SJCET B. Tech (EE) Curriculum 2024

B.Tech in Electrical and Electronics Engineering

FIRST SEMESTER (July-December)														
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	HM C		Life Skills and Professional Communications	2	0	1	0	3.5	100	0		
8	S_1/ S_2	24SJICSEM129	SEC	IC	**Skill Enhancement Course: Digital 101 (NASSCOM)	MOOC				2			-	
Total										**30/ 32**			**20**	**25/ 26**
Bridge Course (Mathematics or Introduction to Computer Science): **Total 15 Hrs.**														

SECOND SEMESTER (January-June)														
Sl. No:	**Slot**	**Course Code**	**Course Type**	**Course**	**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 Electrical Science									
3	C	24SJGBEST213	ESC	GC	Engineering Mechanics	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	24SJPCEET205	PC	PC	Measurements and Instrumentation	3	1	0	0	5	40	60	4	4
6	F	24SJICEST206	ESC	IC	Engineering Entrepreneurship and IPR	3	0	0	0	4.5	60	40	3	3
7	*I S1/ S2	24SJICHWT127	HWP	IC	Health and Wellness	1	0	1	0	0	50	0	1	2/3
		24SJICHUT128	HM C		Life Skills and Professional Communication	2	0	1	0	3.5	100	0		
8	L	24SJGXESL208	ESC	GC	IT Workshop	0	0	2	0	1	50	50	1	2
	S1/ S2	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

  CIE: Continuous Internal Evaluationt, ESE: End Semester Examination

Note: *Physics, Chemistry, Health and Wellness & Life Skill and Professional Communication can be offered in both Semester 1 (S1) and Semester 2 (S2).*

*****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, college ensures that all students gain valuable digital skills early in their academic journey, enhancing their readiness for advanced courses and future careers in technology.*

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**

***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**	**CourseCode**	**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	24SJPCEET302	PC	PC	Circuits and Networks	3	1	0	0	5	40	60	4	4
3	C	24SJPCEET303	PC	PC	DC Machines and Transformers	3	1	0	0	5	40	60	4	4
4	D	24SJPBEET304	PC-PBL	PB	Analog Electronics	3	0	0	1	5.5	60	40	4	4
5	F	24SJGYEST305	ESC	GC	Introduction to Artificial Intelligence and Data Science	3	1	0		5	40	60	4	4
6	G S3/ S 4	24SJICHUT346	HMC	IC	Economics for Engineers	2	0	0	0	3	50	50	2	2
		24SJICHUT347			Engineering Ethics and Sustainable Development									
7	L	24SJPCEEL307	PCL	PC	Circuits and Measurements Lab	0	0	3	0	1.5	50	50	2	3
8	Q	24SJPCEEL308	PCL	PC	Analog Electronics 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**	**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	24SJPCEET402	PC	PC	Synchronous and Induction Machines	3	1	0	0	5	40	60	4	4
3	C	24SJPCEET403	PC	PC	Power Electronics and Drives	3	1	0	0	5	40	60	4	4
4	D	24SJPBEET404	PC-PBL	PB	Digital Electronics	3	0	0	1	5.5	60	40	4	4
5	E	24SJPEEET41N	PE	PE	PE-1	3	0	0	0	4.5	40	60	3	3
6	G S3/S4	24SJICHUT346	HMC	IC	Economics for Engineers	2	0	0	0	3	50	50	2	2
		24SJICHUT347			Engineering Ethics and Sustainable Development									
7	L	24SJPCEEL407	PCL	PC	DC Machines and Transformers Lab	0	0	3	0	1.5	50	50	2	3
8	Q	24SJPCEEL408	PCL	PC	Power Electronics and Drives 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*
Total										**31/ 36**			**24/ 28***	**26/ 30***

PROGRAM ELECTIVE I: PEEET41N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
E	24SJPEEET411	Electronic Instrumentation	3-0-0-0	3	3
	24SJPEEET412	Renewable Energy Sources	3-0-0-0		3
	24SJPEEET413	Mathematics for Machine Learning	3-0-0-0		3
	24SJPEEET414	Theory of Computation	3-0-0-0		3
	24SJPEEET416	Computer Organization	3-0-0-0		3
	24SJPEEET417	Solid State Devices	3-0-0-0		3
	24SJPEEET418	Illumination Technology	3-0-0-0		3
	24SJPEEET419	Object Oriented Programming	3-0-0-0		3

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	24SJPCEET501	PC	PC	Power Generation, Transmission and Protection	3	1	0	0	5	40	60	4	4
2	B	24SJPCEET502	PC	PC	Electromagnetic Theory	3	1	0	0	5	40	60	4	4
3	C	24SJPCEET503	PC	PC	Signals and Systems	3	0	0	0	4.5	40	60	3	3
4	D	24SJPBEET504	PC-PBL	PB	Microprocessor and Embedded Systems	3	0	0	1	5.5	60	40	4	4
5	E	24SJPEEET52N	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	24SJPCEEL507	PCL	PC	AC Machines Lab	0	0	3	0	1.5	50	50	2	3
8	Q	24SJPCEEL508	PCL	PC	Microprocessor and Embedded SystemsLab	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 06 Days are permitted, Not Exceeding more than 4 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: PEEET52N					
SLOT	**COURSE CODE**	**COURS ES**	**L-T-P-R**	**HOURS**	**CREDIT**
E	24SJPEEET521	Energy Storage Systems	3-0-0-0	3	3
	24SJPEEET522	Electric Vehicles	3-0-0-0		3
	24SJPEEET523	Digital System Design	3-0-0-0		3
	24SJPEEET524	Software Engineering	3-0-0-0		3
	24SJPEEET526	Data Structures	3-0-0-0		3
	24SJPEEET527	Introduction to Machine Learning	3-0-0-0		3
	24SJPEEET528	Computer Network Systems	3-0-0-0		3

SIXTH SEMESTER (January-June)														
Sl. No:	**Slot**	**CourseCode**	**Course Type**	**Course Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs/ Week**
						L	**T**	**P**	**R**		**CIE**	**ESE**		
1	A	24SJPCEET601	PC	PC	Control Systems	3	1	0	0	4.5	40	60	4	4
2	B	24SJPCEET602	PC	PC	Electrical System Design and Estimation	3	0	0	0	4.5	40	60	3	3
3	C	24SJPEEET63N	PE	PE	PE-3	3	0	0	0	4.5	40	60	3	3
4	D	24SJPBEET604	PC-PBL	PB	Power System Analysis	3	0	0	1	5.5	60	40	4	4
5	F	24SJGXEST605	ESC	GC	Design Thinking and Product Development	2	0	0	0	3	40	60	2	2
6	#O	24SJOE--T61N /24SJIE--T61N	OE/ ILE	OE/ IE	OE/ILE-1	3	0	0	0	4.5	40	60	3	3
7	L	24SJPCEEL607	PCL	PC	Control Systems Lab	0	0	3	0	1.5	50	50	2	3
8	P	24SJPCEEP608	PWS	PC	Mini Project: Socially Relevant Project	0	0	0	3	3	50	50	2	3
9	Q	24SJPCEEL609	PCL	PC	Power Systems Lab	0	0	2	0	1	50	50	1	2
10	R/ M/ H		VAC		Remedial/Minor/Honours Course	3	0	0	0	4.5			3*	3*
	S5/ S6	Industrial Visit (Maximum of 06 Days are permitted, Not Exceeding more than 4 Working Days) /Industrial Training												
Total										**32/ 36**			**23/26***	**26/29***

 # Open Electives (OE)/ Industry Linked Elective (ILE) applicable to Electrical and Electronics Engineering students.

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

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

PROGRAM ELECTIVE 3: PEEET63N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
C	24SJPEEET631	Digital Protection of Power Systems	3-0-0-0	3	3
	24SJPEEET632	Operating Systems	3-0-0-0		3
	24SJPEEET633	High Voltage Engineering	3-0-0-0		3
	24SJPEEET634	Internet of Things	3-0-0-0		3
	24SJPEEET636	Digital Signal Processing	3-0-0-0		3
	24SJPEEET637	Cloud Computing	3-0-0-0		3
	24SJPEEET638	Optimization Techniques	3-0-0-0		3

OPEN ELECTIVE 1: 24SJOEEET61N (offered by EE Department)					
SLOT	**COURSECODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
O	24SJOEEET611	Introduction to Control Systems	3-0-0-0	3	3
	24SJOEEET612	Energy Management	3-0-0-0		3
	24SJOEEET613	Renewable Energy Systems	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	24SJPEEET74N/ 24SJPEEEM74N	PE	PE	PE-4 (Internship Students: Self Study/ MOOC approved by the Institution/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	B	24SJPEEET75N / 24SJPEEEM75N	PE	PE	PE-5 (Internship Students: Self Study/ MOOC approved by the Institution/ Online Classes)	3	0	0	0	4.5	40	60	3	3
3	#O	24SJOE--T72N /24SJIE--T72N/ 24SJOE--M72N	OE/ ILE	OE/IE	OE/ILE-2 (Internship Students: Self Study/ MOOC approved by the Institution /Online Classes)	3	0	0	0	4.5	40	60	3	3
4	*I	24SJIEHUT704/ 24SJIEHUM70N	HM C	IE	Elective (Internship Students: Self Study/ MOOC approved by the Institution /Online Classes)	2	0	0	0	3	50	50	2	2
5	S	24SJPCEES705	PWS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	**P	24SJPCEEP706/ 24SJPCEEI706	PWS	PC	Option 1: Major Project Option 2: Internship (4-6 Months)	0	0	0	8	8	100	0	4	8
7	R/H		VAC		Remedial/Honours Course	3	0	0	0	4.5			3*	3*
					Total					**26/ 31**			**17/20***	**22/25***

 # Open Electives (OE)/ Industry Linked Elective (ILE) applicable to Electrical and Electronics Engineering students.
**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: Work on a Project in the institute/department under the mentorship of faculty members.
Option 2: Full semester Internship in an Industry/organization

PROGRAM ELECTIVE 4: 24SJPEEET74N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
A	24SJPEEET741	Power System Operation and Control	3-0-0-0	3	3
	24SJPEEET742	Energy Management and Auditing	3-0-0-0		3
	24SJPEEET743	Special Electrical Machines	3-0-0-0		3
	***24SJPEEET744**	**Discrete Time Control Systems**	**3-0-0-0**		**3/5**
	24SJPEEET746	Digital Image Processing	3-0-0-0		3

PROGRAM ELECTIVE 5: 24SJPEEET75N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
B	24SJPEEET751	Power Quality	3-0-0-0	3	3
	***24SJPEEET752**	**Nonlinear Control Systems**	**3-0-0-0**		**3/5**
	24SJPEEET753	Deep Learning	3-0-0-0		3
	24SJPEEET754	Computer Vision	3-0-0-0		3

OPEN ELECTIVE 2: 24SJOEEET72N (offered by EE Department)					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
O	24SJOEEET721	Design of Solar PV systems	3-0-0-0	3	3
	24SJOEEET722	Hybrid and Electric Vehicles	3-0-0-0		3
	24SJOEEET723	Introduction to Energy Storage Systems	3-0-0-0		3

Slot I: HMC Elective	
1	Project Management: Planning, Execution, Evaluation and Control
2	Proficiency course in French. (MOOC) (B1 level)
3	Proficiency Course in German (B1 Level) (MOOC)
4	Proficiency Course in Spanish (B1 Level) (MOOC)
5	Introduction to Japanese Language and Culture (N5 level) (MOOC)

***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*

EIGHTH SEMESTER (January-June)														
Sl. No:	**Slot**	**Course Code**	**Course**	**Cour se**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs/ Week**
						L	**T**	**P**	**R**		**CIE**	**ESE**		
1	A	24SJPEEET86N/ 24SJPEEEM86N	PE	PE	PE-6 (Internship Students: Self Study/ MOOC approved by the Institution/ Online Classes)	3	0	0	0	4.5	40	60	3	3
2	O	24SJOE--T83N /24SJIE--T83N/ 24SJOE--M83N	OE/ ILE	OE/ IE	OE/ILE-3 (Internship Students: Self Study/ MOOC approved by the Institution/ Online Classes)	3	0	0	0	4.5	40	60	3	3
3	I*	24SJICHUT803 / 24SJICHUM803	HMC	IC	Organizational Behavior and Business Communication (Internship Students: Self Study/ MOOC approved by the Institution/ Online Classes)	2	0	0	0	3	50	50	1	2
4	P**	24SJPCEEP806/ 24SJPCEEI806 24SJPCEEJ806	PWS	PC	Option 1: Major Project Option2: Internship (4-6 Months) Option 3: Major Project Phase -II	0	0	0	8	8	100	0	4	8
Total										**20**			**11**	**16**

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

PROGRAM ELECTIVE 6: 24SJPEEET86N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
A	24SJPEEET861	Smart Grid Technologies	3-0-0-0	3	3
	24SJPEEET862	HVDC and FACTS	3-0-0-0		3
	24SJPEEET863	Mechatronic Systems	3-0-0-0		3
	24SJPEEET864	Electronic Communication	3-0-0-0		3

OPEN ELECTIVE 3: 24SJOEEET83N (offered by EE Department)					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
O	24SJOEEET831	Introduction to Robotics	3-0-0-0	3	3
	24SJOEEET832	PLC and Automation	3-0-0-0		3
	24SJOEEET833	Mechatronic Systems and Control	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 Behaviour 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**	Engineering Mechanics	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**

Programme Core Courses (PC)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S2**	Core 1- Measurements and Instrumentation	4
2	**S3**	Core 2- Circuits and Networks	4
3		Core 3- DC Machines and Transformers	4
4		Lab 1 - Circuits and Measurements Lab	2
5		Lab 2 - Analog Electronics Lab	2
6	**S4**	Core 4 – Synchronous and Induction Machines	4
7		Core 5 - Power Electronics and Drives	4
8		Lab 3 - DC Machines and Transformers Lab	2
9		Lab 4 –Power Electronics and Drives Lab	2
10	**S5**	Core 6 - Power Generation, Transmission and Protection	4
11	**S6**	Core 7 - Electromagnetic Theory	4
12		Core 8 - Signals & Systems	3
13		Lab 5 - AC Machines Lab	2
14		Lab 6 - Microprocessor and Embedded Systems Lab	2
15		Core 9 - Control Systems	3
16		Core 10 – Electrical System Design	3
17		Lab 7 - Control Systems Lab	2
18		Lab 8 - Power System Lab	1
Total Credits (Theory -10, Lab-8)			**52**

Programme Core-Project Based Learning (PBL)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S3**	Core PBL-1	4
2	**S4**	Core PBL-2	4
3	**S5**	Core PBL-3	4
4	**S6**	Core PBL-4	4
Total Credits			**16**
Programme 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 Linked Elective(OE/ILE)			
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 Hackathons		
7	III	Journal Publication, Patents, Start-Up, Innovation, Winners of National/ International Level Hackathons	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	52
5	Programme (Professional) Core Courses-Project Based Learning	PBL	16
6	Programme Elective Courses	PEC	18
7	Open Elective Courses/Industry Linked Elective	OEC/ILE	9
8	Mini Project, Project Work/Internship and Seminar	PWS	12
9	Health and Wellness	HWP	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**: 24SJGBMAT201**

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- Computer Science (CS)
- 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 for group A department. 24SJPCEEL507 - is a Programme core laboratory course for the EE students in the fifth semester. 24SJPBEET604 - is a Project-Based Learning course for the EE students offered in the sixth semester. 24SJICHUT803 is an institution core theory course in the Eighth semester.

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

GROUP	DEPARTMENTS
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) (CC)
B	Electrical and Electronics Engineering (EE) Electronics and Communication Engineering (EC) Electronics and Computer Engineering (ER)
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	24SJGYMAT101

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, CC, CE, EC, EE, ER, ME			
PC				
PB				
PE, OE/IE				
HN-Honours MN-Minor				