
	Q6b	**80.54**	75.85	3			0.75		
	6								
	Q7a	**28.40**	76.71	3			1		
	Q7b	**21.01**	53.70	2			0.75		
	7								
	Q8a	**40.47**	77.88	3				0.75	
	Q8b	**45.91**	65.25	3				0.75	
	8								
	Q9a	**54.47**	50.71	2				0.75	
	Q9b								
	9								
	Q10a	**75.88**	76.41	3					1
	Q10b	**69.65**	76.54	3					0.75
	10								
	Q11a	**40.47**	89.42	3					1
	Q11b	**38.13**	74.49	3					1
	11								
SEE Attainment (%)					**74.34**	**32.49**	**58.50**	**46.61**	**59.55**
SEE Attainment					**2.70**	**1.32**	**2.20**	**1.88**	**2.25**

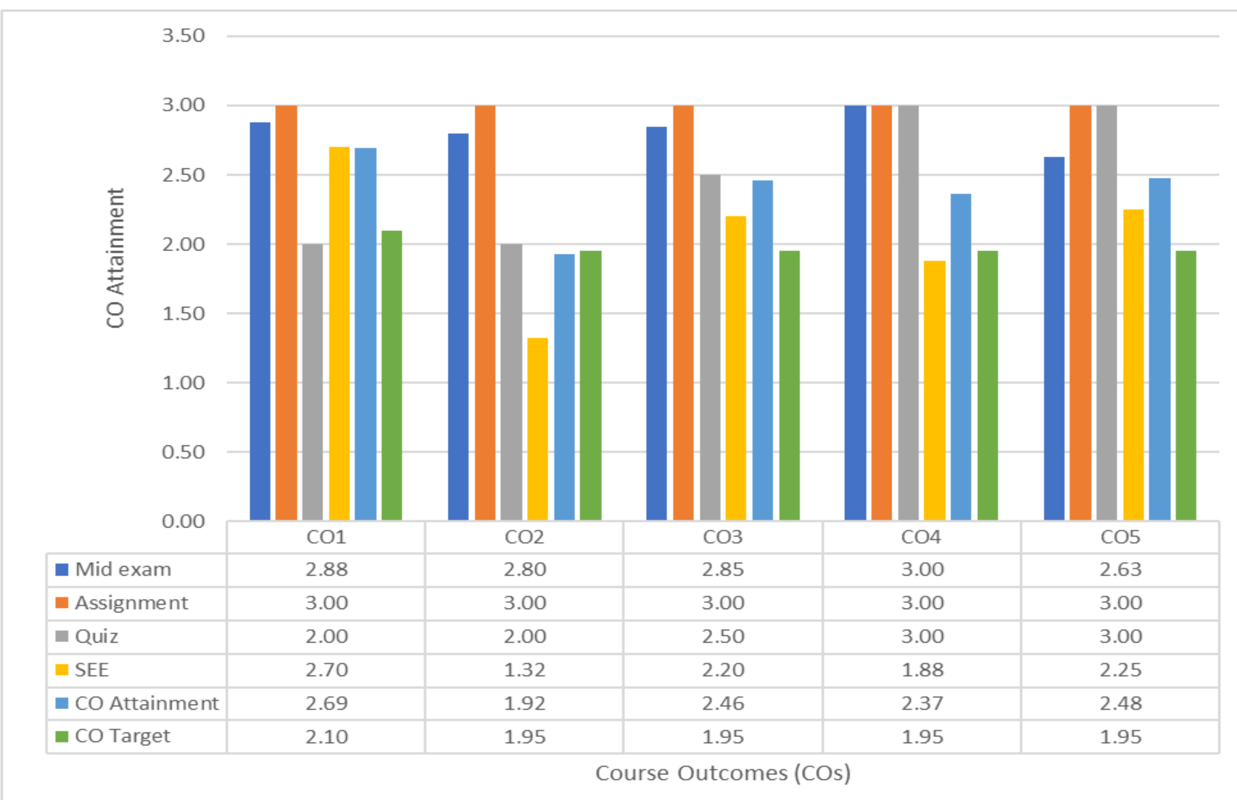
Note: The final attainments of COs are determined according to the given weightage.

Weightage for COs: 60% of Semester End Examinations + 25% of Descriptive Examinations +10% of Quiz Examinations + 5% of Assignments**.**

Final CO Attainment:

Final COs Attainment Direct Assessment= (60% of SEE + 25% of Descriptive + 10% of Quiz + 5% of Assignment) Total = 90% OF DA+ 10% of CES					
Assessment Tool	CO1	CO2	CO3	CO4	CO5
MID Attainment Level	2.88	2.80	2.85	3.00	2.63
Assignment Attainment Level	3.00	3.00	3.00	3.00	3.00
Quiz Attainment Level	2.00	2.00	2.50	3.00	3.00
SEE Attainment Level	2.70	1.32	2.20	1.88	2.25
Course End Survey attainment Level	2.73	2.66	2.71	2.70	2.63
COs Attainment (%)	2.69	1.92	2.46	2.37	2.48
CO Target(%)	2.10	1.95	1.95	1.95	1.95

Graph Representation of COs Attainment:



Calculation of CO-PO-PSO attainment:

CO		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2.69	3	2											2		
CO2	1.92	3	2	2	1									2		
CO3	2.46	3	2	2	1									2		
CO4	2.37	3	2	2	1									2		
CO5	2.48	3	2	2	1									2		
Avg PO &PSO		3	2	2	1									2		
PO and PSO attainment		2.39	2.39	2.31	2.31									2.39		

Comments:

- Only CO2 is not reached the target; remaining all Cos are above the threshold level.
- To Strengthen CO2; need more practical applications related to linear and non-linear data structures in the lab.

Course Instructor	Course Coordinator	Module Coordinator	HOD
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