St. Joseph's College of Engineering and Technology (Autonomous), Palai

SJCET B.Tech (AD) Curriculum 2024

(B.Tech. in Artificial Intelligence and Data Science)

Semester I to VIII

Choondacherry P.O, Palai, Kottayam 686 579,

Kerala, India.

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 Type**	**Course Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs./ Week**
						L	**T**	**P**	**R**		**CIE**	**ESE**		
1	A	24SJGAMAT101	BSC	GC	Mathematics for Information Science-1	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	24SJGAPHT121 24SJGXCYT122	BSC	GC	Physics for Information Science Chemistry for Information Science and 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	S1/ S2	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 Category**	**Course Title (Course Name)**	**Credit Structure**				**SS**	**Total Marks**		**Credits**	**Hrs./ Week**
						L	**T**	**P**	**R**		**CIE**	**ESE**		
1	A	24SJGAMAT201	BSC	GC	Mathematics for Information Science-2	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	24SJGAPHT121 24SJGXCYT122	BSC	GC	Physics for Information Science Chemistry for Information Science and 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	24SJPCCST205	PC	PC	Discrete Mathematics	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	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
	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 courses, I slot courses and bridge courses.*

- L-T-P-R: Lecture-Tutorial-Practical-Project
- SS (Self Study) Hours= 1.5L+0.5 T+0.5P+R

  CIE: Continuous Internal Examination, ESE: End Semester Examination

Note: *Physics, Chemistry, Health and Wellness and 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, Institute 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	24SJGAMAT301	BSC	GC	Mathematics for Computer and Information Science-3	3	0	0	0	4.5	40	60	3	3
2	B	24SJPCAIT302	PC	PC	Foundations of Artificial Intelligence	3	1	0	0	5	40	60	4	4
3	C	24SJPCCST303	PC	PC	Data Structures and Algorithms	3	1	0	0	5	40	60	4	4
4	D	24SJPBADT304	PC-PBL	PB	Introduction to Data Science	3	0	0	1	5.5	60	40	4	4
5	F	24SJGAEST305	ESC	GC	Digital Electronics and Logic Design	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	24SJPCCSL307	PCL	PC	Data Structures Lab	0	0	3	0	1.5	50	50	2	3
8	Q	24SJPCCDL308	PCL	PC	Python and Statistical Modelling 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	24SJGAMAT401	BSC	GC	Mathematics for Computer and Information Science-4	3	0	0	0	4.5	40	60	3	3
2	B	24SJPCCST402	PC	PC	Database Management Systems	3	1	0	0	5	40	60	4	4
3	C	24SJPCCST403	PC	PC	Operating Systems	3	1	0	0	5	40	60	4	4
4	D	24SJPBCST404	PC-PBL	PB	Computer Organization and Architecture	3	0	0	1	5.5	60	40	4	4
5	E	24SJPEADT41N	PE	PE	PE-1	3	0	0	0	4.5	40	60	3	3
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	24SJPCADL407	PCL	PC	Foundations of AI and Data Science Lab	0	0	3	0	1.5	50	50	2	3
8	Q	24SJPCCSL408	PCL	PC	DBMS 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 1: 24SJPEADT41N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	24SJPECST411	Software Engineering	3-0-0-0	3	3
	24SJPEADT412	Data Science Privacy and Ethics	3-0-0-0		3
	24SJPECST413	Functional Programming	3-0-0-0		3
	24SJPEADT414	Fundamentals of Bioinformatics	3-0-0-0		3
	24SJPEADT416	Number Theory	3-0-0-0		3
	24SJPECST417	Soft Computing	3-0-0-0		3
	24SJPEADT418	Microcontrollers	3-0-0-0		3
	24SJPEADT415	Foundations of Pattern Recognition	**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	24SJPCCST501	PC	PC	Computer Networks	3	1	0	0	5	40	60	4	4
2	B	24SJPCADT502	PC	PC	Robotics and Intelligent Systems	3	1	0	0	5	40	60	4	4
3	C	24SJPCCST503	PC	PC	Machine Learning	3	0	0	0	4.5	40	60	3	3
4	D	24SJPBADT504	PC-PBL	PB	Big Data Analytics	3	0	0	1	5.5	60	40	4	4
5	E	24SJPEADT52N	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	24SJPCADL507	PCL	PC	Robotics Lab	0	0	3	0	1.5	50	50	2	3
8	Q	24SJPCCDL508	PCL	PC	Data Analytics 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 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: 24SJPECST52N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	24SJPECST521	Software Project Management	3-0-0-0	3	3
	24SJPEADT522	Business Analytics	3-0-0-0		3
	24SJPEADT523	Information Systems	3-0-0-0		3
	24SJPECST524	Data Compression	3-0-0-0		3
	24SJPEADT526	Computational Biology	3-0-0-0		3
	24SJPECST527	Computer Graphics and Multimedia	3-0-0-0		3
	24SJPECST528	Advanced Computer Architectures	3-0-0-0		3
	24SJPEADT525	Fundamentals of Digital Image Processing	**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	24SJPCADT601	PC	PC	Deep Learning	3	1	0	0	5	40	60	4	4
2	B	24SJPCADT602	PC	PC	Internet of Things	3	0	0	0	4.5	40	60	3	3
3	C	24SJPEADT63N	PE	PE	PE-3	3	0	0	0	4.5	40	60	3	3
4	D	24SJPBADT604	PC-PBL	PB	Data Mining and Warehousing	3	0	0	1	5.5	60	40	4	4
5	F	24SJGAEST605	ESC	GC	Design Thinking and Product Development	2	0	0	0	3	40	60	2	2
6	O#	24SJOEADT61N / 24SJIEADT61N	OE/ ILE	OE/IE	OE/ILE-1	3	0	0	0	4.5	40	60	3	3
7	L	24SJPCADL607	PCL	PC	Deep Learning Lab	0	0	3	0	1.5	50	50	2	3
8	P	24SJPCADP608	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 elective applicable to AD 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: 24SJPEADT63N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
C	24SJPECST631	Software Testing	3-0-0-0	3	3
	24SJPEADT632	Computational Linguistics	3-0-0-0		3
	24SJPEADT633	Machine Learning in Computational Biology	3-0-0-0		3
	24SJPECST634	Advanced Database Systems	3-0-0-0		3
	24SJPEADT636	Web Mining	3-0-0-0		3
	24SJPECST637	Fundamentals of Cryptography	3-0-0-0		3
	24SJPECST638	Quantum Computing	3-0-0-0		3
	24SJPEADT635	Natural Language Processing	**3-0-0-0**		**5/3**

OPEN ELECTIVE 1: 24SJOEADT61N

Open elective offered to other branches

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	24SJOECST611	Data Structures	3-0-0-0	3	3
	24SJOECST612	Data Communication	3-0-0-0		3
	24SJOECST613	Foundations of Cryptography	3-0-0-0		3
	24SJOECST614	Machine Learning for Engineers	3-0-0-0		3
	24SJOECST615	Object Oriented Programming	3-0-0-1		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	24SJPEADT74N/ 24SJPEADM74N	PE	PE	PE-4 (Internship Students: Self Study/MOOC Approved by the Institute/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	B	24SJPEADT75N/ 24SJPEADM75N	PE	PE	PE-5 (Internship Students: Self Study/MOOC Approved by the Institute/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	O#	24SJOE--T72N / 24SJIE--T72N/ 24SJOE--M72N	OE/ ILE	OE/I E	OE/ILE-2 (Internship Students: Self Study/MOOC Approved by the Institute/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 Institute/Online Classes)	2	0	0	0	3	50	50	2	2
5	S	24SJPCADS705	PWS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	P**	24SJPCADP706/ 24SJPCADI706	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**			**17**	**22**

 # Open elective/Industry linked elective applicable to AD 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: 24SJPEADT74N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	24SJPECST741	Formal Methods in Software Engineering	3-0-0-0	3	3
	24SJPECST742	Web Programming	3-0-0-0		3
	24SJPECDT741	Recommendation Systems	3-0-0-0		3
	24SJPECDT742	Financial Data Science	3-0-0-0		3
	24SJPEADT746	Cloud Computing	3-0-0-0		3
	24SJPECST747	Blockchain And Cryptocurrencies	3-0-0-0		3
	24SJPEADT748	Generative AI	3-0-0-0		3
	24SJPECST745	Computer Vision	**3-0-0-1**		**5/3**

PROGRAM ELECTIVE 5: 24SJPEADT75N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
B	24SJPEADT751	Computational Health Informatics	3-0-0-0	3	3
	24SJPECST752	Responsible Artificial Intelligence	3-0-0-0		3
	24SJPECDT751	Graph Databases and Analysis	3-0-0-0		3
	24SJPECST754	Digital Forensics	3-0-0-0		3
	24SJPECST756	Game Theory and Mechanism Design	3-0-0-0		3
	24SJPECST757	High Performance Computing	3-0-0-0		3
	24SJPECST758	Programming Languages	3-0-0-0		3
	24SJPEADT755	Time Series Modelling	**3-0-0-0**		**5/3**

OPEN ELECTIVE 2: 24SJOEADT72N

Open elective offered to other branches

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	24SJOECST721	Cyber Security	3-0-0-0	3	3
	24SJOECST722	Cloud Computing	3-0-0-0		3
	24SJOECST723	Software Engineering	3-0-0-0		3
	24SJOECST724	Computer Networks	3-0-0-0		3
	24SJOECST725	Mobile Application Development	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	24SJPEADT86N/ 24SJPEADM86N	PE	PE	PE-6 (Internship Students: Self Study/MOOC Approved by the Institute/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 Institute/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 Institute/Online Classes)	2	0	0	0	3	50	50	1	2
4	P**	24SJPCADP806/ 24SJPCADI806/ 24SJPCADJ806	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**

 # Open elective/Industry linked elective applicable to AD 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: 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: 24SJPEADT86N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	24SJPECST861	Software Architectures	3-0-0-0	3	3
	24SJPEADT862	Bio Inspired Optimization Techniques	3-0-0-0		3
	24SJPEADT863	Network Security Protocols	3-0-0-0		3
	24SJPECST864	Computational Complexity	3-0-0-0		3
	24SJPECST866	Speech and Audio Processing	3-0-0-0		3
	24SJPECST867	Storage Systems	3-0-0-0		3
	24SJPECST868	Prompt Engineering	3-0-0-0		3
	24SJPECST865	Next Generation Interaction Design	**3-0-0-1**		**5/3**

OPEN ELECTIVE 3: 24SJOEADT83N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	24SJOECST831	Introduction to Algorithms	3-0-0-0	3	3
	24SJOECST832	Web Programming	3-0-0-0		3
	24SJOECST833	Software Testing	3-0-0-0		3
	24SJOECST834	Internet of Things	3-0-0-0		3
	24SJOECST835	Computer Graphics	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**	Mathematics for Information Science-1	3
2	**S1/S2**	Physics for Information Science	4
3		Chemistry for Information Science and Electrical Science	4
4	**S2**	Mathematics for Information Science-2	3
5	**S3**	Mathematics for Computer and Information Science-3	3
6	**S4**	Mathematics for Computer and Information Science-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**	Digital Electronics and Logic Design	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	4
2	**S3**	Core 2	4
3		Core 3	4
4		Lab-1	2
5		Lab-2	2
6	**S4**	Core 4	4
7		Core 5	4
8		Lab-3	2
9		Lab-4	2
10	**S5**	Core 6	4
11		Core 7	4
12		Core 8	3
13		Lab-5	2
14		Lab-6	2
15	**S6**	Core 9	4
16		Core 10	3
17		Lab-7	2
Total Credits (Theory -10, Lab-7)			**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 Institute)		

- ***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**: 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**- 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. **24SJPCADL507** - is a Programme core laboratory course for the AD branch in the fifth semester. **24SJPBADT604** - is a Project-Based Learning course for the AD 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 and 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 and B	24SJGXCYT122
GY	Courses Common to Group B and 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 Artificial Intelligence and Data 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				