ST. JOSEPH'S
COLLEGE OF ENGINEERING
AND TECHNOLOGY,
- PALAI -
AUTONOMOUS

SJCET B. Tech (EC) Curriculum 2024

(B.Tech in Electronics and Communication Engineering)

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

FIRST SEMESTER (July-December)														
10 Days Compulsory Induction Program and UHV														
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	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 24SJGXCYT122	BSC	GC	Physics for Electrical Science Chemistry for Electrical Science	3	0	2	0	5.5	40	60	4	5
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	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.**														

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

SECOND SEMESTER (January-June)														
Sl. No:	**Slot**	**Course Code**	**Course**	**Course Category**	**Course Title (Course Name)**					**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 24SJGXCYT122	BSC	GC	Physics for Electrical Science Chemistry for Electrical Science	3	0	2	0	5.5	40	60	4	5
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	24SJPCECT205	PC	PC	Network Theory	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		2/3
		24SJICHUT128	HMC		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
	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

  CIE: Continuous Internal Evaluation, 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). Institutions are encouraged to guide approximately 50% of their branches to choose between Physics* ***or*** *Chemistry (Slot B) and Health and Wellness* ***or*** *Life Skill and Professional Communication (Slot I) in Semester 1.*

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, KTU 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	**24SJPCECT302**	PC	PC	Solid State Devices	3	1	0	0	5	40	60	4	4
3	C	**24SJPCECT303**	PC	PC	Analog Circuits	3	1	0	0	5	40	60	4	4
4	D	**24SJPBECT304**	PC-PBL	PB	Logic Circuit Design	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/S4	**24SJICHUT346**	HMC	IC	Engineering Economics	2	0	0	0	3	50	50	2	2
		24SJICHUT347			Engineering Ethics and Sustainable Development									
7	L	**24SJPCECL307**	PCL	PC	Analog Circuits Lab	0	0	3	0	1.5	50	50	2	3
8	Q	**24SJPCECL308**	PCL	PC	Logic Circuit 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	**24SJPCECT402**	PC	PC	Signals and Systems	3	1	0	0	5	40	60	4	4
3	C	**24SJPCECT403**	PC	PC	Linear Integrated Circuits	3	1	0	0	5	40	60	4	4
4	D	**24SJPBECT404**	PC-PBL	PB	Microcontrollers	3	0	0	1	5.5	60	40	4	4
5	E	**24SJPEECT41N**	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	**24SJPCECL407**	PCL	PC	Linear Integrated Circuits Lab	0	0	3	0	1.5	50	50	2	3
8	Q	**24SJPCECL408**	PCL	PC	Microcontroller 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: PEECT41N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
E	**24SJPEECT411**	Instrumentation	3-0-0-0	**3**	3
	24SJPEECT412	Power Electronics	3-0-0-0		3
	24SJPEECT413	Machine Learning	3-0-0-0		3
	24SJPEECT414	Object Oriented Programming	3-0-0-0		3
	24SJPEECT416	Digital System Design	3-0-0-0		3
	24SJPEECT415	Digital Systems and VLSI Design	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	**24SJPCECT501**	PC	PC	Electromagnetics	3	1	0	0	5	40	60	4	4
2	B	**24SJPCECT502**	PC	PC	Analog and Digital Communication	3	1	0	0	5	40	60	4	4
3	C	**24SJPCECT503**	PC	PC	Control Systems	3	0	0	0	4.5	40	60	3	3
4	D	**24SJPBECT504**	PC-PBL	PB	Digital Signal Processing	3	0	0	1	5.5	60	40	4	4
5	E	**24SJPEECT52N**	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	**24SJPCECL507**	PCL	PC	Digital Signal Processing Lab	0	0	3	0	1.5	50	50	2	3
8	Q	**24SJPCECL508**	PCL	PC	Communication Lab I	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 6 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: PEECT52N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
E	**24SJPEECT521**	Biomedical Engineering	3-0-0-0	**3**	3
	24SJPEECT522	Data Structures	3-0-0-0		3
	24SJPEECT523	Sensors and Actuators	3-0-0-0		3
	24SJPEECT524	ARM architecture and programming	3-0-0-0		3
	24SJPEECT526	High Speed Digital Design	3-0-0-0		3
	24SJPEECT527	Estimation and Detection	3-0-0-0		3
	24SJPEECT525	ARM architecture, programming and Interfacing	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	**24SJPCECT601**	PC	PC	Advanced Communication Theory	3	1	0	0	5	40	60	4	4
2	B	**24SJPCECT602**	PC	PC	Microwaves and Antennas	3	0	0	0	4.5	40	60	3	3
3	C	**24SJPEECT63N**	PE	PE	PE-3	3	0	0	0	4.5	40	60	3	3
4	D	**24SJPBECT604**	PC-PBL	PB	VLSI Circuit Design	3	0	0	1	5.5	60	40	4	4
5	F	**24SJGXEST605**	ESC	GC	Design Thinking and Product Development (Group Specific Syllabus)	2	0	0	0	3	40	60	2	2
	#O	**24SJOE--T61N /24SJIE--T61N**	OE/ILE		OE/ILE-1	3	0	0	0	4.5	40	60	3	3
7	L	**24SJPCECL607**	PCL	PC	Communication Lab II	0	0	3	0	1.5	50	50	2	3
8	P	**24SJPCEVP608**	PWS	PC	Mini Project: Socially Relevant Project	0	0	0	3	3	50	50	2	3
9	R/ M/ H		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***

Open Elective/Industry Linked Electives applicable to EC students

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: PEECT63N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
C	**24SJPEECT631**	Computer Networks	3-0-0-0	**3**	3
	24SJPEECT632	Digital Image Processing	3-0-0-0		3
	24SJPEECT633	Secure Communication	3-0-0-0		3
	24SJPEECT634	Nano-Electronics	3-0-0-0		3
	24SJPEECT636	Optical Communication	3-0-0-0		3
	24SJPEECT637	Optimization Techniques	3-0-0-0		3
	24SJPEECT635	Image Processing Applications	3-0-0-0		**5/3**

OPEN ELECTIVE 1: OEECT 61N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
O	**24SJOEECT611**	Entertainment Electronics	3-0-0-0	3	3
	24SJOEECT612	Computer Networks	3-0-0-0		3
	24SJOEECT613	Biomedical Engineering	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	**24SJPEECT74N/ 24SJPEECM74N**	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	**24SJPEECT75N/ 24SJPEECM75N**	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**	HMC	IE	Elective (Internship Students: Self Study/MOOC Approved by the Institution/Online Classes)	2	0	0	0	3	50	50	2	2
5	S	**24SJPCECS705**	PWS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	** P	**24SJPCECP706/ 24SJPCECI706**	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 Elective/Industry Linked Electives applicable to EC 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 (**7th or 8th semester**)*

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

PROGRAM ELECTIVE 4: PEECT74N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
A	**24SJPEECT741**	Advanced Mobile Communication	3-0-0-0	**3**	3
	24SJPEECT742	Deep Learning	3-0-0-0		3
	24SJPEECT743	Robotics and Automation	3-0-0-0		3
	24SJPEECT744	Coding Theory	3-0-0-0		3
	24SJPEECT746	Advanced Digital Signal Processing	3-0-0-0		3
	24SJPEECT747	Cryptography	3-0-0-0		3
	24SJPEECT745	Deep Learning Techniques	3-0-0-0		**5/3**

PROGRAM ELECTIVE 5: PEECT75N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
B	**24SJPEECT751**	Satellite and Radar Communication	3-0-0-0	**3**	3
	24SJPEECT752	Internet of Things	3-0-0-0		3
	24SJPEECT753	Real Time Operating System	3-0-0-0		3
	24SJPEECT754	Mixed Signal Circuits	3-0-0-0		3
	24SJPEECT756	Speech and Audio Processing	3-0-0-0		3
	24SJPEECT757	Microwave Devices and Circuits	3-0-0-0		3
	24SJPEECT755	Mixed Signal Circuit Design	3-0-0-0		**5/3**

Open Electives offered by EC department to other branch students

OPEN ELECTIVE 2: OEECT72N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
O	**24SJOEECT721**	Optical Communication	3-0-0-0	3	3
	24SJOEECT722	Digital Image Processing	3-0-0-0		3
	24SJOEECT723	Optimization Techniques	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)

EIGHTH 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	**24SJPEECT86N/ 24SJPEECM86N**	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*	**24SJIEHUT803/ 24SJIEHUM803**	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	**24SJPCECP806/ 24SJPCECI806/ 24SJPCECJ806**	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**

***Option 1: For the students who have opted Internship in S7*

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

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

***Option 3: For the students who have **not** opted Internship in S7*

PROGRAM ELECTIVE 6: PEECT86N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
A	**24SJPEECT861**	Wireless Sensor Networks	3-0-0-0	**3**	3
	24SJPEECT862	RF Engineering	3-0-0-0		3
	24SJPEECT 863	Renewable Energy Systems	3-0-0-0		3
	24SJPEECT864	Cyber-Security	3-0-0-0		3
	24SJPEECT866	Low Power VLSI	3-0-0-0		3
	24SJPEECT867	Blockchain	3-0-0-0		3
	24SJPEECT868	Antenna Theory & Wave Propagation	3-0-0-0		3
	24SJPEECT865	Antenna Theory & Design	3-0-0-0		**5/3**

OPEN ELECTIVE 3: OEECT83N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
O	**24SJOEECT831**	Internet of Things	3-0-0-0	3	3
	24SJOEECT832	Satellite and Radar Communication	3-0-0-0		3
	24SJOEECT833	Robotics	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 (Group B)			
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 / Engineering Mechanics (EEE, CP, RA and RU)	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**	Network Theory	4
2	**S3**	Solid State Devices	4
3		Analog Circuits	4
4		Analog Circuits Lab	2
5		Logic Circuit Design Lab	2
6	**S4**	Signals and Systems	4
7		Linear Integrated Circuits	4
8		Linear Integrated Circuits Lab	2
9		Microcontroller Lab	2
10	**S5**	Electromagnetics	4
11		Analog & Digital Communication	4
12		Control Systems	3
13		DSP Lab	2
14		Communication Lab I	2

15	**S6**	Advanced Communication Theory	4
16		Microwave and Antennas	3
17		Communication Lab II	2
Total Credits (Theory -10, Lab-7)			**52**

Program Core-Project Based Learning (PBL)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S3**	Logic Circuit Design	4
2	**S4**	Microcontrollers	4
3	**S5**	Digital Signal Processing	4
4	**S6**	VLSI Circuit Design	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 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 (PWS)			
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 Institution)		

- ***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: [24SJYYXXECNN]
  - 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 Communication (**EC**)
  - 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. 24SJPCECL507 - is a Programme core laboratory course for the EC branch in the fifth semester. 24SJPBECT604 - is a Project-Based Learning course for the EC 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) (CC)
B	Electrical and Electronics Engineering (EE) Electronics & 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				