B. TECH CURRICULUM - 2025

(AUTONOMOUS)
CREATING TECHNOLOGY
LEADERS OF TOMORROW
ESTD 2002

Semester I to VIII

Artificial Intelligence and Data Science

Branch Code: AD

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 Artificial intelligence and data Science through effectual teaching and learning process to develop emerging technology solutions for the benefits of industry and society with a focus on holistic learning and excellence.

MISSION

- Strengthening basic competencies in the domains of Artificial Intelligence and Data Science providing high-quality, value-based technical education and developing technology professionals with creative ideas and compelling leadership abilities.
- Using logical thinking to create and develop cutting-edge products in collaboration with industry stakeholders in order to meet global expectations and requirements Enabling graduates to adapt to new technologies via strong fundamentals and lifetime learning

PROGRAMME EDUCATIONAL OBJECTIVES

1. Graduates will demonstrate comprehensive expertise in artificial intelligence, machine learning, and data analysis while applying interdisciplinary knowledge in computer science, statistics, and advanced mathematics to address real-world challenges.

2. Graduates will innovate and create impactful solutions ethically, contributing to societal betterment, leveraging their leadership, collaboration, and communication skills for effective teamwork and multidisciplinary endeavors.

3. Continuously fostering a culture of lifelong learning, graduates will adapt to evolving technological landscapes, demonstrating adaptability and a commitment to ongoing professional development in the dynamic field of AI and data science.

PROGRAMME SPECIFIC OUTCOMES

1. Graduates will be able to apply core principles of science, engineering, and mathematics to develop AI-driven solutions for real-world challenges.

2. Graduates will design, develop and implement efficient as well as scalable algorithms using programming languages, data structures and cloud computing technologies.

3. Graduates will integrate ethical, social, and security considerations while developing AI-driven intelligent systems, ensuring responsible AI deployment

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

****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

  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	25ADT302	PC	PC	Foundations of Artificial Intelligence	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	25ADZ304	PC-PBL	PB	Introduction to Data Science	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	HMC	UC	Economics for Engineers	2	0	0	0	3	50	50	2	2
		25HUT347			Engineering Ethics and Sustainable Development									
7	L	25CSL307	PCL	PC	Data Structures Lab	0	0	3	0	1.5	50	50	2	3
8	Q	25ADL308	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**		**CIA**	**ESE**		
1	A	25ADT401	BSC	GC	Mathematics for Information Science -IV	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	25ADT41N	PE	PE	PE-1	3	0	0	0	4.5	40	60	3	3
6	G S3/S4	25HUT346	HMC	UC	Economics for Engineers	2	0	0	0	3	50	50	2	2
		25HUT347			Engineering Ethics and Sustainable Development									
7	L	25ADL407	PCL	PC	Foundations of AI and Data Science 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***

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: 25ADT41N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	25CST411	Software Engineering	3-0-0-0	3	3
	25ADT412	Data Science Privacy & Ethics	3-0-0-0		3
	25CST413	Functional Programming	3-0-0-0		3
	25ADT414	Fundamentals of Bioinformatics	3-0-0-0		3
	25ADT416	Number Theory	3-0-0-0		3
	25CST417	Soft Computing	3-0-0-0		3
	25ADT418	Microcontrollers	3-0-0-0		3
	25ADT415	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		CIA	ESE		
1	A	25CST501	PC	PC	Computer Networks	3	1	0	0	5	40	60	4	4
2	B	25ADT502	PC	PC	Robotics and Intelligent Systems	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	25ADZ504	PC-PBL	PB	Big Data Analytics	3	0	0	1	5.5	60	40	4	4
5	E	25ADT52N	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	25ADL507	PCL	PC	Robotics Lab	0	0	3	0	1.5	50	50	2	3
8	Q	25ADL508	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 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: 25CST52N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	25CST521	Software Project Management	3-0-0-0	3	3
	25ADT522	Business Analytics	3-0-0-0		3
	25ADT523	Information Systems	3-0-0-0		3
	25CST524	Data Compression	3-0-0-0		3
	25ADT526	Computational Biology	3-0-0-0		3
	25CST527	Computer Graphics & Multimedia	3-0-0-0		3
	25CST528	Advanced Computer Architectures	3-0-0-0		3
	25ADT 525	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		CIA	ESE		
1	A	25ADT601	PC	PC	Deep Learning	3	1	0	0	5	40	60	4	4
2	B	25ADT602	PC	PC	Internet of Things	3	0	0	0	4.5	40	60	3	3
3	C	25ADT63N	PE	PE	PE-3	3	0	0	0	4.5	40	60	3	3
4	D	25ADZ604	PC-PBL	PB	Data Mining and Warehousing	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	OE	OE	OE-1	3	0	0	0	4.5	40	60	3	3
7	L	25ADL607	PCL	PC	Deep Learning Lab	0	0	3	0	1.5	50	50	2	3
8	P	25ADP608	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: 25ADT63N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
C	25CST631	Software Testing	3-0-0-0	3	3
	25ADT632	Computational Linguistics	3-0-0-0		3
	25ADT633	Machine Learning in Computational Biology	3-0-0-0		3
	25CST634	Advanced Database Systems	3-0-0-0		3
	25ADT636	Web Mining	3-0-0-0		3
	25CST637	Fundamentals of Cryptography	3-0-0-0		3
	25CST638	Quantum Computing	3-0-0-0		3
	25ADT635	Natural Language Processing	3-0-0-0		**5/3**

OPEN ELECTIVE 1: 25ADT61N

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	25ADT74N/ 25ADX74N	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	25ADT75N/ 25ADX75N	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-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	HMC	UE	Elective (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	2	0	0	0	3	50	50	2	2
5	S	25ADS705	PWS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	P	25ADP706/ 25ADI706	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**

**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: 25ADT74N

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
	25ADT741	Recommendation Systems	3-0-0-0		3
	25ADT742	Financial Data Science	3-0-0-0		3
	25ADT746	Cloud Computing	3-0-0-0		3
	25CST747	Blockchain And Cryptocurrencies	3-0-0-0		3
	25ADT748	Generative AI	3-0-0-0		3
	25CST745	Computer Vision	3-0-0-0		**5/3**

PROGRAM ELECTIVE 5: 25ADT75N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
B	25ADT751	Computational Health Informatics	3-0-0-0	3	3
	25CST752	Responsible Artificial Intelligence	3-0-0-0		3
	25ADT753	Graph Databases and Analysis	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
	25ADT755	Time Series Modelling	3-0-0-0		**5/3**

OPEN ELECTIVE 2: 25ADT72N

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	25ADT86N/ 25ADX86N	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	25ADT83N /25ADI83N /25ADX83N	OE/ILE	OE/IE	OE-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	25ADP806/ 25ADI806/ 25ADP807	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*

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

PROGRAM ELECTIVE 6: 25ADT86N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	25CST861	Software Architectures	3-0-0-0	3	3
	25ADT862	Bio Inspired Optimization Techniques	3-0-0-0		3
	25ADT863	Network Security Protocols	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
	25CST865	Next Generation Interaction Design	3-0-0-0	3	**5/3**

OPEN ELECTIVE 3: 25ADT83N

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**	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 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	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	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(OE)			
Sl. No:	**Semester**	**Course Type**	**Credits**
1	**S6**	OE-1	3
2	**S7**	OE-2	3
3	**S8**	OE-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**