SJM Vidyapeetha®

SJM Institute of Technology

NH-4 Bypass, Karnataka,Chitradurga,577502

(Approved by AICTE, New Delhi - Recognised by Govt of Karnataka)
(Affiliated to Visvesvaraya Technological University, Belagavi)

Program : Computer Science and Engineering

Batch : 2023 - 2024

Course : Computer Graphics andFundamentals of Image Processing - 21CS63

Course Outome (COs)

	CO
CO1	Construct geometric objects using Computer Graphics principles and OpenGL APIs.
CO2	Use OpenGL APIs and related mathematics for 2D and 3D geometric Operations on the objects.
CO3	Design GUI with necessary techniques required to animate the created objects.
CO4	Apply OpenCV for developing Image processing applications.
CO5	Apply Image segmentation techniques along with programming, using Open CV, for developing simple applications.

CO - PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	-	-	-	-	-	-	-	-	-	-
CO2	3	3	-	-	-	-	-	-	-	-	-	-
CO3	3	3	-	-	-	-	-	-	-	-	-	-
CO4	3	2	-	-	-	-	-	-	-	-	-	-
CO5	3	3	-	-	-	-	-	-	-	-	-	-

CO - PSO Mapping

	PSO1	PSO2
CO1	3	-
CO2	3	-
CO3	3	-
CO4	3	-
CO5	3	-

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Program   :   Computer Science and Engineering

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Course   :   Computer Graphics andFundamentals of Image Processing - 21CS63

Program Outcomes (POs) defined by NBA

PO Code	Short Description	Full Description
PO1		Engineering Knowledge: Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
PO2		Problem Analysis: Identify, formulate, research literature and analyze complexengineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
PO3		Design / Development of Solutions: Design solutions for complex engineeringproblems and design system components or processes that meet specified needs withappropriate consideration for public health and safety, cultural, societal andenvironmental considerations.
PO4		Conduct investigations of complex problems using research - basedknowledge and research methods including design of experiments, analysis andinterpretation of data and synthesis of information to provide valid conclusions
PO5		Modern Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modelling to complexengineering activities with an understanding of the limitations.
PO6		The Engineer and Society: Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues andtheconsequent responsibilities relevant to professional engineering practice.
PO7		Environment and Sustainability: Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrateknowledge of and need for sustainable development.
PO8		Ethics: Apply ethical principles and commit to professional ethics. andresponsibilities and norms of engineering practice
PO9		Individual and Team Work: Function effectively as an individual, and as amember or leader in diverse teams and in multi-disciplinary settings.
PO10		Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able tocomprehend and write effective reports and design documentation, make effectivepresentations and give and receive clear instructions.
PO11		Project Management and Finance: Demonstrate knowledge andunderstanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects andinmultidisciplinary environments.
PO12		Life-long Learning: Recognize the need for and have the preparationandability to Engage in independent and life-long learning in the broadest context of technological changes..

Program Specific Outcomes defined by the Program

PSO Code	Full Description
PSO1	An ability to design and develop hardware and software in emerging technology environments like cloud computing embedded products and real-time systems. (Orientation towards Systems Programming)
PSO2	Knowledge of data management system like data acquisition, big data so as to enable students in solving problems using the techniques of data analytics like pattern recognition and knowledge discovery. (Orientation towards Data Sciences)

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Students CO Details

Sl No	Student Name / USN	Max Marks					Obtained Marks					Percentage				
		CO1	CO2	CO3	CO4	CO5	CO1	CO2	CO3	CO4	CO5	CO1	CO2	CO3	CO4	CO5
1	Ranganatha S 4SM21CS085	47.33	47.33	57.33	64	64	37.27	34.27	45.27	48.6	46.6	79	72	79	76	73
2	Niveditha N 4SM21CS068	47.33	47.33	57.33	64	64	41.93	41.93	50.93	63.6	61.6	89	89	89	99	96
3	Tasmiya Khanum D 4SM21CS113	47.33	47.33	57.33	64	64	45.13	47.13	57.13	62.8	63.8	95	100	100	98	100
4	Yashas 4SM21CS123	47.33	47.33	57.33	64	64	34.93	36.93	44.93	46.6	44.6	74	78	78	73	70
5	Nithinag 4SM21CS067	47.33	47.33	57.33	64	64	41.8	42.8	53.8	57.8	58.8	88	90	94	90	92
6	Shalini P 4SM21CS093	47.33	47.33	57.33	64	64	45.13	45.13	54.13	57.8	56.8	95	95	94	90	89
7	Manoj R N 4SM22CS405	47.33	47.33	57.33	64	64	40.33	41.33	49.33	64	56	85	87	86	100	88
8	Harshitha M 4SM21CS036	47.33	47.33	57.33	64	64	44.93	44.93	56.93	58.6	58.6	95	95	99	92	92
9	Sandhya Rani A 4SM22CS408	47.33	47.33	57.33	64	64	46.13	42.13	52.13	58.8	56.8	97	89	91	92	89
10	Venkata Charan Kumar Reddy T 4SM21CS121	47.33	47.33	57.33	64	64	44.93	46.93	53.93	52.6	53.6	95	99	94	82	84
11	Amith S M 4SM22CS400	47.33	47.33	57.33	64	64	33.93	32.93	43.93	47.6	48.6	72	70	77	74	76
12	Bhumika C 4SM22CS401	47.33	47.33	57.33	64	64	42.93	40.93	45.93	63.6	59.6	91	86	80	99	93
13	Yashvanth K 4SM21CS125	47.33	47.33	57.33	64	64	41.4	41.4	52.4	58.4	57.4	87	87	91	91	90
14	Siddesh S 4SM22CS409	47.33	47.33	57.33	64	64	41.4	39.4	50.4	58.4	58.4	87	83	88	91	91
15	Pavitra D 4SM21CS070	47.33	47.33	57.33	64	64	45.13	45.13	55.13	63.8	63.8	95	95	96	100	100
16	Vinay Kumar S 4SM22CS412	47.33	47.33	57.33	64	64	45.33	44.33	54.33	59	53	96	94	95	92	83
17	Manegara Priyanka 4SM21CS052	47.33	47.33	57.33	64	64	41.6	40.6	48.6	58.6	56.6	88	86	85	92	88
18	Tejaswinis 4SM21CS115	47.33	47.33	57.33	64	64	38.27	30.27	46.27	11.6	6.6	81	64	81	18	10
19	Shubhra V Reddy 4SM21CS098	47.33	47.33	57.33	64	64	44.73	46.73	49.73	62.4	62.4	95	99	87	98	98
20	Pragna Bn 4SM21CS071	47.33	47.33	57.33	64	64	45.73	43.73	54.73	62.4	60.4	97	92	95	98	94
21	Preetham G 4SM21CS079	47.33	47.33	57.33	64	64	44.93	46.93	55.93	58.6	57.6	95	99	98	92	90

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		CO1	CO2	CO3	CO4	CO5	CO1	CO2	CO3	CO4	CO5	CO1	CO2	CO3	CO4	CO5
22	Suhas R 4SM21CS104	37.33	37.33	37.33	54	54	0	0	0	0	0	0	0	0	0	0
23	Pragna R 4SM21CS072	47.33	47.33	57.33	64	64	44.93	44.93	56.93	63.6	63.6	95	95	99	99	99
24	Rakshitha C U 4SM21CS083	47.33	47.33	57.33	64	64	44.73	46.73	51.73	63.4	63.4	95	99	90	99	99
25	Shreya Mk 4SM21CS097	47.33	47.33	57.33	64	64	45.13	46.13	55.13	63.8	61.8	95	97	96	100	97
26	Thanushree M 4SM22CS410	47.33	47.33	57.33	64	64	43.93	40.93	56.93	58.6	54.6	93	86	99	92	85
27	Sanjanams 4SM21CS091	47.33	47.33	57.33	64	64	44.93	39.93	55.93	53.6	54.6	95	84	98	84	85
28	Srushti Ragi C 4SM21CS103	47.33	47.33	57.33	64	64	43.93	45.93	51.93	63.6	62.6	93	97	91	99	98
29	Rakshitha M 4SM22CS407	47.33	47.33	57.33	64	64	43.93	40.93	49.93	58.6	53.6	93	86	87	92	84
30	Vishwanath Kampli 4SM21CS122	47.33	47.33	57.33	64	64	34.93	32.93	35.93	40.6	44.6	74	70	63	63	70
31	D S Chiranjeevi Sagar 4SM21CS024	47.33	47.33	57.33	64	64	37.33	42.33	42.33	63	55	79	89	74	98	86
32	Neha M 4SM21CS063	47.33	47.33	57.33	64	64	44.73	46.73	54.73	62.4	60.4	95	99	95	98	94
33	Raghavendra M Devale 4SM22CS406	47.33	47.33	57.33	64	64	44.13	46.13	52.13	63.8	59.8	93	97	91	100	93
34	Sushma Patel N 4SM21CS109	47.33	47.33	57.33	64	64	44.73	42.73	55.73	58.4	57.4	95	90	97	91	90
35	Ruchitha B 4SM21CS086	47.33	47.33	57.33	64	64	44.73	42.73	55.73	58.4	58.4	95	90	97	91	91
36	Sangeetha D 4SM21CS090	47.33	47.33	57.33	64	64	41.93	40.93	45.93	58.6	55.6	89	86	80	92	87
37	Srushti M 4SM21CS102	47.33	47.33	57.33	64	64	44.73	44.73	52.73	63.4	63.4	95	95	92	99	99
38	Darshan G L 4SM22CS402	47.33	47.33	57.33	64	64	44.93	38.93	54.93	63.6	55.6	95	82	96	99	87
39	Madhusudana R R 4SM22CS404	47.33	47.33	57.33	64	64	44.93	42.93	48.93	63.6	63.6	95	91	85	99	99
40	Latha S R 4SM21CS046	47.33	47.33	57.33	64	64	40.4	38.4	52.4	53.4	53.4	85	81	91	83	83
41	Prajwal N 4SM21CS075	47.33	47.33	57.33	64	64	41.6	38.6	50.6	53.6	51.6	88	82	88	84	81
42	Shreya M 4SM21CS096	47.33	47.33	57.33	64	64	46.13	45.13	55.13	62.8	62.8	97	95	96	98	98
43	Syeda Shafiya Raheem Unnisa 4SM21CS110	47.33	47.33	57.33	64	64	44.93	44.93	53.93	63.6	63.6	95	95	94	99	99

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		CO1	CO2	CO3	CO4	CO5	CO1	CO2	CO3	CO4	CO5	CO1	CO2	CO3	CO4	CO5
44	Punith G S 4SM21CS081	47.33	47.33	57.33	64	64	42.73	40.73	48.73	60.4	61.4	90	86	85	94	96
45	Mohamed Akif Ur Rahman 4SM21CS057	47.33	47.33	57.33	64	64	37.27	40.27	47.27	50.6	53.6	79	85	82	79	84
46	Sriharsha R 4SM21CS101	47.33	47.33	57.33	64	64	34.93	34.93	36.93	48.6	44.6	74	74	64	76	70
47	Syeda Sumiya Begum 4SM21CS112	47.33	47.33	57.33	64	64	44.93	46.93	56.93	63.6	63.6	95	99	99	99	99
48	Prajna K L 4SM21CS073	47.33	47.33	57.33	64	64	39.4	37.4	46.4	58.4	56.4	83	79	81	91	88
49	Manoj M 4SM21CS054	47.33	47.33	57.33	64	64	44.73	46.73	54.73	63.4	63.4	95	99	95	99	99
50	Pramod T S 4SM21CS077	47.33	47.33	57.33	64	64	37.6	42.6	48.6	58.6	56.6	79	90	85	92	88
51	Varun M B 4SM21CS120	47.33	47.33	57.33	64	64	44.93	46.93	52.93	58.6	55.6	95	99	92	92	87
52	Prajwal Kn 4SM21CS074	47.33	47.33	57.33	64	64	40.6	38.6	49.6	53.6	51.6	86	82	87	84	81
53	Rakshitha P 4SM21CS084	47.33	47.33	57.33	64	64	35.13	34.13	46.13	52.8	49.8	74	72	80	82	78
54	Kruthi Rp 4SM21CS045	47.33	47.33	57.33	64	64	41.93	46.93	55.93	58.6	58.6	89	99	98	92	92
55	Prajwal Tm 4SM21CS076	47.33	47.33	57.33	64	64	30.33	25.33	31.33	10	5	64	54	55	16	8
56	Vignesh Lv 4SM22CS411	47.33	47.33	57.33	64	64	44.93	40.93	54.93	61.6	55.6	95	86	96	96	87
57	Arya Sudhakar Badiger 4SM21CS013	47.33	47.33	57.33	64	64	44.73	46.73	53.73	62.4	63.4	95	99	94	98	99
58	Anusha C 4SM21CS010	47.33	47.33	57.33	64	64	44.93	46.93	52.93	62.6	62.6	95	99	92	98	98
59	Varsha Umesh 4SM21CS119	47.33	47.33	57.33	64	64	44.73	44.73	53.73	58.4	58.4	95	95	94	91	91
60	Siri M 4SM21CS100	47.33	47.33	57.33	64	64	44.73	46.73	56.73	58.4	58.4	95	99	99	91	91
61	Vaishnavi Kp 4SM21CS118	47.33	47.33	57.33	64	64	39.53	42.53	51.53	62.2	62.2	84	90	90	97	97
62	Priyanka P U 4SM21CS080	47.33	47.33	57.33	64	64	44.93	44.93	55.93	63.6	63.6	95	95	98	99	99
63	Ankitha Gm 4SM21CS009	47.33	47.33	57.33	64	64	38.67	38.67	47.67	53	50	82	82	83	83	78
64	Aishwarya H T 4SM21CS126	47.33	47.33	57.33	64	64	36.6	38.6	51.6	58.6	58.6	77	82	90	92	92
65	Tejashwini S Teggi 4SM21CS114	47.33	47.33	57.33	64	64	44.93	46.93	55.93	63.6	63.6	95	99	98	99	99

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		CO1	CO2	CO3	CO4	CO5	CO1	CO2	CO3	CO4	CO5	CO1	CO2	CO3	CO4	CO5
66	Madhusudana R R 4SM22CS404	47.33	47.33	57.33	64	64	44.93	42.93	48.93	63.6	63.6	95	91	85	99	99
67	Darshan G L 4SM22CS402	47.33	47.33	57.33	64	64	44.93	38.93	54.93	63.6	55.6	95	82	96	99	87
68	Mohamed Akif Ur Rahman 4SM21CS057	47.33	47.33	57.33	64	64	37.27	40.27	47.27	50.6	53.6	79	85	82	79	84
69	Punith G S 4SM21CS081	47.33	47.33	57.33	64	64	42.73	40.73	48.73	60.4	61.4	90	86	85	94	96
70	Syeda Shafiya Raheem Unnisa 4SM21CS110	47.33	47.33	57.33	64	64	44.93	44.93	53.93	63.6	63.6	95	95	94	99	99

Head of The Department
Department of Computer Science & Engineering
SJMIT, Chitradurga-577502

Principal
S.J.M.I.T., Chitradurga.

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SI No	Tasks	IA1 1a	1b	2a	2b	3a	3b	4a	4b	IA2 1a	1b	2a	2b	3a	3b	4a	4b	IA3 1a	1b	2a	2b	3a	3b	4a	Assignment 1	Assignment 2	Activity 1	CES 1	2	3	4	5	SEE Max	Obtained
CO		CO1	CO1	CO1	CO1	CO2	CO2	CO2	CO2	CO3	CO3	CO3	CO3	CO3	CO3	CO3	CO3	CO4	CO4	CO4	CO4	CO5	CO5	CO5	CO1,CO2,CO3	CO4,CO5	CO1,CO2,CO3,CO4,CO5	CO1	CO2	CO3	CO4	CO5		
Max Marks		5	5	5	5	5	5	5	5	5	5	6	4	6	4	6	4	5	5	6	4	4	6	10	100	100	20	3	3	3	3	3		
1	Ankitha Gm 4SM21CS009	5	3					3	5	5	4					5	3	4	5					6	80	80	20	3	3	3	3	3	50	24
2	Anusha C 4SM21CS010			4	4	5	5							6	4	3	3	4	5					9	100	100	18	3	3	3	3	3	50	33
3	Arya Sudhakar Badiger 4SM21CS013	5	3			5	5			5	5					4	3	4	5			4	6		100	100	17	3	3	3	3	3	50	33
4	D S Chiranjeevi Sagar 4SM21CS024	0	0			5	0			1	0					0	4	4	5					1	100	100	20	3	3	3	3	3	50	18
5	Harshitha M 4SM21CS036	5	3			3	5			5	5					6	4	5	5			4	6		100	90	18	3	3	3	3	3	50	37
6	Kruthi Rp 4SM21CS045	2	3					5	5	5	5					5	4	5	5			4	6		100	90	18	3	3	3	3	3	50	22
7	Latha S R 4SM21CS046	4	3			4	1			5	5					5	4	5	5			4	6		90	80	17	3	3	3	3	3	50	35
8	Manegara Priyanka 4SM21CS052	5	3			5	2			4	5					4	2	5	5			3	5		90	90	18	3	2	3	2	3	50	29
9	Manoj M 4SM21CS054	5	3			5	5			5	4					5	4	5	5					10	100	100	17	3	2	3	2	3	50	24
10	Mohamed Akif Ur Rahman 4SM21CS057	4	3			5	5			5	4					4	4	2	5					10	80	80	18	3	2	3	2	3	50	
11	Neha M 4SM21CS063	5	3			5	5			5	5					4	4	4	5			4	3		100	100	17	3	2	3	2	3	50	36
12	Nithinag 4SM21CS067	5	3			5	4			5	5					6	4			5	4			10	90	90	19	3	2	3	3	3	50	27
13	Niveditha N 4SM21CS068	5	0			3	2			4	4					4	2	5	5			4	4		100	100	18	3	3	3	3	3	50	20
14	Pavitra D 4SM21CS070	5	3			5	3			5	5					5	3	5	5			4	6		100	100	19	3	3	3	3	3	50	38
15	Pragna Bn 4SM21CS071			4	5	2	5			5	3			6	4			4	5			2	5		100	100	17	3	3	3	3	3	50	29
16	Pragna R 4SM21CS072	5	3			5	3			5	5					6	4	5	5			4	6		100	100	18	3	3	3	3	3	50	27
17	Prajna K L 4SM21CS073	4	2					1	3	5	4					2	2	5	5			3	5		90	90	17	3	3	3	3	3	50	25
18	Prajwal Kn 4SM21CS074	4	3			1	4			5	1					6	4	5	5			4	4		90	80	18	3	3	3	3	3	50	29
19	Prajwal N 4SM21CS075	5	3			1	4			5	3					5	4	5	5			4	4		90	80	18	3	3	3	3	3	50	31
20	Prajwal Tm 4SM21CS076	2	3			0	0			3	3			0	0			3	5					3	70	0	10	3	3	3	3	3	50	7
21	Pramod T S 4SM21CS077	1	3			4	5			5	1					6	3	5	5			4	4		90	90	18	3	3	3	3	3	50	22

Tasks		Internal Assessment 1								Internal Assessment 2								Internal Assessment 3							Assignment 1	Assignment 2	Activity 1	Course Exit Survey					SEE Marks	
Sl No / Question No / CO / Max Marks		1a	1b	2a	2b	3a	3b	4a	4b	1a	1b	2a	2b	3a	3b	4a	4b	1a	1b	2a	2b	3a	3b	4a	1	1	1	1	2	3	4	5	Max Marks	Obtained
		CO1	CO1	CO1	CO1	CO2	CO2	CO2	CO2	CO3	CO3	CO3	CO3	CO3	CO3	CO3	CO3	CO4	CO4	CO4	CO4	CO5	CO5	CO5	CO1,CO2,CO3	CO4,CO5	CO1,CO2,CO3,CO4,CO5	CO1	CO2	CO3	CO4	CO5		
	Max Marks	5	5	5	5	5	5	5	5	6	4	6	4	6	4	6	4	5	5	6	4	4	6	10	100	100	20	3	3	3	3	3		
22	Prashanth K M 4SM21CS078	0	0			0	0			5	0					1	4	5	5			4	4		100	100	18	3	3	3	3	3	50	31
23	Preetham G 4SM21CS079	5	3			5	5			5	5					5	4	5	5					9	100	90	18	3	3	3	3	3	50	21
24	Priyanka P U 4SM21CS080	5	3			5	3			5	5					6	3	5	5			4	6		100	100	18	3	3	3	3	3	50	30
25	Punith G S 4SM21CS081			4	2			0	4	2	3					4	3	2	5			3	5		100	100	17	3	3	3	3	3	50	35
26	Rakshitha C U 4SM21CS083	5	3			5	5			5	5					5	0	5	5			4	6		100	100	17	3	3	3	3	3	50	41
27	Rakshitha P 4SM21CS084	5	3					2	5	5	5					5	4	4	5					6	70	80	19	3	3	3	3	3	50	31
28	Ranganatha S 4SM21CS085	4	3			1	3			5	2					4	4	5	5			4	4		80	70	18	3	3	3	3	3	50	24
29	Ruchitha B 4SM21CS086	5	3			2	4			5	5					5	4	5	5			4	6		100	90	17	3	3	3	3	3	50	22
30	Sakshi A M 4SM21CS089			4	5	5	3					6	0			6	4	3	5					8	100	100	18	3	3	3	3	3	50	25
31	Sangeetha D 4SM21CS090	5	0			4	0			4	2					3	0	5	5			3	4		100	90	18	3	3	3	3	3	50	18
32	Sanjanams 4SM21CS091	5	3			3	0			5	5			6	3			0	5			0	6		100	90	18	3	3	3	3	3	50	34
33	Shalini P 4SM21CS093	5	3			4	4			5	4					4	4			5	4			8	100	90	19	3	3	3	3	3	50	36
34	Shilpa B S 4SM21CS095	5	3					5	4	5	5					2	4	4	5					6	100	100	18	3	3	3	3	3	50	26
35	Shreya M 4SM21CS096			4	5	3	5			5	5					4	4	4	5			4	5		100	100	19	3	3	3	3	3	50	27
36	Shreya Mk 4SM21CS097	5	3			5	4			5	5					5	3	5	5			4	4		100	100	19	3	3	3	3	3	50	28
37	Shubhra V Reddy 4SM21CS098	5	3			5	5			5	5					3	0	4	5			4	5		100	100	17	3	3	3	3	3	50	28
38	Siri M 4SM21CS100	5	3			5	5			5	5					6	4	5	5			4	6		100	90	17	3	3	3	3	3	50	39
39	Sriharsha R 4SM21CS101	5	3			3	5			4	3					0	3	5	5			3	3		70	70	18	3	3	3	3	3	50	22
40	Srushti M 4SM21CS102	5	3			5	3					6	0	6	4			5	5			4	6		100	100	17	3	3	3	3	3	50	30
41	Srushti Ragi C 4SM21CS103	4	3					5	4			6	0			5	4	5	5			4	5		100	100	18	3	3	3	3	3	50	18
42	Suhas R 4SM21CS104																								0	0	0	3	3	3	3	3		
43	Sujan Gowda G M 4SM21CS105	5	3			5	5			5	5					4	3	4	5					4	100	100	18	3	3	3	3	3	50	18

Sl No	Tasks	Internal Assessment 1								Internal Assessment 2								Internal Assessment 3							Assignment 1	Assignment 2	Activity 1	Course Exit Survey					SEE Marks	
Question No		1a	1b	2a	2b	3a	3b	4a	4b	1a	1b	2a	2b	3a	3b	4a	4b	1a	1b	2a	2b	3a	3b	4a	1	1	1	1	2	3	4	5		
CO		CO1	CO1	CO1	CO1	CO2	CO2	CO2	CO2	CO3	CO3	CO3	CO3	CO3	CO3	CO3	CO3	CO4	CO4	CO4	CO4	CO5	CO5	CO5	CO1,CO2,CO3	CO4,CO5	CO1,CO2,CO3,CO4,CO5	CO1	CO2	CO3	CO4	CO5	Max Marks	Obtained
Max Marks		5	5	5	5	5	5	5	5	5	5	6	4	6	4	6	4	5	5	6	4	4	6	10	100	100	20	3	3	3	3	3		
44	Sushma Patel N 4SM21CS109	5	3			2	4			5	5					5	4	5	5			4	5		100	90	17	3	3	3	3	3	50	26
45	Syeda Shafiya Raheem Un-nisa 4SM21CS110	5	3			5	3			5	5					3	4	5	5			4	6		100	100	18	3	3	3	3	3	50	29
46	Syeda Sumiya Begum 4SM21CS112	5	3			5	5			5	5					6	4	5	5			4	6		100	100	18	3	3	3	3	3	50	33
47	Tasmiya Khanum D 4SM21CS113	5	3					5	5	5	5					6	4	4	5			4	6		100	100	19	3	3	3	3	3	50	34
48	Tejashwini S Teggi 4SM21CS114	5	3			5	5			5	5					6	3	5	5			4	6		100	100	18	3	3	3	3	3	50	31
49	Tejaswinis 4SM21CS115	5	3			0	0			5	5					3	3	5	3			3	0		80	0	18	3	3	3	3	3	50	30
50	Vaishnavi Kp 4SM21CS118	3	0			1	5			5	4					4	2	5	4			4	5		100	100	16	3	3	3	3	3	50	27
51	Varsha Umesh 4SM21CS119	5	3			5	3			5	5					3	4	5	5			4	6		100	90	17	3	3	3	3	3	50	33
52	Varun M B 4SM21CS120	5	3			5	5			5	5					3	3			6	4	3	4		100	90	18	3	3	3	3	3	50	35
53	Venkata Charan Kumar Reddy T 4SM21CS121	5	3			5	5			4	5					4	4	4	5			4	6		100	80	18	3	3	3	3	3	50	34
54	Vishwanath Kampli 4SM21CS122	5	3			1	5			5	3					1	0			0	2	2	4		70	70	18	3	3	3	3	3	50	20
55	Yashas 4SM21CS123	5	3			5	5			5	5					4	4	5	3			4	2		70	70	18	3	3	3	3	3	50	7
56	Yashaswini's Cm 4SM21CS124	5	3			5	5			5	5					5	4	4	5			4	4		100	90	17	3	3	3	3	3	50	37
57	Yashvanth K 4SM21CS125	5	3			5	3					5	4	6	4			5	5			4	5		90	90	17	3	3	2	2	2	50	21
58	Aishwarya H T 4SM21CS126	3	0			3	2			5	5					4	4	5	5			4	6		90	90	18	3	3	3	3	3	50	35
59	Amith S M 4SM22CS400	5	2			2	4			4	4					5	4	4	5			4	6		70	70	18	3	3	3	3	3	50	23
60	Bhumika C 4SM22CS401	3	3			0	4			5	4			0	0			5	5			4	2		100	100	18	3	3	3	3	3	50	34
61	Darshan G L 4SM22CS402	5	3			2	0			5	5					5	3	5	5					2	100	100	18	3	3	3	3	3	50	31
62	Madhusudana R R 4SM22CS404	5	3			3	3			2	4					3	3	5	5					10	100	100	18	3	3	3	3	3	50	25
63	Manoj R N 4SM22CS405	3	0			4	0			5	2					2	3	5	5					2	100	100	20	3	3	3	3	3	50	26
64	Raghavendra M Devale 4SM22CS406	4	3			5	4			4	4					3	4	5	5					6	100	100	19	3	3	3	3	3	50	29

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Sl No	Tasks → Question No / CO / Max Marks	Internal Assessment 1								Internal Assessment 2								Internal Assessment 3							Assignment 1	Assignment 2	Activity 1	Course Exit Survey					SEE Marks	
	Question No	1a	1b	2a	2b	3a	3b	4a	4b	1a	1b	2a	2b	3a	3b	4a	4b	1a	1b	2a	2b	3a	3b	4a	1	1	1	1	2	3	4	5		
	CO	CO1	CO1	CO1	CO1	CO2	CO2	CO2	CO2	CO2	CO3	CO3	CO3	CO3	CO3	CO3	CO3	CO4	CO4	CO4	CO4	CO5	CO5	CO5	CO1,CO2,CO3	CO4,CO5	CO1,CO2,CO3,CO4,CO5	CO1	CO2	CO3	CO4	CO5	Max Marks	Obtained
	Max Marks	5	5	5	5	5	5	5	5	5	5	6	4	6	4	5	5	5	6	4	4	6	10		100	100	20	3	3	3	3	3		
65	Rakshitha M 4SM22CS407	4	3					0	4	5	4					4	0	5	5			4	1		100	90	18	3	3	3	3	3	50	31
66	Sandhya Rani A 4SM22CS408	4	5			3	2			5	5					2	3	5	5			2	6		100	90	19	3	3	3	3	3	50	30
67	Sushma S 4SM22CS409	5	3					3	3	5	5					4	3	5	5					10	90	90	17	3	3	3	3	3	50	31
68	Thanushree M 4SM22CS410	4	3					0	4	5	5					6	4	5	5			4	2		100	90	18	3	3	3	3	3	50	25
69	Vignesh L v 4SM22CS411	5	3			4	0			5	5					5	3	5	3					2	100	100	18	3	3	3	3	3	50	32
70	Vinay Kumar S 4SM22CS412	5	3					4	3	5	4					5	3	5	5			3	1		100	90	20	3	3	3	3	3	50	33

Head of The Department
Department of Computer Science & Engineering
SJMIT, Chitradurga-577502

Principal
S.J.M.I.T., Chitradurga.

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Faculty Course Attainment

Department	Computer Science and Engineering	Academic Year	2023 - 2024
Semester	VI Sem	Section	B Sec
Course Name	Computer Graphics andFundamentals of Image Processing	Course Code	21CS63 (C313)
Faculty	Mrs. PUSHPALATHA M	Batch	2021 - 2025

Attainment of COs

Attainment of COs can be measured directly and indirectly.

Direct attainment of COs can be determined from the performances of students in all the relevant assessment instruments.

Indirect attainment of COs (which is optional as per NBA) can be determined from the course exit survey.

The exit survey form should permit receiving feedback from students on all the COs.

Mapping Factor (Correlation Level)

It indicates to what extint a certain component(either assessment method to CO or CO to PO or CO to PSO).

　3-indicates Substantial (high) mapping (high contribution towards attainment).

　2-indicates Moderate (medium) mapping (medium contribution towards attainment).

　1-indicates Slight (low) mapping (low contribution towards attainment).

CO Attainment Target Values

Target set for Internal Assessment 50%.

Target set for External Examination 50%.

Level of attainment

Here 3 levels of attainment is taken as 1 - Low; 2 - Medium; 3 - High.

3 levels of attainment can be defined as :

　Attainment 3 : 60% Students scoring >= 50% of marks allocated to CO.

　Attainment 2 : 50% Students scoring >= 50% of marks allocated to CO.

　Attainment 1 : Less than 49% Students scoring >= 50% of marks allocated to CO.

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Course Outome (COs)

	CO Statement
C313.1	Construct geometric objects using Computer Graphics principles and OpenGL APIs.
C313.2	Use OpenGL APIs and related mathematics for 2D and 3D geometric Operations on the objects.
C313.3	Design GUI with necessary techniques required to animate the created objects.
C313.4	Apply OpenCV for developing Image processing applications.
C313.5	Apply Image segmentation techniques along with programming, using Open CV, for developing simple applications.

Program Outcomes(POs)

PO Code	Short Description	Full Description
PO1		Engineering Knowledge: Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
PO2		Problem Analysis: Identify, formulate, research literature and analyze complexengineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
PO3		Design / Development of Solutions: Design solutions for complex engineering-problems and design system components or processes that meet specified needs withappropriate consideration for public health and safety, cultural, societal andenvironmental considerations.
PO4		Conduct investigations of complex problems using research - basedknowledge and research methods including design of experiments, analysis andinterpretation of data and synthesis of information to provide valid conclusions
PO5		Modern Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modelling to complexengineering activities with an understanding of the limitations.
PO6		The Engineer and Society: Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues andtheconsequent responsibilities relevant to professional engineering practice.
PO7		Environment and Sustainability: Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrateknowledge of and need for sustainable development.
PO8		Ethics: Apply ethical principles and commit to professional ethics. andresponsibilities and norms of engineering practice
PO9		Individual and Team Work: Function effectively as an individual, and as amember or leader in diverse teams and in multi-disciplinary settings.
PO10		Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able tocomprehend and write effective reports and design documentation, make effectivepresentations and give and receive clear instructions.
PO11		Project Management and Finance: Demonstrate knowledge andunderstanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects andinmultidisciplinary environments.
PO12		Life-long Learning: Recognize the need for and have the preparationandability to Engage in independent and life-long learning in the broadest context of technological changes..

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Program Specific Outcome (PSOs)

PSO Code	Full Description
PSO1	An ability to design and develop hardware and software in emerging technology environments like cloud computing embedded products and real-time systems. (Orientation towards Systems Programming)
PSO2	Knowledge of data management system like data acquisition, big data so as to enable students in solving problems using the techniques of data analytics like pattern recognition and knowledge discovery. (Orientation towards Data Sciences)

CO - PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C313.1	3	3	-	-	-	-	-	-	-	-	-	-
C313.2	3	3	-	-	-	-	-	-	-	-	-	-
C313.3	3	3	-	-	-	-	-	-	-	-	-	-
C313.4	3	2	-	-	-	-	-	-	-	-	-	-
C313.5	3	3	-	-	-	-	-	-	-	-	-	-
Weighted Average	3	2.8	-	-	-	-	-	-	-	-	-	-

CO - PSO Mapping

	PSO1	PSO2
C313.1	3	-
C313.2	3	-
C313.3	3	-
C313.4	3	-
C313.5	3	-
Weighted Average	3	-

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Direct CO Attainment

Direct attainment of COs is determined from the performances of students in Continuous Internal Evaluation (CIE) and Semester End Examination (SEE).

The proportional weightages of CIE : SEE will be as per the academic regulations in force. Proportions of 50 : 50.

Direct attainment of a specific COs is determined from the performances of students to all the assessment items related to that particular CO.

Hence, every assessment item needs to be tagged with the relevant CO.

Also, we need data about performance of students assessment item - wise.

$$\text{Target Reached} = \frac{\text{No of students Attaining}}{\text{Total students Participating}} \times 100$$

Direct CO Attainment for CIE

CO	CO Target (%)	Total Students Participating	No of Students Attaining	Target Reached (%)	Attainment Level
C313.1	50	70	69	99	3
C313.2	50	70	69	99	3
C313.3	50	70	69	99	3
C313.4	50	70	67	96	3
C313.5	50	70	67	96	3

Direct CO Attainment for SEE

CO	CO Target (%)	Total Students Participating	No of Students Attaining	Target Reached (%)	Attainment Level
C313.1	50	68	50	74	3
C313.2	50	68	50	74	3
C313.3	50	68	50	74	3
C313.4	50	68	50	74	3
C313.5	50	68	50	74	3

Direct CO Attainment (CIE : SEE :: 50 : 50)

$$\text{Target Reached} = \frac{\text{CIE Attainment X 50}}{100} + \frac{\text{SEE Attainment X 50}}{100}$$

CO	Target Reached (%)	Attainment Level
C313.1	87	3
C313.2	87	3
C313.3	87	3

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C313.4	85	3
C313.5	85	3

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Indirect Attainment

Indirect attainment of COs (which is optional as per NBA) can be determined from the course exit survey.

The exit survey form should permit receiving feedback from students on all the COs.

CO	Total Students	Attainment Level
C313.1	70	3
C313.2	70	2.93
C313.3	70	2.99
C313.4	70	2.93
C313.5	70	2.99

Final Attainment

$$\text{Final Attainment} = \frac{\text{Direct Attainment X 90}}{100} + \frac{\text{Indirect Attainment X 10}}{100}$$

CO	Attainment Level
C313.1	3
C313.2	2.99
C313.3	3
C313.4	2.99
C313.5	3

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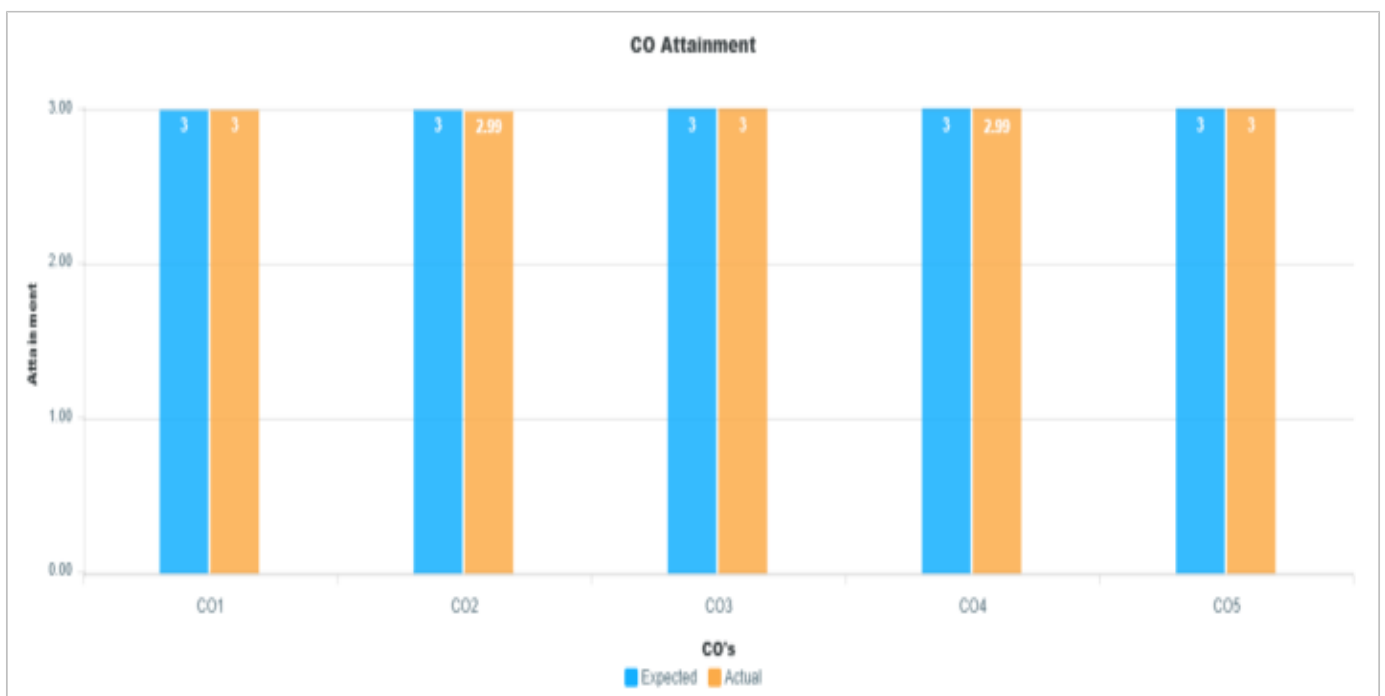
PO Attainment

Course Articulation Matrix: CO statement defined in the courses are mapped with 12 POs and 2 PSOs, based on the levels (i.e., 1 for low, 2 for medium and 3 for high) to which COs address the POs and PSOs. POs and PSOs are averaged over all the COs. This process forms the expected attainment of POs and PSOs through the COs of the course.

Program Articulation Matrix: This matrix contains the averaged POs and PSOs attainment levels of all the courses of the program. Average of the "Average PO and PSO attainment levels of all the courses of the program" is the expected attainment of POs and PSOs of the program.

Based on the set target levels and set attainment levels for a program, attainment levels of POs and PSOs of all the courses of a program are computed using an excel spreadsheet.

$$\text{PO/PSO Attainment} = \frac{\text{(CO Attainment Level X PO/PSO Mapped Level)}}{\text{Maximum Level}}$$

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C313.1	3	3	-	-	-	-	-	-	-	-	-	-
C313.2	2.99	2.99	-	-	-	-	-	-	-	-	-	-
C313.3	3	3	-	-	-	-	-	-	-	-	-	-
C313.4	2.99	1.99	-	-	-	-	-	-	-	-	-	-
C313.5	3	3	-	-	-	-	-	-	-	-	-	-
	3	2.8	-	-	-	-	-	-	-	-	-	-

Expected v/s Actual PO Attainment

PO's	Expected	Actual
PO1	3	3
PO2	2.8	2.8
PO3	-	-
PO4	-	-
PO5	-	-
PO6	-	-
PO7	-	-
PO8	-	-
PO9	-	-
PO10	-	-
PO11	-	-
PO12	-	-

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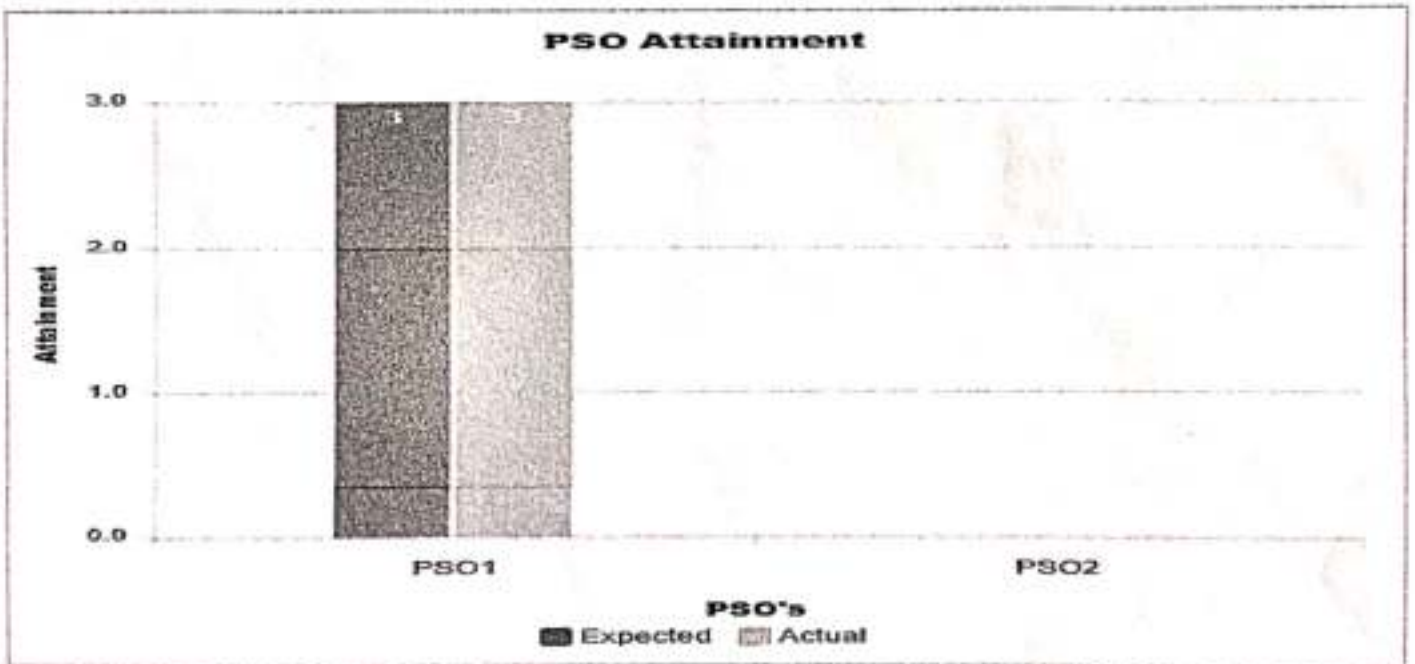## SJM Institute of Technology
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PO Attainment

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PSO Attainment

	PSO1	PSO2
C313.1	3	-
C313.2	2.99	-
C313.3	3	-
C313.4	2.99	-
C313.5	3	-
	3	-

Expected v/s Actual PSO Attainment

PSO's	Expected	Actual
PSO1	3	3
PSO2	-	-

PSO Attainment

Head of The Department
Department of Computer Science & Engineer
SJMIT Chitradurga 577502

Principal
S.J.M.I.T., Chitradurga.