SJCET B. Tech. (ER) Curriculum 2024

B. Tech. in Electronics and Computer Engineering

Signed By:Devassia V P
Approved by SJCET Academic Council held on 29.11.2024

Vision of the Department

Develop into a center of excellence in Electronics and Computer Engineering for training technically competent professionals catering to the needs of Industry, Academia and Society.

Mission of the Department

- To pursue continuous improvement in learning, creativity and innovation among both faculty and students by enhanced infrastructure, state-of-the art laboratories and a unique learning environment.
- To inculcate in both faculty and students, technical and entrepreneurial skills by professional activities to create socially relevant and sustainable solutions in the domain of electronics and computer engineering.

Program Educational Objectives (PEOs)

1. Graduates will be professionally successful in diverse career paths including supportive and leadership roles or will pursue higher education.
2. Graduates will be receptive to new technologies lifelong learning and professional ethics to provide sustainable solutions in Electronics and Computer Engineering.

Program Specific Outcomes (PSO)

PSO1: Ability to apply domain knowledge to analyze and design hardware and software systems so as to understand and solve problems in Electronics and Computer Engineering.

PSO2: Ability to effectively use modern software/hardware tools to design, analyze and communicate technical details in the electronics and computer engineering domain.

FIRST SEMESTER (July-December): Group B

10 Days Compulsory Induction Program and UHV

Sl. No.	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
						L	T	P	R		CIE	ESE		
1	A	24SJGYMAT101	BSC	GC	Mathematics for Electrical Science and Physical Science-1	3	0	0	0	4.5	40	60	3	3
2	B S1 / S2	24SJGBPHT121	BSC	GC	Physics for Electrical Science	3	0	2	0	5.5	40	60	4	5
		24SJGXCYT122			Chemistry for Information Science and Electrical Science									
3	C	24SJGXEST103	ESC	GC	Engineering Graphics and Computer Aided Drawing	2	0	2	0	4	40	60	3	4
4	D	24SJGXEST104	ESC	GC	Introduction to Electrical and Electronics Engineering (part 1: Electrical Engineering)	2	0	0	0	3	20	30	2+2=4	4
					(Part 2: Electronics Engineering)	2	0	0	0	3	20	30		
5	F	24SJICEST105	ESC	IC	Algorithmic Thinking with Python	3	0	2	0	5.5	40	60	4	5
6	L	24SJGXESL106	ESC	GC	Basic Electrical and Electronics Engineering Workshop	0	0	2	0	1	70	30	1	2
7	I* S1/ S2	24SJICHWT127	HWP	IC	Health and Wellness	1	0	1	0	0	50	0	1	2/3
		24SJICHUT128	HMC		Life Skills and Professional Communication	2	0	1	0	3.5	100	--		
8	S1/ S2	24SJICSEM129	SEC	IC	**Skill Enhancement Course: Digital101(NASSCOM)	MOOC*				2			--	
TOTAL										30/ 32			20	25/26

Bridge Course (Mathematics or Introduction to Computer Science) *: Total 15 Hrs.

SECOND SEMESTER (January-June): Group B

Sl. No.	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
						L	T	P	R		CIE	ESE		
1	A	24SJGYMAT201	BSC	GC	Mathematics for Electrical Science and Physical Science - 2	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	24SJGBPHT121	BSC	GC	Physics for Electrical Science	3	0	2	0	5.5	40	60	4	5
		24SJGXCYT122			Chemistry for Information Science and Chemistry for Electrical Science									
3	C	24SJGXEST203	ESC	GC	Foundations of Computing: From Hardware Essentials to Web Design	3	0	0	0	4.5	40	60	3	3
4	D	24SJGXEST204	ESC	GC	Programming in C	3	0	2	0	5.5	40	60	4	5
5	E	24SJPCERT205	PC	PC	Digital Electronics	3	1	0	0	5	40	60	4	4
6	F	24SJICEST206	ESC	IC	Engineering Entrepreneurship and IPR	3	0	0	0	4.5	40	60	3	3
7	I* S1/ S2	24SJICHWT127	HPW	IC	Health and Wellness	1	0	1	0	0	50	0	1	2/3
		24SJICHUT128	HMC		Life Skills and Professional Communication	2	0	1	0	3.5	100	--		
8	L	24SJGXESL208	ESC	GC	IT Workshop	0	0	2	0	1	50	50	1	2
	S_1/ S_2	24SJICSEM129	SEC	IC	**Skill Enhancement Course: Digital 101(NASSCOM)	MOOC							1	
Total										**34**			**24**	**27/ 28**

No Grade Points will be awarded for the MOOC course and I slot course.

- L-T-P-R: Lecture-Tutorial-Practical-Project
- SS (Self Study) Hours= 1.5L+0.5 T+0.5P+R
- CIA: Continuous Internal Assessment, ESE: End Semester Examination

Note: Physics, Chemistry, Health and Wellness and Life skill and Professional Communication shall be offered in both S1 and S2.

Digital 101 (NASSCOM)		
Sl. No:	**Technologies Covered**	**Hours**
1	Artificial intelligence and Big Data Analytics (AI/BDA)	11
2	Internet of Things (IoT)	2.5
3	Cyber Security	2.5
4	Block Chain	2.5
5	Robotic Process Automation	1.5
6	Augmented Reality and Virtual Reality (AR and VR)	2.5
7	Cloud Computing	2.5
8	3 D Printing and Modelling	2
9	Web, Mobile Dev and Marketing	2
10	Responsible AI	1
	Total Hours	**30**

Skill Enhancement Course: Digital 101 is an introductory Massive Open Online Course (MOOC) offered by NASSCOM. It is designed to provide students with foundational knowledge and skills in digital technologies, preparing them for further studies and careers in the digital domain. By incorporating the Digital 101 course into the curriculum, SJCET ensures that all students gain valuable digital skills early in their academic journey, enhancing their readiness for advanced courses and future careers in technology.

Course Registration and Completion:

- Students have the flexibility to register and complete the Digital 101 course either in their first semester (S1) or second semester (S2).
- The credit for this course (1 credit) will be officially recorded in the second semester grade card.

THIRD SEMESTER (July-December)

Sl. No.	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
						L	T	P	R		CIE	ESE		
1	A	24SJGYMAT301	BSC	GC	Mathematics for Electrical Science and Physical Science - 3	3	0	0	0	4.5	40	60	3	3
2	B	24SJPCERT302	PC	PC	Data Structures	3	1	0	0	5	40	60	4	4
3	C	24SJPCERT303	PC	PC	Digital System Design Using Verilog	3	1	0	0	5	40	60	4	4
4	D	24SJPBERT304	PC-PB	PB	Electronic Devices and Circuits	3	0	0	1	5.5	60	40	4	4
5	F	24SJGNEST305	ESC	GC	Introduction to Artificial Intelligence and Data Science	3	1	0		5	40	60	4	4
6	G S3/ S4	24SJICHUT346 / 24SJICHUT347	HMC	IC	Economics for Engineers / Engineering Ethics and Sustainable Development	2	0	0	0	3	50	50	2	2
7	L	24SJPCERL307	PCL	PC	Data Structures Lab	0	0	3	0	1.5	50	50	2	3
8	Q	24SJPCERL308	PCL	PC	Digital System Design Lab	0	0	3	0	1.5	50	50	2	3
9	R/M		VAC		Remedial/Minor Course	3	1	0	0	5			4*	4*
TOTAL										**31/ 36**			**25/29***	**27/31***

Bridge Course for Lateral Entry Students: Total 15 Hrs.

FOURTH SEMESTER (January-June)

Sl. No.	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
						L	T	P	R		CIE	ESE		
1	A	24SJGBMAT401	BSC	GC	Mathematics for Electrical Science-4	3	0	0	0	4.5	40	60	3	3
2	B	24SJPCERT402	PC	PC	Computer Organization and Architecture	3	1	0	0	5	40	60	4	4
3	C	24SJPCERT403	PC	PC	Computer Networks	3	1	0	0	5	40	60	4	4
4	D	24SJPBERT404 I	-PB	PB	Integrated Circuits	3	0	0	1	5.5	60	40	4	4
5	E	24SJPEERT41N	PE	PE	PE-1	3	0	0	0	4.5	40	60	3	3
6	G S3/ S4	24SJICHUT346 / 24SJICHUT347	HMC	IC	Engineering Economics / Engineering Ethics and Sustainable Development	2	0	0	0	3	50	50	2	2
7	L	24SJPCERL407	PCL	PC	Computer Networking Lab	0	0	3	0	1.5	50	50	2	3
8	Q	24SJPCERL408	PCL	PC	Integrated Circuits Lab	0	0	3	0	1.5	50	50	2	3
9	R/ H		VAC		Remedial/Minor/Honours Course	3	1	0	0	5			4*	4*
Total										**31/ 36**			**24/ 28***	**26/ 30***

PROGRAM ELECTIVE I: 24SJPEERT 41N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	24SJPEERT 411	Communication Engineering	3-0-0-0	3	3
	24SJPEERT 412	Basic VLSI Design	3-0-0-0		3
	24SJPEERT 413	Biomedical Signals and Transducers	3-0-0-0		3
	24SJPEERT 414	Foundations of Machine Learning	3-0-0-0		3
	24SJPEERT 416	Object Oriented Programming Using Java	3-0-0-0		3
	24SJPEERT 415	Java Programming and Application development	**3-0-0-0**		5/3

Note : Level 5 courses in the B. Tech curriculum carry a total of 5 credits, consisting of 3 credits for the Programme Elective and 2 additional credits. The additional 2 credits shall be awarded only if the student meets the eligibility conditions specified in the B. Tech. -2024 regulations. If those conditions are not fulfilled, the student will receive only 3 credits for the course

FIFTH SEMESTER (July-December)

Sl. No.	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
						L	T	P	R		CIE	ESE		
1	A	24SJPCERT501	PC	PC	Digital Signal Processing	3	1	0	0	5	40	60	4	4
2	B	24SJPCERT502	PC	PC	Theory of Computation	3	1	0	0	5	40	60	4	4
3	C	24SJPCERT503	PC	PC	Microcontrollers and Interfacing	3	0	0	0	4.5	40	60	3	3
4	D	24SJPBERT504	PC-PBL	PB	Database Management Systems	3	0	0	1	5.5	60	40	4	4
5	E	24SJPEERT52N	PE	PE	PE-2	3	0	0	0	4.5	40	60	3	3
6	I*	24SJICHUM506	HMC	IC	Constitution of India (MOOC)	-	-	-	-	2	-	-	1	-
7	L	24SJPCERL507	PCL	PC	Digital Signal Processing Lab	0	0	3	0	1.5	50	50	2	3
8	Q	24SJPCERL508	PCL	PC	Database Management Systems Lab	0	0	3	0	1.5	50	50	2	3
9	R/M/H		VAC		Remedial/Minor/Honours Course	3	1	0	0	5			4*	4*
	S_5/ S_6	Industrial Visit (Maximum 12 Days are permitted, Not Exceeding more than 6 Working Days) /Industrial Training												
Total										**30/ 35**			**23/27***	**24/28***

No Grade Points will be awarded for the MOOC course and I slot course.

Industrial Training:

Students who are not participating in the industrial visit must attend industrial training during that period.

PROGRAM ELECTIVE 2: 24SJPEERT 52N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	24SJPEERT 521	Wireless Sensor Networks	3-0-0-0	3	3
	24SJPEERT 522	CMOS VLSI Design	3-0-0-0		3
	24SJPEERT 523	Sensors and actuators	3-0-0-0		3
	24SJPEERT 524	Cloud Computing	3-0-0-0		3
	24SJPEERT 526	Python for Machine Learning	3-0-0-0		3
	24SJPEERT 525	Computational Fundamentals for Machine Learning	3-0-0-0		5/3

SIXTH SEMESTER (January-June)

Sl. No.	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
						L	T	P	R		CIE	ESE		
1	A	24SJPCERT601	PC	PC	Operating Systems	3	1	0	0	5	40	60	4	4
2	B	24SJPCERT602	PC	PC	Data Communication and Networking	3	0	0	0	4.5	40	60	3	3
3	C	24SJPEERT63N	PE	PE	PE-3	3	0	0	0	4.5	40	60	3	3
4	D	24SJPBERT604	PC-PBL	PB	Embedded Systems and IoT	3	0	0	1	5.5	60	40	4	4
5	F	24SJGYEST605	ESC	GC	Design Thinking and Product Development (Group Specific Syllabus)	2	0	0	0	3	40	60	2	2
6	O	24SJOE--T61N /24SJ IEERT61N	OE/ ILE	E/IE	OE/ILE-1	3	0	0	0	4.5	40	60	3	3
7	L	24SJPCERL607	PCL	PC	Embedded Systems and IoT Lab	0	0	3	0	1.5	50	50	2	3
8	P	24SJPCERP608	PWS	PC	Mini Project: Socially Relevant Project	0	0	3	0	3	50	50	2	3
9	R/MH		VAC		Remedial/Minor/Honours Course	3	0	0	0	4.5			3*	3*
	S5/S6	Industrial Visit (Maximum of 6 Days are permitted, Not Exceeding more than 4 Working Days) /Industrial Training												
Total										**32/ 36**			**23/26***	**25/28***

Note: Open Electives are such courses which will be offered by other departments. Like CSE department students have to opt open electives from ECE/ME/EEE etc. departments.

Industrial Training:

Students who are not participating in the industrial visit must attend industrial training during that period.

PROGRAM ELECTIVE 3: 24SJPEERT 63N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
C	24SJPEERT 631	Network and Linear Control Systems	3-0-0-0	3	3
	24SJPEERT 632	Micro-Electro-Mechanical-Systems	3-0-0-0		3
	24SJPEERT 633	Foundations of Data Science	3-0-0-0		3
	24SJPEERT 634	Compiler Design	3-0-0-0		3
	24SJPEERT 636	Algorithm Analysis and Design	3-0-0-0		3
	24SJPEERT 635	Design and Analysis of Algorithms	3-0-0-0		5/3

OPEN ELECTIVE 1: 24SJOEERT 61N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	24SJOEERT 611	Basics of Analog and Digital Communication	3-0-0-0	3	3
	24SJOEERT 612	Robotics and Automation	3-0-0-0		3
	24SJOEERT 613	Object Oriented Concepts	3-0-0-0		3
	24SJOEERT 614	Internet of Things	3-0-0-0		3
	24SJOEERT 615	Introduction to Artificial Intelligence	3-0-0-0		3

SEVENTH SEMESTER (July-December)

Sl. No.	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
						L	T	P	R		CIE	ESE		
1	A	24SJPEERT74N / 24SJPEERM74N	PE	PE	PE-4	3	0	0	0	4.5	40	60	3	3
2	B	24SJPEERT75N/ 24SJPEERM75N	PE	PE	PE-5	3	0	0	0	4.5	40	60	3	3
3	O	24SJOE--T72N /24SJIEERT72N/ 24SJOE--M72N	OE/ ILE	OE/IE	OE/ILE-2	3	0	0	0	4.5	40	60	3	3
4	I*	24SJIEHUT704/ 24SJIEHUM70N	HMC	IE	Elective	2	0	0	0	3	50	50	2	2
5	S	24SJPCERS705	PWS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	P**	24SJPCERP706/ 24SJPCERI706	PWS	PC	Option 1: Major Project Option 2: Internship (4-6 Months)	0	0	0	8	8	100	0	4	8
Total										**26/31**			**17/20***	**22/25***

Note: PE-4, PE-5, OE/IE, Elective – Internship Students: Self Study/MOOC Approved by Institution/Online Classes

**No Grade Points will be awarded for the I slot courses*

***Students can opt for the internship either in the 7^{th} or 8^{th} semester.*

Option 1: Work on a Project in the institute/department under the mentorship of faculty members.

Option 2: Full semester Internship in an Industry/organization (7^{th} or 8^{th} semester)

Note: Open Electives are such courses which will be offered by ES department to other departments.

PROGRAM ELECTIVE 4: 24SJPEERT 74N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	24SJPEERT 741	Image Processing	3-0-0-0	3	3
	24SJPEERT 742	Deep Learning	3-0-0-0		3
	24SJPEERT 743	Robotics and Automation	3-0-0-0		3
	24SJPEERT 744	Nano electronics	3-0-0-0		3
	24SJPEERT 746	Block Chain Technologies	3-0-0-0		3
	24SJPEERT 745	Network Security	3-0-0-0		5/3

PROGRAM ELECTIVE 5: 24SJPEERT 75N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
B	24SJPEERT 751	Web Programming	3-0-0-0	3	3
	24SJPEERT 752	Low Power VLSI	3-0-0-0		3
	24SJPEERT 753	Real Time Operating Systems	3-0-0-0		3
	24SJPEERT 754	Client Server Architecture	3-0-0-0		3
	24SJPEECT 756	Speech and Audio Processing	3-0-0-0		3
	24SJPEERT 755	Neural Networks and Deep Learning	3-0-0-0		5/3

OPEN ELECTIVE 2: 24SJOEERT 72N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	24SJOEERT 721	Sensors and Instrumentation	3-0-0-0	3	3
	24SJOEERT 722	Biomedical Instrumentation	3-0-0-0		3
	24SJOEERT 723	Embedded System Design and Applications	3-0-0-0		3
	24SJOEERT 724	Digital Image Processing	3-0-0-0		3
	24SJOEERT 725	Concepts in Machine Learning	3-0-0-0		3

SL. No	Course Code	Slot I: HMC Elective
1	24SJIEHUT704	Project Management: Planning, Execution, Evaluation and Control
2	24SJIEHUM701	Proficiency course in French. (MOOC) (B1 level)
3	24SJIEHUM702	Proficiency Course in German (B1 Level). (MOOC)
4	24SJIEHUM703	Proficiency Course in Spanish (B1 Level) (MOOC)
5	24SJIEHUM704	Introduction to Japanese Language and Culture (N5 level). (MOOC)

EIGHT SEMESTER (July-December)														
Sl. No.	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
						L	T	P	R		CIE	ESE		
1	A	24SJPEERT86N / 24SJPEERM86N	PE	PE	PE-6	3	0	0	0	4.5	40	60	3	3
2	O	24SJOEERT83N /24SJIEERT83N/ 24SJOE--M83N	OE/ ILE	OE/IE	OE/ILE-3	3	0	0	0	4.5	40	60	3	3
3	I*	24SJIEHUT803/ 24SJIEHUM803	HMC	IC	Organizational Behavior and Business Communication	2	0	0	0	3	50	50	1	2
4	P**	24SJPCERP806/ 24SJPCERI806/ 24SJPCERJ806	PWS	PC	Option 1: Major Project Option 2: Internship (4-6 Months)Option 3: Major Project Phase -II (For the students who have not opted for internship in S7/S8)	0	0	0	8	8	100	0	4	8
Total										**20**			**11**	**16**

Note: PE-6, OE/ILE, Elective – Internship Students: Self Study/MOOC Approved by Institution/Online Classes

**No Grade Points will be awarded for the I slot courses*

***Students can opt for the internship either in the 7th or 8th semester.*

Option 1: For the students who have opted for an internship in S7.

Option 2: Full semester Internship in an Industry/organization

Option 3: For the students who have not opted for internship in S7/S8)

PROGRAM ELECTIVE 6: 24SJPEERT 86N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	24SJPEERT 861	PLC and Data Acquisition Systems	3-0-0-0	3	3
	24SJPEERT 862	Electronic Product Design	3-0-0-0		3
	24SJPEERT 863	System Software	3-0-0-0		3
	24SJPEERT 864	Cyber Security	3-0-0-0		3
	24SJPEERT 866	Cryptography and Network Security	3-0-0-0		3
	24SJPEERT 865	Cyber Forensics	**3-0-0-0**		5/3

OPEN ELECTIVE 3: 24SJOEERT 83N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	24SJOEERT 831	Biomedical Signal Processing	3-0-0-0	3	3
	24SJOEERT 832	Hybrid and Electric Vehicles	3-0-0-0		3
	24SJOEERT 833	Fundamentals of Computer Networks	3-0-0-0		3
	24SJOEERT 834	Cloud Computing and Applications	3-0-0-0		3
	24SJOEERT 835	Introduction to Deep Learning	3-0-0-0		3

HMC Courses			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S1/S2**	Life Skills and Professional Communication	1
2	**S3/S4**	Economics for Engineers	2
3		Engineering Ethics and Sustainable Development	2
4	**S5**	Constitution of India. (MOOC)	1
5	**S7**	Elective (Project Management/Foreign Languages)	2
6	**S8**	Organizational Behavior and Business Communication	1
Total Credits			**9**

BSC Courses			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S1**	Group Specific Mathematics-1	3
2	**S1/S2**	Physics for Engineers	4
3		Chemistry for Engineers	4
4	**S2**	Group Specific Mathematics-2	3
5	**S3**	Group Specific Mathematics-3	3
6	**S4**	Group Specific Mathematics-4	3
Total Credits			**20**

ESC Courses			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S1**	Engineering Graphics and Computer Aided Drawing	3
2		Introduction to Electrical and Electronics Engineering	4
3		Algorithmic Thinking with Python	4
4		Basic Electrical and Electronics Engineering Workshop	1
5	**S2**	Foundations of Computing: From Hardware Essentials to Web Design	3
6		Programming in C	4
7		Engineering Entrepreneurship and IPR	3
8		IT Workshop	1
9	**S3**	Introduction to Artificial Intelligence and Data Science	4
10	**S6**	Design Thinking and Creativity	2
Total Credits			**29**

Program Core Courses (PC)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S2**	Digital Electronics	4
2	**S3**	Data Structures	4
3		Digital System Design Using Verilog	4
4		Data Structures Lab	2
5		Digital System Design Lab	2
6	**S4**	Computer Organization and Architecture	4
7		Computer Networks	4
8		Computer Networking Lab	2
9		Integrated Circuits Lab	2
10	**S5**	Digital Signal Processing	4
11		Theory of Computation	4
12		Microcontrollers and Interfacing	3
13		Digital Signal Processing Lab	2
14		Database Management Systems Lab	2
15	**S6**	Operating Systems	4
16		Data Communication and Networking	3
17		Embedded Systems and IoT Lab	2
Total Credits (Theory -10, Lab-7)			**52**

Program Core-Project Based Learning (PBL)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S3**	Electronic Devices and Circuits	4
2	**S4**	Integrated Circuits	4
3	**S5**	Database Management Systems	4
4	**S6**	Embedded Systems and IoT	4
Total Credits			**16**

Program Elective Courses (PE)			
Sl. No:	**Semester**	**Course Type**	**Credits**
1	**S4**	PE-1	3
2	**S5**	PE-2	3
3	**S6**	PE-3	3
4	**S7**	PE-4	3
5		PE-5	3
6	**S8**	PE-6	3
Total Credits			**18**

Open Elective Courses/Industry Elective(OE/IEL)			
Sl. No:	**Semester**	**Course Type**	**Credits**
1	**S6**	OE/ILE-1	3
2	**S7**	OE/ILE-2	3
3	**S8**	OE/ILE-3	3
Total Credits			**9**

Project/ Internship and Seminar			
Sl. No:	**Semester**	**Course Type**	**Credits**
1	S6	Mini Project	**2**
2	**S7**	Seminar	2
3		Major Project/Internship	4
4	**S8**	Major Project/Internship/Research Project	4
Total Credits			**12**

Activity Points

Sl. No	Group	Courses	Credits	Minimum Credit Requirements
1	I	NSS, NCC, NSO (National Sports Organization)	1 (40 Points)	3 Credits (One credit from each Group)
2		Arts/Sports/Games		
3		Union/Club Activities		
4	II	English Proficiency Certification (TOFEL, IELTS, BEC etc)	1 (40 Points)	
5		Aptitude Proficiency Certification (GRE, CAT, GMAT etc)/Valid Gate Score		
6		Short Term Internship (Minimum 2 weeks), Clinical Exposure/Training (Minimum 2 weeks), Conferences/Paper Presentation/ Workshop Activities/ Professional Body Activities, Participation in University level/State Level/ National Level Hackathon		
7	III	Journal Publication, Patents, Start-Up, Innovation, Winners of Smart India Hackathon (SIH)/ India Innovation Challenge Design Contest (IICDC)	1 (40 Points)	
8		**Skilling Certificates** (Approved by the University)		

- Students are required to acquire a minimum of 120 activity points, with at least 40 points per group, to fulfill the curriculum requirement of 3 activity credits.
- For B. Tech. Lateral Entry students, 30 points per group are required. A minimum of 90 activity points must be acquired to obtain the 3 activity credits mandated by the curriculum.

Course classifications of the B. Tech Programmes and Overall Credit Structure			
Sl. No	**Category**	**Code**	**Credits**
1	Humanities and Social Sciences including Management Courses	HMC	9
2	Basic Science Courses	BSC	20
3	Engineering Science Courses	ESC	29
4	Programme (Professional) Core Courses	PCC	54
5	Programme (Professional) Core Courses-Project Based Learning	PBL	16
6	Program Elective Courses	PEC	18
7	Open Elective Courses/Industry Linked Elective	OEC/ILE	9
8	Project Work/Internship and Seminar	PWS	10
9	Health and Wellness	PW	1
10	**Skill Enhancement Courses (Digital 101)	SEC	1
11	Mandatory Student Activities.	MSA	3
Total Credits			**170**

COURSE CODING PATTERN

A course code in an engineering degree curriculum is a unique identifier assigned to a specific academic course. It is a combination of letters and numbers that serves as a shorthand reference for the course.

- Each course is denoted by a unique code consisting of twelve alphanumeric characters
  - Format: [24SJYYXXCSNN]
  - Eg**: 24SJICMAT201**
- The first four characters (24SJ) denote the year of introducing the scheme and curriculum followed by the institution code.
- The next five characters (YYXXC) will be alphabets, representing the course category (YY), name of the department (XX) offering that course followed by the nature of the course(C).
  - YY- Institution Core (**IC**), Group Core (**GC**), Programme Core (PC) etc.
  - XX- Electronics and Computer Engineering (ER)
  - C- Theory (**T**), Lab (**L**), Seminar (**S**), Project (**P**) etc.
- The last three characters (SNN) will be digits, providing a unique numerical identifier for the course.
  - S- Semester Number (It can have a number from 1 to 8) in which the course is offered
  - NN- Course Sequence Number

This format aims to create a clear and consistent structure for course codes, making it easier for students, faculty, and administrative staff to identify and manage different courses within the institution. These course numbers are to be given in the curriculum and syllabi.

For Example:

24SJGAPHT121- is a theory course offered in the first semester. 24SJPCERL507 - is a Programme core laboratory course for the ES branch in the fifth semester. 24SJPBERT604 - is a Project-Based Learning course for the ES branch offered in the sixth semester. 24SJICHUT803 is an institution core theory course in the Eighth semester.

SJCET offers various Engineering branches are grouped into three broad categories based on their specialization.

GROUP	BRANCHES
A	Artificial Intelligence and Data Science (AD) Computer Science and Engineering (CS) Computer Science and Engineering (Artificial Intelligence) (CA) Computer Science and Engineering (Cyber Security) (CY)
B	Electrical and Electronics Engineering (EE) Electronics & Communication Engineering (EC) Electronics and Computer Engineering (ES)
C	Civil Engineering (CE) Mechanical Engineering (ME)

CODE	DESCRIPTION	EXAMPLE
GA	Courses Common to Group A	24SJGAMAT101
GB	Courses Common to Group B	24SJGBPHT121
GC	Courses Common to Group C	24SJGCEST103
GX	Courses Common to Group A & B	24SJGXCYT122
GY	Courses Common to Group B & C	24S GYMAT101

Course Category

- **Institution Core (IC):** The Institution core is a compulsory set of courses for all B. Tech students, which includes basic courses in Humanities and Computer Science.
- **Institution Elective (IE):** These are elective courses from a basket of courses in the Humanities and Social Sciences.
- **Group Core (GC):** Courses listed under Group Core of a curriculum are group specific. These courses ensure that students gain specialized knowledge and skills in their chosen field of study.

Course Category	Branch/Department Code	Codes for the nature of the Course	Semester Number	Identification Number for Each Course
YY	XX	C	S	NN
IC	HU, HW	T-Theory M-MOOC L-Lab S-Seminar P-Project J-Project Phase 2 I-Internship	1 to 8	01, 02, 03..
IE				
GC	AD, CS, CA, CY, CE, EC, EE, ES, ME			
PC				
PB				
PE, OE/IE				
HN-Honours MN-Minor				