Swami Keshvanand Institute of Technology,
Management & Gramothan

(Accredited by NAAC with 'A++' Grade)
Approved by AICTE, Ministry of Education, Government of India
Recognized by UGC under Section 2(f) of the UGC Act, 1956
Affiliated to Rajasthan Technical University, Kota

Attainment Calculation Methodology With Sample Calculation B. Tech CSE - 2019-2023 (Batch)

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Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur

Department of Computer Science & Engineering

Batch: 2019-2023

Program Level Course-PO/PSO matrix to identify Curriculum Gap

S.No	Course-Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
1	1 FY2-01	ENGINEERING MATHEMATICS-I	3	3													
2	1FY2/2FY2-01	Engineering Physics	3														
3	1FY2/2FY2-03	Engineering Chemistry	3		3			3				3					
4	1FY1/2FY1-04	COMMUNICATION SKILLS										3					
5	1FY1/2FY1-05	Human Values						3	3	2	3						
6	1FY3/2FY3-06	Programming for Problem Solving	2	2	1	2	2				3		1	1	3	2	
7	1FY3/2FY3-07	Basic Mechanical Engineering	3														
8	1FY3/2FY3-08	Basic Electrical Engineering	3	3	3	3											
9	1FY3/2FY3-09	Basic Civil Engineering	3	3				2	2	2	2			3			
10	2FY2-01	ENGINEERING MATHEMATICS-II	3	3													
11	1FY2/2FY2-20	Engineering Physics Lab	3								2	3					
12	1FY2/2FY2-21	Engineering Chemistry Lab	3								2	3					
13	1FY1/2FY1-22	Language Lab									2	3					
14	1FY1/2FY1-23	Human Values Activities						3	3	2	3						
15	1FY3/2FY3-24	Computer Programming Lab	2	2	1	2	3				3		1	1	3	2	
16	1FY3/2FY3-25	Manufacturing Practices Workshop	3				3				3						
17	1FY3/2FY3-26	Basic Electrical Engineering Lab	3	3	3	3	3										
18	1FY3/2FY3-26	Basic Civil Engineering Lab	3	3			3	3	2								
19	1FY3/2FY3-28	Computer Aided Engineering Lab	3				3					3					
20	1FY3/2FY3-29	Computer Aided Machine Drawing	3				3					3					
21	1FY8-00	SODECA								3	3	3	3				
22	2FY8-00	SODECA								3	3	3	3				
23	3CS2-01	Advanced Engineering Mathematics	2	2		1						1	2	1			
24	3CS1-02	Technical Communication										2					2
25	3CS3-04	Digital Electronics	2	3	3	2	3							3	1		
26	3CS4-05	Data Structures and Algorithms	2	2	2	2	3		3	2	3	2	2	2	3	3	
27	3CS4-06	Object Oriented Programming	2	2			2								2	2	
28	3CS4-07	Software Engineering	2	3	2	2	2		3	2	3	3	3	3	3	3	2
29	3CS4-21	Data Structures and Algorithms Lab	2	3	2	3								3	3		2
30	3CS4-22	Object Oriented Programming Lab	2	2			2					2			2	2	
31	3CS4-23	Software Engineering Lab	2	2	2	2	3		3	3		3	3	3		3	2
32	3CS4-24	Digital Electronics Lab	2	2	2	2					3	3		2			
33	3CS7-30	Industrial Training	2	3	3	2	3		2	3	3	3		3	3	3	
34	3CS8-00	Social Outreach, Discipline & Extra								3	3	3	3				
35	4CS2-01	Discrete Mathematics Structure	3	3	1	2	2						2				
36	4CS2-03	Managerial Economics and Financial											3				2
37	4CS2-04	Microprocessor & Interfaces	2	3	2	1	3	2				1		2	2	2	
38	4CS2-05	Database Management System	2	3	2	3	3			2	2	3	3	3	3	3	
39	4CS2-06	Theory of Computation	2	1	2		3								2		
40	4CS2-07	Data Communication and Computer	2	2	1	2	2	3				2	2	2	3	2	2
41	4CS4-21	Microprocessor & Interfaces Lab	2	2	2	2	3				3	2			2	2	
42	4CS4-22	Database Management System Lab	2	3	1	2	2					1		1	2		
43	4CS4-23	Network Programming Lab	1	2	1	2	2					2		2	3		

44	4CS4-24	Linux Shell Programming Lab	2	3	2	3	3							2	3		2
45	4CS4-25	Java Lab	2	1	1	1	2					1			3	2	
46	4CS8-00	Social Outreach, Discipline & Extra								3	3	3	3				
47	5CS3-01	Information Theory &Coding	3	3	2	1		3				1		2			
48	5CS4-02	Compiler Design	2	3	2	3	2							3	3		
49	5CS4-03	Operating System	2	2		3	3		3					3	3	3	2
50	5CS4-04	Computer Graphics &Multimedia	2	1	1										2		
51	5CS4-05	Analysis of Algorithms	3	2	2		3								3		
52	5CS4-11	Wireless Communication	3	2	2	2	2	2	2	2	1	3	1	2	2	2	2
53	5CS4-21	Computer Graphics &Multimedia Lab	2	1	1		2								2		
54	5CS4-22	Compiler Design Lab	2	2	1		3							3	3		
55	5CS4-23	Analysis of Algorithms Lab	3	2	2	2	2	2	1		2	2		3	3	1	2
56	5CS4-24	Advance Java Lab	2	2			3							3	2		
57	5CS4-30	Industrial Training	2	3	3	2	3		2	3	3	3		3	3	3	
58	5CS8-00	Social Outreach, Discipline &								3	3	3	3				
59	6CS3-01	Digital Image Processing	3	2	2	3	3	3	3					3	3		
60	6CS4-02	Machine Learning	3	3	3	3		2		3			3	3	3		3
61	6CS4-03	Information Security System	3	3	3	2				2				2	3		2
62	6CS4-04	Computer Architecture and Organization	3	2	1	1		2						2	1		3
63	6CS4-05	Artificial Intelligence	3	2	2	2	3	2	2			2		3	1	1	
64	6CS4-06	Cloud Computing	2				2	3		2					2	2	2
65	6CS5-11	Distributed System	2	3		2								3	2		2
66	6CS4-21	Digital Image Processing Lab	3	2		2	3	3	2		3			3	2	3	2
67	6CS4-22	Machine Learning Lab	2	2	2	2					2	1	3	2	1	1	1
68	6CS4-23	Python Lab	2	3	2	3	3							3	3		
69	6CS4-24	Mobile Application Development Lab	2	2	1	2	2					1			3	3	
70	6CS8-00	Social Outreach, Discipline & Extra								3	3	3	3				
71	7CS4-01	Internet of Things	2	3	3	2	3		2	3		3		3	3	2	
72	7AG6-60.2	Environmental Engineering & Disaster	1	1	1			3	3	1							
73	7CS4-21	Internet of Things Lab	3	3	2	2					2		2	3	3	3	1
74	7CS4-22	Cyber Security Lab	2	3	2	1	3							3	3		
75	7CS7-30	Industrial Training	2	3	3	2	3		2	3	3	3		3	3	3	
76	7CS7-40	Seminar	2	3	3	2	3		2	3		3		3	3	2	
77	7CS8-00	Social Outreach, Discipline & Extra								3	3	3	3				
78	8CS4-01	Big Data Analytics		2		3	3	3	3	3	3		3	3	3	3	3
79	8AG6-60.1	Energy Management	2					3	3								
80	8CS4-21	Big Data Analytics Lab	2	1	1	2	3								3	2	
81	8CS4-22	Software Testing and Validation Lab	3	3	2	2					2		3	3	3	3	1
82	8CS7-50	Project		3	2	3	2		2	2	2	2	3	2	2	2	2
83	8CS8-00	Social Outreach, Discipline & Extra								3	3	3	3				
Grand Total			**159**	**141**	**93**	**98**	**122**	**50**	**53**	**69**	**87**	**100**	**64**	**106**	**122**	**70**	**42**
No. of Course Contributing to PO			**67**	**59**	**48**	**46**	**46**	**19**	**22**	**27**	**33**	**41**	**25**	**42**	**48**	**30**	**21**
Curricular Sufficiency			**2.37**	**2.39**	**1.94**	**2.13**	**2.65**	**2.63**	**2.41**	**2.56**	**2.64**	**2.44**	**2.56**	**2.52**	**2.54**	**2.33**	**2.00**
Curricular GAP			**0.63**	**0.61**	**1.06**	**0.87**	**0.35**	**0.37**	**0.59**	**0.44**	**0.36**	**0.56**	**0.44**	**0.48**	**0.46**	**0.67**	**1.00**

Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur

Computer Science & Engineering

Batch 2019-2023

Attainment of Course Outcomes (Theory)

S.No	SEM	Subject Code	Subject Name	CO1	CO2	CO3	CO4	CO5	CO6	Attainment Level (Internal Exam Question Paper)	Attainment Level (Assignments/ Unit-Test)	Attainment Level (Average Internal Assessment)	Result of External exam	Attainment Level
1	I & II	1 FY2-01	ENGINEERING MATHEMATICS-I	3	3	3	3	3		3	3	2.7	3	2.94
2	I & II	1FY2/2FY2-01	Engineering Physics	3	3	3	3	3		3	3	2.5	3	2.9
3	I & II	1FY2/2FY2-03	Engineering Chemistry	3	3	3	3	3		3	3	3	3	3
4	I & II	1FY1/2FY1-04	COMMUNICATION SKILLS	3	3	3	3	3		3	3	3	3	3
5	I & II	1FY1/2FY1-05	Human Values	3	3	3	3			3	3	3	3	3
6	I & II	1FY3/2FY3-06	Programming for Problem Solving	3	2	3	1	1		3	3	2	3	2.8
7	I & II	1FY3/2FY3-07	Basic Mechanical Engineering	2	3	3	3	2		3	3	2.6	3	2.92
8	I & II	1FY3/2FY3-08	Basic Electrical Engineering	3	3	3	3	3		2	3	3	3	3
9	I & II	1FY3/2FY3-09	Basic Civil Engineering	3	3	3	2	2		3	3	3	3	3
10	II	2FY2-01	ENGINEERING MATHEMATICS-II	3	3	3	3	3		3	3	3	3	3
11	III	3CS2-01	Advanced Engineering Mathematics	3	3	3	3	3		3	3	3	3	3
12	III	3CS1-02	Technical Communication	3	3	3	3	3		3	3	3	3	3
13	III	3CS3-04	Digital Electronics	3	3	3	3	3		3	3	3	3	3
14	III	3CS4-05	Data Structures and Algorithms	3	3	3	3	3		3	3	3	3	3
15	III	3CS4-06	Object Oriented Programming	3	3	3	3	3		3	3	3	3	3
16	III	3CS4-07	Software Engineering	3	3	3	3	3		3	3	3	3	3
17	IV	4CS2-01	Discrete Mathematics Structure	3	3	3	3	3		3	3	3	3	3
18	IV	4CS2-03	Managerial Economics and Financial Accounting	3	3	3	3	3		3	3	3	3	3
19	IV	4CS2-04	Microprocessor & Interfaces	3	1	3	3	3		2.6	3	2.7	3	2.94
20	IV	4CS2-05	Database Management System	3	3	3	3	3	3	3	3	3	3	3
21	IV	4CS2-06	Theory of Computation	3	3	3		3		3	3	3	3	3
22	IV	4CS2-07	Data Communication and Computer Networks	3	3	3	3	3	3	3	3	3	3	3
23	V	5CS3-01	Information Theory &Coding	3	3	3	3	3		3	3	3	3	3
24	V	5CS4-02	Compiler Design	3	3	3	3	3		3	3	3	3	3
25	V	5CS4-03	Operating System	3	3	3	3	3		3	3	3	3	3
26	V	5CS4-04	Computer Graphics &Multimedia	3	3	3	3	3		3	3	3	3	3
27	V	5CS4-05	Analysis of Algorithms	3	3	3	3	3		3	3	3	3	3
28	V	5CS4-11	Wireless Communication	3	3	3	2	3		2.8	3	2.85	3	2.97
29	VI	6CS3-01	Digital Image Processing	1	3	3	3	3		2.6	3	2.7	3	2.94
30	VI	6CS4-02	Machine Learning	3	3	3	3	3		3	3	3	3	3
31	VI	6CS4-03	Information Security System	3	3	3	3	3	3	3	3	3	3	3
32	VI	6CS4-04	Computer Architecture and Organization	3	3	2	3	3	1	2.5	3	2.625	3	2.925
33	VI	6CS4-05	Artificial Intelligence	3	3	3	3	3	3	3	3	3	3	3
34	VI	6CS4-06	Cloud Computing	3	3	3	3	3		3	3	3	3	3
35	VI	6CS5-11	Distributed System	3	3	3	3	3		3	3	3	3	3
36	VII	7CS4-01	Internet of Things	3	3	3	3	3		3	3	3	3	3
37	VII	7AG6-60.2	Environmental Engineering & Disaster Management	3	3	3	3	3		3	3	3	3	3
38	VIII	8CS4-01	Big Data Analytics	3	3	3	3	3		3	3	3	3	3
39	VIII	8AG6-60.1	Energy Management	3	3	3	3	3		3	3	3	3	3

Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur

Computer Science & Engineering

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Attainment of Course Outcomes (Practical)

Sr. No	Semester	Subject Code	Subject Name	Attainment (Internal)	Attainment (External)	Consolidated Attainment Level
1	I & II	1FY2/2FY2-20	Engineering Physics Lab	3	3	3.00
2	I & II	1FY2/2FY2-21	Engineering Chemistry Lab	3	3	3.00
3	I & II	1FY1/2FY1-22	Language Lab	3	2	2.60
4	I & II	1FY1/2FY1-23	Human Values Activities	3	3	3.00
5	I & II	1FY3/2FY3-24	Computer Programming Lab	3	3	3.00
6	I & II	1FY3/2FY3-25	Manufacturing Practices Workshop	3	3	3.00
7	I & II	1FY3/2FY3-26	Basic Electrical Engineering Lab	3	3	3.00
8	I & II	1FY3/2FY3-26	Basic Civil Engineering Lab	3	3	3.00
9	I & II	1FY3/2FY3-28	Computer Aided Engineering Lab	3	2	2.60
10	I & II	1FY3/2FY3-29	Computer Aided Machine Drawing	3	3	3.00
11	I	1FY8-00	SODECA	3	3	3.00
12	II	2FY8-00	SODECA	3	3	3.00
13	III	3CS4-21	Data Structures and Algorithms Lab	3	3	3.00
14	III	3CS4-22	Object Oriented Programming Lab	3	3	3.00
15	III	3CS4-23	Software Engineering Lab	3	3	3.00
16	III	3CS4-24	Digital Electronics Lab	3	3	3.00
17	III	3CS7-30	Industrial Training	3	3	3.00
18	III	3CS8-00	Social Outreach, Discipline & Extra Curricular Activities	3	3	3.00
19	IV	4CS4-21	Microprocessor & Interfaces Lab	3	3	3.00
20	IV	4CS4-22	Database Management System Lab	3	3	3.00
21	IV	4CS4-23	Network Programming Lab	3	3	3.00
22	IV	4CS4-24	Linux Shell Programming Lab	3	3	3.00
23	IV	4CS4-25	Java Lab	3	3	3.00
24	IV	4CS8-00	Social Outreach, Discipline & Extra Curricular Activities	3	3	3.00
25	V	5CS4-21	Computer Graphics &Multimedia Lab	3	3	3.00
26	V	5CS4-22	Compiler Design Lab	3	3	3.00
27	V	5CS4-23	Analysis of Algorithms Lab	3	3	3.00
28	V	5CS4-24	Advance Java Lab	3	3	3.00
29	V	5CS4-30	Industrial Training	3	3	3.00
30	V	5CS8-00	Social Outreach, Discipline & Extra Curricular Activities	3	3	3.00
31	VI	6CS4-21	Digital Image Processing Lab	3	3	3.00
32	VI	6CS4-22	Machine Learning Lab	3	3	3.00
33	VI	6CS4-23	Python Lab	2.93	3	2.96
34	VI	6CS4-24	Mobile Application Development Lab	3	3	3.00
35	VI	6CS8-00	Social Outreach, Discipline & Extra Curricular Activities	3	3	3.00
36	VII	7CS4-21	Internet of Things Lab	3	3	3.00
37	VII	7CS4-22	Cyber Security Lab	3	3	3.00
38	VII	7CS7-30	Industrial Training	3	3	3.00
39	VII	7CS7-40	Seminar	3	3	3.00
40	VII	7CS8-00	Social Outreach, Discipline & Extra Curricular Activities	3	3	3.00
41	VIII	8CS4-21	Big Data Analytics Lab	3	3	3.00
42	VIII	8CS4-22	Software Testing and Validation Lab	3	3	3.00
43	VIII	8CS7-50	Project	3	3	3.00
44	VIII	8CS8-00	Social Outreach, Discipline & Extra Curricular Activities	3	3	3.00

Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur

Department of Computer Science & Engineering

Batch: 2019-2023

Program Level Course-PO/PSO matrix to identify PO Attainment

S.No	Course-Code	Course Name	Conolidated CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
1	1 FY2-01	ENGINEERING MATHEMATICS-I	2.94	2.94	2.94													
2	1FY2/2FY2-01	Engineering Physics	2.90	2.90														
3	1FY2/2FY2-03	Engineering Chemistry	3.00	3.00		3.00			3.00				3.00					
4	1FY1/2FY1-04	COMMUNICATION SKILLS	3.00										3.00					
5	1FY1/2FY1-05	Human Values	3.00						3.00	3.00	2.00	3.00						
6	1FY3/2FY3-06	Programming for Problem Solving	2.80	1.87	1.87	0.93	1.87	1.87				2.80		0.93	0.93	2.80	1.87	
7	1FY3/2FY3-07	Basic Mechanical Engineering	2.92	2.92														
8	1FY3/2FY3-08	Basic Electrical Engineering	3.00	3.00	3.00	3.00	3.00											
9	1FY3/2FY3-09	Basic Civil Engineering	3.00	3.00	3.00				2.00	2.00	2.00	2.00			3.00			
10	2FY2-01	ENGINEERING MATHEMATICS-II	3.00	3.00	3.00													
11	1FY2/2FY2-20	Engineering Physics Lab	3.00	3.00								2.00	3.00					
12	1FY2/2FY2-21	Engineering Chemistry Lab	3.00	3.00								2.00	3.00					
13	1FY1/2FY1-22	Language Lab	2.60									1.73	2.60					
14	1FY1/2FY1-23	Human Values Activities	3.00						3.00	3.00	2.00	3.00						
15	1FY3/2FY3-24	Computer Programming Lab	3.00	2.00	2.00	1.00	2.00	3.00				3.00		1.00	1.00	3.00	2.00	
16	1FY3/2FY3-25	Manufacturing Practices Workshop	3.00	3.00				3.00				3.00						
17	1FY3/2FY3-26	Basic Electrical Engineering Lab	3.00	3.00	3.00	3.00	3.00	3.00										
18	1FY3/2FY3-26	Basic Civil Engineering Lab	3.00	3.00	3.00			3.00	3.00	2.00								
19	1FY3/2FY3-28	Computer Aided Engineering Lab	2.60	2.60				2.60					2.60					
20	1FY3/2FY3-29	Computer Aided Machine Drawing	3.00	3.00				3.00					3.00					
21	1FY8-00	SODECA	3.00								3.00	3.00	3.00	3.00				
22	2FY8-00	SODECA	3.00								3.00	3.00	3.00	3.00				
23	3CS2-01	Advanced Engineering Mathematics	3.00	2.00	2.00		1.00						1.00	2.00	1.00			
24	3CS1-02	Technical Communication	3.00										2.00					2.00
25	3CS3-04	Digital Electronics	3.00	2.00	3.00	3.00	2.00	3.00							3.00	1.00		
26	3CS4-05	Data Structures and Algorithms	3.00	2.00	2.00	2.00	2.00	3.00		3.00	2.00	3.00	2.00	2.00	2.00	3.00	3.00	
27	3CS4-06	Object Oriented Programming	3.00	2.00	2.00			2.00								2.00	2.00	
28	3CS4-07	Software Engineering	3.00	2.00	3.00	2.00	2.00	2.00		3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
29	3CS4-21	Data Structures and Algorithms Lab	3.00	2.00	3.00	2.00	3.00								3.00	3.00		2.00
30	3CS4-22	Object Oriented Programming Lab	3.00	2.00	2.00			2.00					2.00			2.00	2.00	
31	3CS4-23	Software Engineering Lab	3.00	2.00	2.00	2.00	2.00	3.00		3.00	3.00		3.00	3.00	3.00		3.00	2.00
32	3CS4-24	Digital Electronics Lab	3.00	2.00	2.00	2.00	2.00					3.00	3.00		2.00			
33	3CS7-30	Industrial Training	3.00	2.00	3.00	3.00	2.00	3.00		2.00	3.00	3.00	3.00		3.00	3.00	3.00	
34	3CS8-00	Social Outreach, Discipline & Extra Curricular Activities	3.00								3.00	3.00	3.00	3.00				
35	4CS2-01	Discrete Mathematics Structure	3.00	3.00	3.00	1.00	2.00	2.00						2.00				
36	4CS2-03	Managerial Economics and Financial Accounting	3.00											3.00				2.00
37	4CS2-04	Microprocessor & Interfaces	2.94	1.96	2.94	1.96	0.98	2.94	1.96				0.98		1.96	1.96	1.96	
38	4CS2-05	Database Management System	3.00	2.00	3.00	2.00	3.00	3.00			2.00	2.00	3.00	3.00	3.00	3.00	3.00	
39	4CS2-06	Theory of Computation	3.00	2.00	1.00	2.00		3.00								2.00		
40	4CS2-07	Data Communication and Computer Networks	3.00	2.00	2.00	1.00	2.00	2.00	3.00				2.00	2.00	2.00	3.00	2.00	2.00
41	4CS4-21	Microprocessor & Interfaces Lab	3.00	2.00	2.00	2.00	2.00	3.00				3.00	2.00			2.00	2.00	
42	4CS4-22	Database Management System Lab	3.00	2.00	3.00	1.00	2.00	2.00					1.00		1.00	2.00		
43	4CS4-23	Network Programming Lab	3.00	1.00	2.00	1.00	2.00	2.00					2.00		2.00	3.00		
44	4CS4-24	Linux Shell Programming Lab	3.00	2.00	3.00	2.00	3.00	3.00							2.00	3.00		2.00
45	4CS4-25	Java Lab	3.00	2.00	1.00	1.00	1.00	2.00					1.00			3.00	2.00	
46	4CS8-00	Social Outreach, Discipline & Extra Curricular Activities	3.00								3.00	3.00	3.00	3.00				

47	5CS3-01	Information Theory &Coding	3.00	3.00	3.00	2.00	1.00		3.00				1.00		2.00			
48	5CS4-02	Compiler Design	3.00	2.00	3.00	2.00	3.00	2.00							3.00	3.00		
49	5CS4-03	Operating System	3.00	2.00	2.00		3.00	3.00		3.00					3.00	3.00	3.00	2.00
50	5CS4-04	Computer Graphics &Multimedia	3.00	2.00	1.00	1.00										2.00		
51	5CS4-05	Analysis of Algorithms	3.00	3.00	2.00	2.00		3.00								3.00		
52	5CS4-11	Wireless Communication	2.97	2.97	1.98	1.98	1.98	1.98	1.98	1.98	1.98	0.99	2.97	0.99	1.98	1.98	1.98	1.98
53	5CS4-21	Computer Graphics &Multimedia Lab	3.00	2.00	1.00	1.00		2.00								2.00		
54	5CS4-22	Compiler Design Lab	3.00	2.00	2.00	1.00		3.00							3.00	3.00		
55	5CS4-23	Analysis of Algorithms Lab	3.00	3.00	2.00	2.00	2.00	2.00	2.00	1.00		2.00	2.00		3.00	3.00	1.00	2.00
56	5CS4-24	Advance Java Lab	3.00	2.00	2.00			3.00							3.00	2.00		
57	5CS4-30	Industrial Training	3.00	2.00	3.00	3.00	2.00	3.00		2.00	3.00	3.00	3.00		3.00	3.00	3.00	
58	5CS8-00	Social Outreach, Discipline & Extracurricular Activities	3.00								3.00	3.00	3.00	3.00				
59	6CS3-01	Digital Image Processing	2.94	2.94	1.96	1.96	2.94	2.94	2.94	2.94					2.94	2.94		
60	6CS4-02	Machine Learning	3.00	3.00	3.00	3.00	3.00		2.00		3.00			3.00	3.00	3.00		3.00
61	6CS4-03	Information Security System	3.00	3.00	3.00	3.00	2.00				2.00				2.00	3.00		2.00
62	6CS4-04	Computer Architecture and Organization	2.93	2.93	1.95	0.98	0.98		1.95						1.95	0.98		2.93
63	6CS4-05	Artificial Intelligence	3.00	3.00	2.00	2.00	2.00	3.00	2.00	2.00			2.00		3.00	1.00	1.00	
64	6CS4-06	Cloud Computing	3.00	2.00				2.00	3.00		2.00					2.00	2.00	2.00
65	6CS5-11	Distributed System	3.00	2.00	3.00		2.00								3.00	2.00		2.00
66	6CS4-21	Digital Image Processing Lab	3.00	3.00	2.00		2.00	3.00	3.00	2.00		3.00			3.00	2.00	3.00	2.00
67	6CS4-22	Machine Learning Lab	3.00	2.00	2.00	2.00	2.00					2.00	1.00	3.00	2.00	1.00	1.00	1.00
68	6CS4-23	Python Lab	2.96	1.97	2.96	1.97	2.96	2.96							2.96	2.96		
69	6CS4-24	Mobile Application Development Lab	3.00	2.00	2.00	1.00	2.00	2.00					1.00			3.00	3.00	
70	6CS8-00	Social Outreach, Discipline & Extra Curricular Activities	3.00								3.00	3.00	3.00	3.00				
71	7CS4-01	Internet of Things	3.00	2.00	3.00	3.00	2.00	3.00		2.00	3.00		3.00		3.00	3.00	2.00	
72	7AG6-60.2	Environmental Engineering & Disaster Management	3.00	1.00	1.00	1.00			3.00	3.00	1.00							
73	7CS4-21	Internet of Things Lab	3.00	3.00	3.00	2.00	2.00					2.00		2.00	3.00	3.00	3.00	1.00
74	7CS4-22	Cyber Security Lab	3.00	2.00	3.00	2.00	1.00	3.00							3.00	3.00		
75	7CS7-30	Industrial Training	3.00	2.00	3.00	3.00	2.00	3.00		2.00	3.00	3.00	3.00		3.00	3.00	3.00	
76	7CS7-40	Seminar	3.00	2.00	3.00	3.00	2.00	3.00		2.00	3.00		3.00		3.00	3.00	2.00	
77	7CS8-00	Social Outreach, Discipline & Extra Curricular Activities	3.00								3.00	3.00	3.00	3.00				
78	8CS4-01	Big Data Analytics	3.00		2.00		3.00	3.00	3.00	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00
79	8AG6-60.1	Energy Management	3.00	2.00					3.00	3.00								
80	8CS4-21	Big Data Analytics Lab	3.00	2.00	1.00	1.00	2.00	3.00								3.00	2.00	
81	8CS4-22	Software Testing and Validation Lab	3.00	3.00	3.00	2.00	2.00					2.00		3.00	3.00	3.00	3.00	1.00
82	8CS7-50	Project	3.00		3.00	2.00	3.00	2.00		2.00	2.00	2.00	2.00	3.00	2.00	2.00	2.00	2.00
83	8CS8-00	Social Outreach, Discipline & Extra Curricular Activities	3.00								3.00	3.00	3.00	3.00				
Direct Attainment				**2.36**	**2.38**	**1.93**	**2.12**	**2.64**	**2.62**	**2.41**	**2.55**	**2.62**	**2.42**	**2.56**	**2.52**	**2.53**	**2.33**	**2.00**
Indirect Attainment				**2.92**	**2.75**	**2.76**	**2.56**	**2.89**	**2.75**	**2.85**	**2.86**	**2.74**	**2.89**	**2.65**	**2.93**	**2.90**	**2.39**	**2.91**
Total Attainment				**2.47**	**2.46**	**2.10**	**2.21**	**2.69**	**2.65**	**2.49**	**2.62**	**2.65**	**2.51**	**2.58**	**2.60**	**2.61**	**2.34**	**2.18**
PO Attainment Gap				**0.53**	**0.54**	**0.90**	**0.79**	**0.31**	**0.35**	**0.51**	**0.38**	**0.35**	**0.49**	**0.42**	**0.40**	**0.39**	**0.65**	**0.82**

Swami Keshvanand Institute of Science & Technology, Management & Gramothan

Department of Computer Science & Engineering

Aactivity Wise Indirect Attainment of POs

Session 2019-2023

Category	Activity	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Conference/Workshop	Expert Talk on "Agile Methodology"	2				2								2		
	6th International Conference on "Emerging Technologies in Computer Engineering: Industrial IoT and Cyber Physical Systems (ICETCE-2023)	3				3							3	3		3
	Expert Talk on How to Become Industry-Ready	2				2							2	2	2	2
	Expert Talk on "Sensor Cloud for IoT Applications"	2				2							2	2		
	5th International Conference on "Emerging Technologies in Computer Engineering: Cognitive Computing and Intelligent IoT (ICETCE-2022)"	3				3							3	3		3
PO Attainment		3				3							3	3	2	3.00
Placement	Mentorship of CS Students for Placements	3						3	3		3					3
	Campus Recruitment Training	3									3		3	3	3	3
	Toast Masters Club Activity								1		1		1		1	
	IBM Academic Initiative	3				3							3	3	3	
	TechInnova Club Activity	1				1								1	1	1
	Latex	3				3					3		3	3		
	Soft Skill								3		3		3			
PO Attainment		3.00				3		3	3		3		3	3.00	2	3
Contest by Industry	InfyTQ	3	3	3		3					3		3	3		3
PO Attainment		3.00	3.00	3.00		3.00					3.00		3.00	3.00		3.00
MOOC's	Spoken Tutorials initiative by IIT, Bombay	3				3								3	3	
	Swayam / NPTEL	1				1							1	1	1	
	Virtual Lab	3				3							3	3	3	
	Coursera/edx	3				3							3	3	3	
PO Attainment		3				3							3.00	3	3	
Student Counselling	Student Counseling (Calling session with parents, warning letters, short leaves)						3	3	3		3		3			3
PO Attainment							3	3	3		3		3			3

Criteria :(Based on attendance)
Below 40% --> 1
40 - 60% --> 2
Above 60% --> 3

Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur

Department of Computer Science & Engineering

Batch: 2019-2023

Program Level Course-PO/PSO matrix to identify PO Attainment (Indirect)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Conference/Workshop/FDP	3.00				3.00							3.00	3.00	2.00	3.00
Placement	3.00				3.00		3.00	3.00		3.00		3.00	3.00	2.00	3.00
Contest by Industry	3.00	3.00	3.00		3.00					3.00		3.00	3.00		3.00
MOOCs	3.00				3.00							3.00	3.00	3.00	
Student Counselling						3.00	3.00	3.00		3.00		3.00			3.00
Student Exit Survey	2.58	2.51	2.51	2.56	2.47	2.51	2.56	2.57	2.74	2.56	2.65	2.57	2.52	2.54	2.56
Indirect Attainment	**2.92**	**2.75**	**2.76**	**2.56**	**2.89**	**2.75**	**2.85**	**2.86**	**2.74**	**2.89**	**2.65**	**2.93**	**2.90**	**2.38**	**2.91**

Action taken based on the results of evaluation of each of the POs & PSOs

POs attainment Levels and Actions for improvement – (2019-23)

POs/PSOs	Target Level	Attainment Level	Observation
PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.			
PO1	3	2.47	The reason for the substantial gap are that: • Students were not able to apply the basic knowledge of mathematics, science, engineering fundamental in practical engineering problems. • Students found difficulty in few interdisciplinary subjects like Environmental Engineering & Disaster Management, Digital Electronics and Advanced Engineering Mathematics etc. Additional classes desirable to incorporate fundamentals of engineering.
Action 1: Remedial/Extra classes arranged. **Action 2:** Course files and Lab Manuals uploaded on DSpace, SKIT Institutional Repository. **Action 3:** All Course Contents are recorded in Gyandaan e-Lecture Series (eSLATE) and available on ERP. **Action 4**: Faculty were advised to give numerical and design-based assignment to the students so they can do more practice of these subjects. **Action 5:** The department regularly conducted a series of international conference with the involvement of number of industry experts who benefit department students and faculties. **Action 6:** Technical Event and hands-on sessions in Tech Innova Activity for students so that they can implement work and understand model.			
PO2: Problem Analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	3	2.46	It is observed that the emphasis given for identification, formulation, review research literature and analyses of complex problems were inadequate.
Action 1: Remedial/Extra classes arranged. **Action 2:** Rolling out Infosys Foundation Program. **Action 3:** Use of Virtual Labs for better understanding of Concepts. **Action 4:** The department regularly conducted a series of international conference with the involvement of number of industry experts who benefit department students and faculties. **Action 5:**Incorporation of more numerical problems during their regular lectures.			

PO3: Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

PO3	3	2.10	The reason for the gap in the attainment is due to a comparatively low attainment in subjects like Computer Architecture and Organization, Computer Graphics and Multimedia, Data Communication and Computer Networks etc.

Action 1: Online Courses from platforms like Coursera, NPTEL / Swayam etc. were encouraged, and financial aid was provided to students.

Action 2: Students were encouraged to attend online courses through Industry collaboration (Infosys etc.) and Spoken Tutorials initiative by IIT, Bombay to involve them in design and development activities.

Action 3: Various technical sessions were organized in collaboration with Industrial Experts and Academicians.

Action 4: Remedial/Extra classes arranged.

PO4: Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO4	3	2.21	The reason for the substantial gap is lack of physical interaction (because of unprecedented pandemic due to COVID-19)

As per the actions taken in PO1 & PO2

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO 5	3	2.69	Higher attainment of this PO has always been our top priority. As per the results, this PO attainment is progressive, still taken to achieve much higher attainment.

Action 1: Certification Courses by Spoken Tutorials initiative by IIT, Bombay.

Action 2: The department regularly conducted a series of ICETCE conference with the involvement of many industry experts who benefit many students and faculties.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 6	3	2.65	Investigation of problems faced by society is desirable which needs to be as high as possible.

Action 1: In house ECA club organizes various events for social awareness such as Army Day quiz, "Tree Plantation" Conducted by Ek Bharat Shreshtha Bharat (EBSB) Club, Blood Donation Camp, Swatch Bharat etc. and makes student a responsible citizen.

Action 2: Techno-Cultural activities are organized on regular basis, wherein the students are assigned the responsibility to work as an individual with full capacity and as a team to develop sensitivity towards social, health, safety, and legal issues.

Action 3: Students were motivated to make projects to address various issues and challenges of society and environment.

Action 4: Students were motivated to take active participation in various engineering events like TEQIP_III workshops etc. to know about the role of engineering in development of society.

Action 5: Several Webinars / talk were organized in collaboration with various industries and Alumni.

Action 6: Project allocation to students in 5th Semester onwards and implementation further continues in two phases minor in 7 semester and major in 8 semester.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 7	3	2.49	Not attained due to lack of emphasis on environment related content in the curriculum.The issues of global and environmental awareness among the student should be improved, and they should be made more aware of their responsibilities towards energy efficiency.

Action 1: Several Webinars / talk were organized in collaboration with various industries.

Action 2: In house ECA club organizes various events for social awareness such as "Tree Plantation" Conducted by Ek Bharat Shreshtha Bharat (EBSB) Club, Blood Donation Camp, Swatch Bharat etc. and makes student a responsible citizen.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 8	3	2.62	• Students are doing better in improving the overall expertise in field of engineering but due to lack of communications and other ethical and moral knowledge, some are lagging in real life situations. • There are only a few subjects that maps to engineering ethics like Project development, Industrial training etc. The need of putting some more efforts was felt; hence actions are planned and implemented towards better attainment.

Action 1: Toastmaster Club for all students.

Action 2: Soft Skill program organized by the Department of English to make students aware about their social ethics and responsibilities.

PO9: Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 9	3	2.65	We observed that there is a need to improve the teamwork and team leadership qualities in our students. Clearly, we are in a better position to achieve our goal. Still to attain this gap following actions have been initiated.

Action 1: Group based project allocation and implementation.

Action 2: Individual seminars and presentations for students in every semester.

Action 3: Group discussions in classes over various case studies.

Action 4: Allocation of Projects in V Semester itself.

Action 5: Engage students to role play in Co-Curricular activities/ development activities as an individual or as a team.

Action 6: Project allocation to students in 5th Semester onwards and implementation further continues in two phases minor in 7 semester and major in 8 semester.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 10	3	2.51	For last few years we got unsatisfactory feedback from our stakeholders regarding communication skills of our students. The communication, presentation and report writing skills are to be further improved among the students. We really worked hard and finally; the attainment shows the improvement. Still, we want to attain this PO to maximum level and following actions are planned for the upcoming sessions.

Action 1: Toastmaster Club for all students.
Action 2: Soft skill classes for the students of 3rd Semester.
Action 3: English module integration in CRT Program for 6th Semester students.
Action 4: Online group discussions in various labs were organized.
Action 5: Group discussions in classes over various case studies.
Action 6: The department has successfully conducted TEQIP-III RTU (ATU) sponsored workshops that benefitted department students and faculties.
Action 7: Individual seminars and presentations for students in every semester.

PO11: Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			
PO 11	3	2.58	Few humanities-based courses of the curriculum are directed towards teaching management principles, project management and financial implications and in multidisciplinary environments. As per the actions taken to improve the managerial skills, against this downfall during the last session, the attainment improved substantially. The following actions are taken to further improve this attainment level.

Action 1: Project submission and initiatives with DST and Hackathon.
Action 2: Project allocation to students in 5th Semester.
Action 3: Participation in various academic and extra-curricular activities as an individual and team.
Action 4: Group mentorship for projects under faculty supervision does help the students to give his individual contribution.
Action 5: Students are encouraged to participate in various programming contests like Smart India Hackathon (SIH).

PO12: Life-Long Learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
PO 12	3	2.60	This PO is mapped to almost every core subject but also with few inter disciplinary subjects like Digital Electronics etc. This is the reason behind the gap in the attainment. The Following actions are taken to improve the attainment level.

Action 1: Technical Event and hands-on sessions in Tech Innova Activity for students so that they can implement work and understand model.

Action 2: Toastmaster Club for all students.

Action 3: Students were encouraged to attend MOOCS courses such as NPTEL, spoken tutorial etc., to enhance self-learning skills of the students.

Action 4: Mentorship extended towards Students for Placements.

Action 5: The department regularly conducted a series of international conference with the involvement of number of industry experts who benefit department students and faculties.

Action 6: The department has successfully conducted TEQIP-III RTU(ATU) sponsored many workshops that benefitted department students and faculties.

PSOs attainment Levels and Actions for improvement – (2019-2023)

PSOs	Target Level	Attainment Level	Observation
PSO 1: Core Engineering Skills: Exhibit fundamental concepts of Data Structures, Databases, Operating Systems, Computer Network, Theory of Computation, Advanced Programming and Software Engineering.			
PSO 1	3	2.61	The reason for the gap in the attainment is due to a comparatively low attainment in few subjects like Digital Electronics, Machine Learning, Artificial Intelligence etc.
Action 1: Various workshops, Seminars, webinars, Technical session etc. are planned throughout the academic year so that student can groom themselves in theory subjects and hands-on as well.			
PSO 2: Standard Software Engineering practices: Demonstrate an ability to design, develop, test, debug, deploy, analyze, troubleshoot, maintain, manage and secure a software.			
PSO 2	3	2.34	As per the observations in PSO1
As per the observations in PSO1.			
PSO 3: Future Endeavors: Recognize the need to have knowledge of higher education institutions/organizations/ companies related to computer science &engineering.			

PSO 3	3	2.18	This PSO is defined by the department to promote Extracurricular activities of students, especially for higher education and placement related activities.. The reason for the gap in the attainment is due to comparatively low attainment in our direct method. Still, There is improvement as compared to previous year.

Action 1: Expert talks and sessions from industry representatives to make students aware about latest trends in IT industry.

Action 2: Technical Event and hands-on sessions in Tech Innova Activity for students so that they can implement work and understand model.

Action 3: Toastmaster Club for all students.