B. TECH CURRICULUM - 2025

(AUTONOMOUS)
CREATING TECHNOLOGY
LEADERS OF TOMORROW
ESTD 2002

Semester I to VIII

Computer Science and Engineering

Branch Code: CS

Approved by the Academic Council on 25-08-2025. (Ref:JEC/2025/AC/MOM/01/AC/01/A2)

Jyothi Engineering College (AUTONOMOUS)
Reaccredited with NAAC (Grade A) and
NBA Programmes* (*CE, CS, EC, EE, ME, MR)
Jyothi Hills, P. O. Vettikkattiri, Cheruthuruthy
Thrissur, Kerala, India, 679531
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A Centre of Excellence in Science and Technology by the Catholic Archdiocese of Trichur

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VISION & MISSION OF THE INSTITUTE

VISION : Creating eminent and ethical leaders through quality professional education with emphasis on holistic excellence.

MISSION

- To emerge as an institution par excellence of global standards by imparting quality engineering and other professional programmes with state-of-the-art facilities.
- To equip the students with appropriate skills for a meaningful career in the global scenario.
- To inculcate ethical values among students and ignite their passion for holistic excellence through social initiatives.
- To participate in the development of society through technology incubation, entrepreneurship and industry interaction.

VISION & MISSION OF THE DEPARTMENT

VISION: Creating ethical leaders in the domain of Computational Sciences through quality professional education with a focus on holistic learning and excellence

MISSION

- Create technically competent and ethically conscious graduates in the field of Computer Science and Engineering by encouraging holistic learning and excellence.
- To prepare students for careers in Industry, Academia and the Government.
- To instill Entrepreneurial Orientation and research motivation among the students of the department.
- To emerge as a leader in education in the region by encouraging teaching, learning, industry and societal connect.

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PROGRAMME OUTCOMES

PO1. **Engineering Knowledge**: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop the solution of complex engineering problems

PO2. **Problem Analysis**: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3. **Design/Development of Solutions**: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4. **Conduct Investigations of Complex Problems**: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8)

PO5. **Engineering Tool Usage**: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6. **The Engineer and The World**: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7)

PO7. **Ethics**: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8. **Individual and Collaborative Team work**: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9. **Communication**: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10. **Project Management and Finance**: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11. **Life-Long Learning**: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

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**		**CIA**	**ESE**		
1	A	25MAT101	BSC	GC	Mathematics for Information Science-1	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	25PHT101	BSC	GC	Physics for Information Science	3	0	2	0	5.5	40	60	4	5
		25CHT101			Chemistry for Information Science									
3	C	25EST103	ESC	GC	Engineering Graphics and Computer Aided Drawing.	2	0	2	0	4	40	60	3	4
4	D	25EST104	ESC	GC	Introduction to Electrical & 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	25EST105	ESC	UC	Algorithmic Thinking with Python	3	0	2	0	5.5	40	60	4	5
6	L	25ESL107	ESC	GC	Basic Electrical and Electronics Engineering Workshop	0	0	2	0	1	50	50*	1	2
7	I** S1/ S2	25HUT106	HWP	UC	Health and Wellness	1	0	1	0	0	50	0	1	2/3
		25HUT107	HM C		Life Skills and Professional Communication	2	0	1	0	3.5	100	0		
8	S_1/ S_2	25SEC101	SEC	UC	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**		**CIA**	**ESE**		
1	A	25MAT201	BSC	GC	Mathematics for Information Science-2	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	25PHT101	BSC	GC	Physics for Information Science	3	0	2	0	5.5	40	60	4	5
		25CHT101			Chemistry for Information Science									
3	C	25EST201	ESC	GC	Foundations of Computing: From Hardware Essentials to Web Design	3	0	0	0	4.5	40	60	3	3
4	D	25EST204	ESC	GC	Programming in C	3	0	2	0	5.5	40	60	4	5
5	E	25CST205	PC	PC	Discrete Mathematics	3	1	0	0	5	40	60	4	4
6	F	25EST206	ESC	UC	Engineering Entrepreneurship & IPR	3	0	0	0	4.5	60	40	3	3
7	I** S1/ S2	25HUT106	HWP	UC	Health and Wellness	1	0	1	0	0	50	0	1	2/3
		25HUT107	HMC		Life Skills and Professional Communication	2	0	1	0	3.5	100	0		

8	L	25ESL208	ESC	GC	IT Workshop	0	0	2	0	1	50	50*	1	2

	S_1/ S_2	25SEC101	SEC	UC	Skill Enhancement Course: Digital 101(NASSCOM)	MOOC***			1	
Total							**34**		**24**	**27/ 28**

** Internal evaluation by college*

*****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 & 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**		**CIA**	**ESE**		
1	A	25MAT301	BSC	GC	Mathematics for Information Science-3	3	0	0	0	4.5	40	60	3	3
2	B	25CST302	PC	PC	Theory of Computation	3	1	0	0	5	40	60	4	4
3	C	25CST303	PC	PC	Data Structures and Algorithms	3	1	0	0	5	40	60	4	4
4	D	25CSZ304	PC-PBL	PB	Object Oriented Programming	3	0	0	1	5.5	60	40	4	4
5	F	25EST305	ESC	GC	Digital Electronics & Logic Design	3	1	0		5	40	60	4	4
6	G S3/S4	25HUT346 / 25HUT347	HMC	UC	Economics for Engineers / Engineering Ethics and Sustainable Development	2	0	0	0	3	50	50	2	2
7	L	25CSL307	PCL	PC	Data Structures Lab	0	0	3	0	1.5	50	50	2	3
8	Q	25CSL308	PCL	PC	Digital 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**		**CIA**	**ESE**		
1	A	25MAT401	BSC	GC	Mathematics for Information Science-4	3	0	0	0	4.5	40	60	3	3
2	B	25CST402	PC	PC	Database Management Systems	3	1	0	0	5	40	60	4	4
3	C	25CST403	PC	PC	Operating Systems	3	1	0	0	5	40	60	4	4
4	D	25CSZ404	PC-PBL	PB	Computer Organization and Architecture	3	0	0	1	5.5	60	40	4	4
5	E	25CST41N	PE	PE	PE-1	3	0	0	0	4.5	40	60	3	3
6	G S3/S4	25HUT346 / 25HUT347	HMC	UC	Economics for Engineers / Engineering Ethics and Sustainable Development	2	0	0	0	3	50	50	2	2
7	L	25CSL407	PCL	PC	Operating Systems Lab	0	0	3	0	1.5	50	50	2	3
8	Q	25CSL408	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***

Valuation for HMC courses will be done at college level, Question papers will be provided by the University.

Note: *Economics for Engineers and Engineering Ethics and Sustainable Development shall be offered in both S3 and S4. Institutions can advise students belonging to about 50% of the number of branches in the Institution to opt for Economics for Engineers in S3 and Engineering Ethics &Sustainable Development in S4 and vice versa*.

PROGRAM ELECTIVE I: PECST41N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
E	25CST411	Software Engineering	3-0-0-0	**3**	3
	25CST412	Pattern Recognition	3-0-0-0		3
	25CST413	Functional Programming	3-0-0-0		3
	25CST414	Coding Theory	3-0-0-0		3
	25CST416	Signals And Systems	3-0-0-0		3
	25CST417	Soft Computing	3-0-0-0		3
	25CST418	Computational Geometry	3-0-0-0		3
	25CST419	Cyber Ethics, Privacy, And Legal Issues	3-0-0-0		3
	25CST415	**VLSI Design**	3-0-0-0		**5/3**
	25CST495	**Advanced Data Structures**	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**		**CIA**	**ESE**		
1	A	25CST501	PC	PC	Computer Networks	3	1	0	0	5	40	60	4	4
2	B	25CST502	PC	PC	Design and Analysis of Algorithms	3	1	0	0	5	40	60	4	4
3	C	25CST503	PC	PC	Machine Learning	3	0	0	0	4.5	40	60	3	3
4	D	25CSZ504	PC-PBL	PB	Microcontrollers	3	0	0	1	5.5	60	40	4	4
5	E	25CST52N	PE	PE	PE-2	3	0	0	0	4.5	40	60	3	3
6	I*	25HUX506	HMC	UC	Constitution Of India (MOOC)	-	-	-	-	2	-	-	1	-
7	L	25CSL507	PCL	PC	Networks Lab	0	0	3	0	1.5	50	50	2	3
8	Q	25CSL508	PCL	PC	Machine Learning 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: PECST52N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
E	25CST521	Software Project Management	3-0-0-0	**3**	3
	25CST522	Artificial Intelligence	3-0-0-0		3
	25CST523	Data Analytics	3-0-0-0		3
	25CST524	Data Compression	3-0-0-0		3
	25CST526	Digital Signal Processing	3-0-0-0		3
	25CST527	Computer Graphics & Multimedia	3-0-0-0		3
	25CST528	Advanced Computer Architectures	3-0-0-0		3
	25CST525	**Data Mining**	3-0-0-0		**5/3**
	25CST595	**Advanced Graph Algorithms**	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**		**CIA**	**ESE**		
1	A	25CST601	PC	PC	Compiler Design	3	1	0	0	5	40	60	4	4
2	B	25CST602	PC	PC	Advanced Computing Systems	3	0	0	0	4.5	40	60	3	3
3	C	25CST63N	PE	PE	PE-3	3	0	0	0	4.5	40	60	3	3
4	D	25CSZ604	PC-PBL	PB	Fundamentals of Cyber Security	3	0	0	1	5.5	60	40	4	4
5	F	25EST605	ESC	GC	Design Thinking and Product Development (Group Specific Syllabus)	2	0	0	0	3	40	60	2	2
6	O	25CST61N /25CSI61N	OE/ILE	OE/IE	OE/ILE-1	3	0	0	0	4.5	40	60	3	3
7	L	25CSL607	PCL	PC	Systems Lab	0	0	3	0	1.5	50	50	2	3
8	P	25CSP608	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 12 Days are permitted, Not Exceeding more than 6 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: PECST63N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
C	25CST631	Software Testing	3-0-0-0	**3**	3
	25CST632	Deep Learning	3-0-0-0		3
	25CST633	Wireless & Mobile Computing	3-0-0-0		3
	25CST634	Advanced Database Systems	3-0-0-0		3
	25CST636	Digital Image Processing	3-0-0-0		3
	25CST637	Fundamentals of Cryptography	3-0-0-0		3
	25CST638	Quantum Computing	3-0-0-0		3
	25CST639	Randomized Algorithms	3-0-0-0		3
	25**CST635**	**Cloud Computing**	3-0-0-0		**5/3**
	25**CST695**	**Mobile Application Development**	3-0-0-0		**5/3**

OPEN ELECTIVE 1: OECST61N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
O	25CST611	Data Structures	3-0-0-0	3	3
	25CST612	Data Communication	3-0-0-0		3
	25CST613	Foundations of Cryptography	3-0-0-0		3
	25CST614	Machine Learning for Engineers	3-0-0-0		3
	25CST615	Object Oriented Programming	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**		**CIA**	**ESE**		
1	A	25CST74N/ 25CSX74N	PE	PE	PE-4 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	B	25CST75N/ 25CSX75N	PE	PE	PE-5 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	O	25CST72N /25CSI72N/ 25CSX72N	OE/ ILE	OE/IE	OE/ILE-2 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
4	I*	25HUT704/ 25HUX70N	HM C	UE	Elective (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	2	0	0	0	3	50	50	2	2
5	S	25CSS705	PWS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	P**	25CSP706/ 25CSI706	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***

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

Valuation for HMC courses will be done at college level, Question papers will be provided by the University.

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: PECST74N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
A	25CST741	Formal Methods in Software Engineering	3-0-0-0	**3**	3
	25CST742	Web Programming	3-0-0-0		3
	25CST743	Bioinformatics	3-0-0-0		3
	25CST744	Information Security	3-0-0-0		3
	25CST746	Embedded Systems	3-0-0-0		3
	25CST747	Blockchain and Cryptocurrencies	3-0-0-0		3
	25CST748	Realtime Systems	3-0-0-0		3
	25CST749	Approximation Algorithms	3-0-0-0		5
	25**CST745**	**Computer Vision**	3-0-0-0		**5/3**
	25**CST795**	**Topics in Theoretical Computer Science**	3-0-0-0		**5/3**

PROGRAM ELECTIVE 5: PECST75N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
B	25CST751	Advanced Computer Networks	3-0-0-0	**3**	3
	25CST752	Responsible Artificial Intelligence	3-0-0-0		3
	25CST753	Fuzzy Systems	3-0-0-0		3
	25CST754	Digital Forensics	3-0-0-0		3
	25CST756	Game Theory and Mechanism Design	3-0-0-0		3
	25CST757	High Performance Computing	3-0-0-0		3
	25CST758	Programming Languages	3-0-0-0		3
	25CST759	Parallel Algorithms	3-0-0-0		3
	25**CST755**	**Internet of Things**	3-0-0-0		**5/3**
	25**CST785**	**Algorithms For Data Science**	3-0-0-0		**5/3**

OPEN ELECTIVE 2: OECST72N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
O	25CST721	Cyber Security	3-0-0-0	3	3
	25CST722	Cloud Computing	3-0-0-0		3
	25CST723	Software Engineering	3-0-0-0		3
	25CST724	Computer Networks	3-0-0-0		3
	25CST725	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**		**CIA**	**ESE**		
1	A	25CST86N/ 25CSX86N	PE	PE	PE-6 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	O	25CST83N /25CSI83N/ 25CSX83N	OE/ ILE	OE/IE	OE/ILE-3 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	I*	25HUT803/ 25HUX80N	HMC	UC	Organizational Behavior and Business Communication (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	2	0	0	0	3	50	50	1	2
4	P**	25CSP806/ 25CSI806/ 25CSP807	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**

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

Valuation for HMC courses will be done at college level, Question papers will be provided by the University.

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

PROGRAM ELECTIVE 6: PECST86N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
B	25CST861	Software Architectures	3-0-0-0	**3**	3
	25CST862	Natural Language Processing	3-0-0-0		3
	25CST863	Topics in Security	3-0-0-0		3
	25CST864	Computational Complexity	3-0-0-0		3
	25CST866	Speech and Audio Processing	3-0-0-0		3
	25CST867	Storage Systems	3-0-0-0		3
	25CST868	Prompt Engineering	3-0-0-0		3
	25CST869	Computational Number Theory	3-0-0-0		3
	25**CST865**	**Next Generation Interaction Design**	3-0-0-0		**5/3**

OPEN ELECTIVE 3: OECST83N					
SLOT	**COURSE CODE**	**COURSES**	**L-T-P-R**	**HOURS**	**CREDIT**
O	25CST831	Introduction to Algorithms	3-0-0-0	3	3
	25CST832	Web Programming	3-0-0-0		3
	25CST833	Software Testing	3-0-0-0		3
	25CST834	Internet of Things	3-0-0-0		3
	25CST835	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	4
4	**S2**	Mathematics for Information Science-2	3
5	**S3**	Mathematics for Information Science-3	3
6	**S4**	Mathematics for Information Science-4	3
Total Credits			**20**

ESC Courses (Group A)			
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**

Programme Core Courses (PC)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S2**	Discrete Mathematics	4
2	**S3**	Theory of Computation	4
3		Data Structures and Algorithms	4
4		Data Structures Lab	2
5		Digital Lab	2
6	**S4**	Database Management Systems	4
7		Operating Systems	4
8		Operating Systems Lab	2
9		DBMS Lab	2
10	**S5**	Computer Networks	4
11		Design and Analysis of Algorithms	4
12		Machine Learning	3

13		Networks Lab	2
14		Machine Learning Lab	2
15	**S6**	Compiler Design	4
16		Advanced Computing Systems	3
17		Systems Lab	2
Total Credits (Theory -10, Lab-7)			**52**

Programme Core-Project Based Learning (PBL)			
Sl. No:	**Semester**	**Course Area**	**Credits**
1	**S3**	Object Oriented Programming	4
2	**S4**	Computer Organization and Architecture	4
3	**S5**	Microcontrollers	4
4	**S6**	Fundamentals of Cyber Security	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 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**	Miniproject	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**