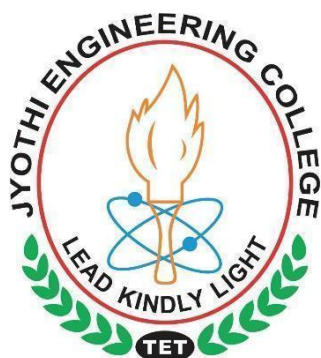


Reaccredited with NAAC (Grade A) and
NBA Programmes* (*CE, CS, EC, EE, ME, MR)
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A Centre of Excellence in Science and Technology by the Catholic Archdiocese of Trichur

B. TECH CURRICULUM - 2026



(AUTONOMOUS)
CREATING TECHNOLOGY
LEADERS OF TOMORROW
ESTD 2002

Semester I to VIII

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (CYBER SECURITY)

Branch Code: CC

Recommended by BoS on 07-11-2025

Approved by Academic Council on 27-11-2025

(Reference: JEC/2025/AC/MOM/02/AC/02/A2)

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LIST OF ABBREVIATIONS

L	Lecture hours per week
T	Tutorial hours per week
P	Practical hours per week
H	Hands on project per week
S	Self-learning hours per week
PO	Programme Outcome
PSO	Programme Specific Outcome
PEO	Programme Educational Objective
WK	Knowledge and Attitude Profile
BS	Basic Science Courses
ES	Engineering Science Courses
HM	Humanities, Social Science and Management Courses
PC	Programme Core Courses
PE	Programme Elective Courses
PI	Project Work/Seminar/ Internship
SE	Skill Enhancement Courses
IK	Indian Knowledge System
HW	Health and Wellness
SA	Student Activities
TC	Theory Course
PL	Practical Course
TP	Theory Course Embedded with Practical
PB	Theory Course Embedded with Micro projects
PT	Project
PI	Internship
SR	Seminar
SE	Skill Enhancement Courses.

VISION & MISSION OF THE INSTITUTION

VISION

To be a global leader in education, nurturing ethical professionals, fostering holistic excellence and sustainable societal impact.

MISSION

- **Excellence in Education:** Provide outcome-based and industry-relevant education that builds technical competence, innovation, and lifelong learning.
- **Ethics and Values:** Inspire integrity, empathy, and social responsibility to develop ethical and service-oriented professionals.
- **Research, Innovation, and Entrepreneurship:** Encourage creativity, research, and entrepreneurship for sustainable technological and economic growth.
- **Holistic and Global Development:** Promote all-round development, leadership, and global competence through collaboration and community engagement

VISION & MISSION OF THE DEPARTMENT

VISION

To be a globally recognized centre of excellence in Cyber Security education, research and innovation by nurturing ethical professionals, fostering technological advancement through responsible practice and contributing to a secure and sustainable digital society.

MISSION

- M1: Excellence in Education:** - To provide outcome-based and industry-oriented education by integrating core computer science principles with advanced cybersecurity technologies and practices.
- M2: Ethics and Professional Responsibility:** - To cultivate ethical values, integrity, social responsibility, and secure computing practices for protecting digital assets and strengthening cyber trust.
- M3: Research, Innovation, and Entrepreneurship:** - To promote research, innovation, and entrepreneurial thinking for developing sustainable solutions to emerging cybersecurity challenges.
- M4: Holistic and Global Development:** - To enhance leadership, teamwork, lifelong learning, and global competence through industry collaboration, interdisciplinary activities, and community engagement.

PROGRAMME EDUCATIONAL OBJECTIVES

PEO 1	Graduates will apply strong foundations in computer science and cybersecurity to design, develop, and manage secure and reliable computing systems for industry and society.
PEO 2	Graduates will pursue successful careers as professionals, innovators or entrepreneurs engaged in technology development, deployment or engineering system implementation in industry and society and contribute to the economic growth of the country.
PEO 3	Graduates will demonstrate ethical responsibility, leadership, teamwork, and effective communication while adapting to evolving global technological environments through lifelong learning.

PROGRAMME SPECIFIC OUTCOMES

PSO 1	Apply cyber security principles to mitigate cyber risk and analyse security requirements of an organization
PSO 2	Develop and deploy secure software and infrastructure using modern tools and industry standards.
PSO 3	Uphold ethical, legal, and societal responsibilities while protecting privacy, data, and digital assets.

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)

KNOWLEDGE AND ATTITUDE PROFILE (WK)

WK1	A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.
WK2	Conceptually based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.
WK3	A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.
WK4	Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.
WK5	Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.
WK6	Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.
WK7	Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development.
WK8	Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.
WK9	Ethics, inclusive behaviour and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc, with mutual understanding and respect, and of inclusive attitudes.

CUMULATIVE CREDITS

Cumulative credits for the entire B. Tech program is 170 credits

CREDIT ASSIGNMENT

[Ref: National Credit Framework – Sept 2022]

Course Delivery	Code	Hours per Week	Credit
Lecture	L	1	1
Tutorial	T	1	1
Practical	P	2	1
Hands on Project	H	3/4	1

CREDIT DISTRIBUTION: YEAR/SEMESTER WISE

Year	Odd Semester	Even Semester	Total credit
First	20	22	42
Second	25	24	49
Third	23	23	46
Fourth	18	12	30
Academic Credits			167
Student Activities			3
B Tech			170
B Tech with Honours			185
B Tech with Minor			185
B Tech with Minor and Honours			200

COURSE CATEGORY AND CREDIT DISTRIBUTION

Sl.	Course Category	Nomenclature	Credits	Number of Courses
1	Basic Science Courses	BS	21	6
2	Engineering Science Courses	ES	28	8
3	Humanities, Social Science and Management	HM	10	6
4	Programme Core Courses	PC	61	21
5	Programme Elective Courses	PE	20	6
6	Open Elective Courses/Industry Linked Elective Courses.	OE/IE	8	3
7	Project Work/ Seminar/Internship	PI	13	3
8	Skill Enhancement Courses	SE	3	3
9	Indian Knowledge System	IK	2	1
10	Health and Wellness	HW	1	1
11	Student Activities	SA	3	-
Total			170	61

COURSE TYPES ASSESSMENT PATTERN

Course Type	Nomenclature	Credits	Assessment pattern		
			CIE	ES E	Total
Workshop	PL	1	100	NA	100
Theory Course	TC	1/2/3/4	40	60	100
Lab Course	PL	2	50	50	100
Theory + Practical	TP	4	60	40	100
Theory + Project	PB	4	60	40	100
Project	PT	3/4	50	50	100
Seminar	SR	2	100	NA	100
Skill Enhancement Courses.	SE	1	100	NA	100

SEMESTER I

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1BST111	BS	TC	Multivariable Calculus	3	0	0	0	4.5	3	40	60	100
2	B	J1BSP212	BS	TP	Chemistry for Engineers	3	0	2	0	5.5	4	60	40	100
3	C	J1EST103	ES	TC	Programming in C	3	1	0	0	5	4	40	60	100
4	D	J1ESP104	ES	TP	Engineering Graphics and Computer Aided Drawing.	2	0	2	0	4	3	60	40	100
5	E	J1ESP105	ES	TP	Fundamentals of Electrical and Electronics Engineering	3	0	2	0	5.5	4	60	40	100
6	F	J1HWP126/ J1HMP126	HW/HM	TP	Health and Wellness/Life Skills and Professional Communication	1	0	1	0	2	1	100	-	100
7	J	J1ESL117	ES	PL	Programming in C workshop	0	0	2	0	1	1	100	-	100
8	S	J1SET109	SE	TP	Skill Enhancement Course:	0	0	0	0	2	-			-
Total						15	1	9	0	29.5	20			700

SEMESTER II

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1BST211	BS	TC	Applied Linear Algebra for Computing	3	0	0	0	4.5	3	40	60	100
2	B	J1BSP112	BS	TP	Physics for Information Science	3	0	2	0	5.5	4	60	40	100
3	C	J1EST213	ES	TC	Python Programming	3	0	0	0	4.5	3	40	60	100

4	D	J1ESP234	ES	TP	Computer Systems and Web Design Fundamentals	3	0	2	0	5.5	4	60	40	100
5	E	J1EST205	ES	TC	Engineering Entrepreneurship and IPR	2	0	0	0	3	2	40	60	100
6	F	J1HWP126/J1HMP126	HW/HM	TP	Health and Wellness/ Life Skills and Professional Communication	1	0	1	0	2	1	100	-	100
7	G	J1CST207	PC	TC	Discrete Mathematical Structures	2	1	0	0	4.5	3	40	60	100
8	J	J1ESL218	ES	PL	Python Programming Workshop	0	0	2	0	1	1	100	-	100
9	S	J1SET109	SE	TP	Skill Enhancement Course					2	1	-	-	-
Total						16	3	7	0	30	22			800

SEMESTER III

S l.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1BST311	BS	TC	Probability and Stochastic Processes	3	0	0	0	4.5	3	40	60	100
2	B	J1CST302	PC	TC	Data Structures and Algorithms	3	1	0	0	5	4	40	60	100
3	C	J1CCZ303	PC	PB	Software Engineering	3	0	0	2	6.5	4	60	40	100
4	D	J1CCP304	PC	TP	Database Management systems	3	0	2	0	5	4	60	40	100
5	E	J1EST325	ES	TC	Digital Electronics and Logic Design	2	1	0	0	5.5	3	40	60	100
6	F	J1HMT346/ J1HMT436	HM	TC	Economics for Engineers/Engineering Ethics and Sustainable Development	2	0	0	0	5	2	40	60	100
7	J	J1CSL307	PC	PL	Data Structures Lab	0	0	3	0	1.5	2	50	50	100
8	K	J1CCL308	PC	PL	Object Oriented Programming in Java Lab	0	0	3	0	1.5	2	50	50	100
9	S	J1SET3N9	SE	TP/TC	Skill Enhancement Course	1	0	0	0	1.5	1	100	-	100
Total						18	2	8	2	33.5	25			900

SEMESTER IV

S l.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1CST401	PC	TC	Operating Systems	2	1	0	0	5	3	40	60	100
2	B	J1ADT402	PC	TC	Computer Networks	2	1	0	0	5	3	40	60	100
3	C	J1ADZ403	PC	PB	Computer Organization and Architecture	3	0	0	2	6.5	4	60	40	100

4	D	J1BSP414	BS	TP	Graph Theory and Network Algorithms	3	0	2	0	5.5	4	60	40	100
5	E	J1ADT4N5	PE	TC	Programme Elective - 1	3	0	0	0	4.5	3	40	60	100
6	F	J1HMT346/ J1HMT436	HM	TC	Economics for Engineers / Engineering Ethics and Sustainable Development	2	0	0	0	3		40	60	100
7	J	J1ADL407	PC	PL	Operating Systems Lab	0	0	3	0	1.5		50	50	100
8	K	J1CSL408	PC	PL	Computer Networks Lab	0	0	3	0	1.5		50	50	100
9	S	J1SET4N9	SE	TC/TP	Skill Enhancement course	1	0	0	0	1.5		100	-	100
Total						16	2	8	2	34	24			900

SEMESTER V

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CI E	ES E	
1	A	J1CST501	PC	TC	Theory of Computation	2	1	0	0	5	3	40	60	100
2.	B	J1CCT502	PC	TC	Applied Cryptography	2	1	0	0	5	3	40	60	100
3	C	J1CCZ503	PC	PB	AI based Secure Systems	3	0	0	2	6.5	4	60	40	100
4	D	J1CCT504	PC	TC	Ethical Hacking and Penetration Testing	3	0	0	0	4.5	3	40	60	100
5	E	J1CCP5N5	PE	TP	Programme Elective-2	3	0	2	0	5.5	4	60	40	100
6	F	J1IKT5N6	IK	TC	Indian Knowledge System	2	0	0	0	3	2	40	60	100
7	J	J1CCL507	PC	PL	Applied Cryptography Lab	0	0	3	0	1.5	2	50	50	100
8	K	J1CCL508	PC	PL	Ethical Hacking and Penetration Testing Lab	0	0	3	0	1.5	2	50	50	100
Total						17	2	8	2	32.5	23			800

SEMESTER VI

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/week					Credits	Total Marks		Total
						L	T	P	H	S		CI E	ES E	
1	A	J1CST601	PC	TC	Algorithm Analysis and Design	2	1	0	0	5	3	40	60	100
2	B	J1CCT602	PC	TC	Cyber Forensics	2	1	0	0	5	3	40	60	100
3.	C	J1EST6N3	ES	TC	Design Thinking and Product Development	2	0	0	0	3	2	40	60	100

4	D	J1CSP60 4	PC	TP	Compiler Design	3	0	2	0	5.5	4	60	40	100
5	E	J1CCZ6N 5	PE	PB	Programme Elective -3	3	0	0	2	6.5	4	60	40	100
6	F	J1XXO6 N6/ J1XXI6N 6	OE/IE	TC	Open Elective /ILE-1	2	0	0	0	3	2	40	60	100
7	J	J1CSL60 7	PC	PL	Cyber Forensics Lab	0	0	3	0	1.5	2	50	50	100
8	K	J1CCD60 8	PI	PT	Mini project	0	0	0	6	6	3	50	50	100
Total						14	2	4	8	32	23			800

SEMESTER VII

Sl .	Sl ot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1ADT7N1/ J1ADM7N1	PE	TC	Programme Elective-4/ MOOC/Self-Study	3	0	0	0	4.5	3	40	60	100
2	B	J1ADT7N2/ J1ADM7N2	PE	TC	Programme Elective 5/ MOOC/Self-Study	3	0	0	0	4.5	3	40	60	100
3	C	J1XXO73/ J1XXI7N3/ J1XXM7N3	OE	TC	Open Elective-2/ ILE/MOOC/Self-Study	3	0	0	0	4.5	3	40	60	100
4	D	J1HMT7N4/ J1HMM7N4	HM	TC	HM-6/ MOOC/Self-Study	2	0	0	0	3	2	40	60	100
5	E	J1HMT705/ J1HMM7N5	HM	TC	Constitution of India/ MOOC/Self-Study	1	0	0	0	1.5	1	40	60	100
6	J	J1ADQ706	PI	SR	Seminar	0	0	2	0	1	2	100	-	100
7	K	J1ADD707/ J1INT707	PI	PT	Project/Internship	0	0	0	16	16	4	100	-	100
Total						12	0	2	16	36	18			700

SEMESTER VIII

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours					Credits	Total		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1ADT8N1/ J1ADM8N1	PE	TC	Programme Elective 6/MOOC / Self-Study	3	0	0	0	4.5	3	40	60	100
2	B	J1XXO8N2/ J1XXM8N2	OE	TC	Open Elective-3/MOOC Self-Study	3	0	0	0	4.5	3	40	60	100
3	C	J1HMT8N3/ J1XXM8N3	HM	TC	HM-7/MOOC Self Study	2	0	0	0	4.5	2	40	60	100
4	K	J1ADD804/ J1INT804	PI	PT	Project/ Internship	0	0	0	16	16	4	50	50	100
Total						8	0	0	16	29.5	12			400

1.PROGRAMME CORE COURSES

Sl.	Semester	Course Code	Course Name	Course Type	Credits
1	S2	J1CST207	Discrete Mathematics	TC	3
2	S3	J1CST302	Data Structures and Algorithms	TC	3
3	S3	J1CCZ303	Software Engineering	PB	4
4	S3	J1CCP304	Data Base Management Systems	TP	4
5	S3	J1CSL307	Data Structures Lab	PL	2

6	S3	J1CCL308	Object Oriented Programming in Java Lab	PL	2
7	S4	J1CST401	Operating Systems	TC	3
8	S4	J1CCT402	Computer Networks	TC	3
9	S4	J1CSZ403	Computer Organization and Architecture	PB	4
10	S4	J1CSL407	Operating Systems Lab	PL	2
11	S4	J1CCL408	Computer Network Lab	PL	2
12	S5	J1CST501	Theory of Computation	TC	3
13	S5	J1CCT502	Applied Cryptography	TC	3
14	S5	J1CCZ503	AI based Secure Systems	PB	4
15	S5	J1CCT504	Ethical Hacking and Penetration Testing	TC	3
16	S5	J1CCL507	Applied Cryptography Lab	PL	2
17	S5	J1CCL508	Ethical Hacking and Penetration Testing Lab	PL	2
18	S6	J1CST601	Algorithm Analysis and Design	TC	3
19	S6	J1CCT602	Cyber Forensics	TC	3
20	S6	J1CST604	Compiler Design	TC	3
21	S6	J1CSL607	Cyber Forensics Lab	PL	2
Total Credits					61

2. PROGRAMME ELECTIVE

2.1 PROGRAMME ELECTIVE-1 (SEMESTER-IV)

S l.	Slot	Subject Code	Subject	Category
1	E	J1CCT415	Introduction to Parallel and Distributed Computing	Stream Elective-1
2	E	J1CCT425	Digital Forensics	Stream Elective-2
3	E	J1CCT435	Hardware Security	Stream Elective-3
4	E	J1CCT445	Software-Defined Network	General Elective
5	E	J1CCT455	Wireless Sensor Network	General Elective
6	E	J1CCT465	Principles of Soft Computing	General Elective
7	E	J1CCT475	Software Security and Risk Analysis	General Elective

2.2 PROGRAMME ELECTIVE-2 (SEMESTER-V)

Sl.	Slot	Subject Code	Subject	Category
1	E	J1CCP515	Network Fundamentals for Cloud	Stream Elective-1
2	E	J1CCP525	Network Forensics and Intrusion Analysis	Stream Elective-2
3	E	J1CCP535	Biometric Security	Stream Elective-3
4	E	J1CCP545	Cyber Security for Cloud Infrastructure	General Elective
5	E	J1CCP555	AI in Cyber Security	General Elective
6	E	J1CCP565	Operational Technology Threat Prevention	General Elective

2.3 PROGRAMME ELECTIVE-3 (SEMESTER-VI)

S l.	Slot	Subject Code	Subject	Category
1	E	J1CCZ615	Secure Cloud Application Development	Stream Elective-1
2	E	J1CCZ625	Foundations of Threat Intelligence	Stream Elective-2
3	E	J1CCZ635	Smart Biometric Authentication System	Stream Elective-3

4	E	J1CCZ645	Mobile Security and Application Development	General Elective
5	E	J1ADZ655	Generative AI	General Elective
6	E	J1CSZ665	Quantum Computing	General Elective

2.4 PROGRAMME ELECTIVE-4 (SEMESTER-VII)

S L	Slot	Subject Code	Subject	Category
1	A	J1CCT711/J1CCM711	Identity and Access Management	General Elective/MOOC
2	A	J1CCT721/J1CCM711	Threat Intelligence and Malware Analysis	General Elective/MOOC
3	A	J1CCT731/J1CCM711	IoT Networks and Endpoint Security	General Elective/MOOC
4	A	J1CCT741/J1CCM711	Cloud Compliance and Governance	General Elective/MOOC
5	A	J1CCT751/J1CCM711	Memory and Live System Forensics	General Elective/MOOC
6	A	J1CCT761/J1CCM711	Advanced Database Management System	General Elective/MOOC

2.5 PROGRAMME ELECTIVE-5 (SEMESTER-VII)

S L	Slot	Subject Code	Subject	Category
1	B	J1CCT712/J1CCM712	Zero Trust Architecture and API Governance	General Elective/MOOC
2	B	J1CCT722/J1CCM722	Intrusion Detection and Prevention System	General Elective/MOOC
3	B	J1CCT732/J1CCM732	Advanced Operating System	General Elective/MOOC
4	B	J1CCT742/J1CCM742	Image Processing for Cyber Forensics	General Elective/MOOC

5	B	J1CCT752/J1CCM752	Storage Management and Security	General Elective/MOOC
6	B	J1CCT762/J1CCM762	Block chain Technology	General Elective/MOOC

2.6 PROGRAMME ELECTIVE-6(SEMESTER-VIII)

S l.	Slot	Subject Code	Subject	Category
1	A	JIADT811	Earth Quake Resistant Building Design	Stream Elective-1/MOOC
2	A	JICST821	Building Services	Stream Elective-2 /MOOC
3	A	JIADT831	Multimodal Urban Transportation Systems	Stream Elective-3 /MOOC
4	A	JICST841	Municipal Solid Waste Management	Stream Elective-4 /MOOC
5	A	JIADT851	Geotechnical Earthquake Engineering	Stream Elective-5 /MOOC
6	A	JIADT861	Smart Cities and Urban Infrastructure	General Elective-1 /MOOC
7	A	JIADT871	Climate Hazards and Disaster Mitigation	General Elective-2 /MOOC

3. OPEN/INDUSTRY LINKED ELECTIVES

3.1 OPEN/INDUSTRY LINKED ELECTIVES (SEMESTER-VI)

S l.	S lot	Subject Code	Subject	Category
1	F	J1CSO616	Introduction to VR	Open Elective
2	F	J1CCO626	Data Communication	Open Elective
3	F	J1CCO636	Foundations of Cryptography	Open Elective
4	F	J1CSO646	Introduction to Data Structures	Open Elective
5	F	J1CSO656	Machine learning for Engineers	Open Elective
6	F	J1CCI616	Introduction to Security Operations Centre (SOC)	Industry Linked Elective (If any)
7	F	J1CCI626	Cybersecurity for Digital systems	Industry Linked Elective (If any)
8	F	J1CCI636	Mobile Computing	Industry Linked Elective (If any)

3.2 OPEN/INDUSTRY LINKED ELECTIVES (SEMESTER-VII)

S l.	Slot	Subject Code	Subject	Category
1	C	J1CSO713	Cyber Security	Open Elective
2	C	J1CSO723	Cloud Computing	Open Elective
3	C	J1CCO733	E-Commerce and Digital Payments	Open Elective
4	C	J1CSO743	Basic Concepts of Computer Networks	Open Elective
5	C	J1CSO753	Mobile Application Development	Open Elective
6	C	J1CCI713	Cyber Threat Intelligence	Industry Linked Elective (If any)
7	C	J1CCI723	Privacy Preserving Analytics	Industry Linked Elective (If any)

8	C	J1CCI733	Mobile Application using AI and Cloud	Industry Linked Elective (If any)

3.3 OPEN/INDUSTRY LINKED ELECTIVES (SEMESTER-VIII)

S l.	Slot	Subject Code	Subject	Category
1	B	J1CSO812	Introduction to Algorithms	Open Elective
2	B	J1CSO822	Web Programming	Open Elective
3	B	J1CSO832	Software Testing	Open Elective
4	B	J1CSO842	Internet of Things	Open Elective
5	B	J1CCI812	Computer Graphics	Industry Linked Elective (If any)
6	B	J1CCI822	Social and Ethical Issues of the Internet	Industry Linked Elective (If any)

4. HUMANITIES, SOCIAL SCIENCE AND MANAGEMENT

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1/S2	J1HMP126	Life Skills and Professional Communication	TC	1
2	S3/S4	J1HMT346	Economics for Engineers	TC	2
3		J1HMT436	Engineering Ethics and Sustainable Development	TC	2
4	S7	J1HMT7N4	Elective (Project Management/Foreign Languages)	TC	2
5	S7	J1HMT705 / J1HMM7N5	Constitution of India. (MOOC)	TC	1
6	S8	J1HMT8N3	Organizational Behaviour and Business Communication	TC	2
Total Credits					10

5. INDIAN KNOWLEDGE SYSTEM

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S5	J1IKT516	Indian knowledge system	TC	2
Total Credits					2

6. HEALTH AND WELLNESS

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1/S2	J1HWP126	Health and Wellness	TP	1
Total					1

7. BASIC SCIENCE COURSES

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1	J1BST111	Multivariable Calculus	TC	3

2	S1/S2	J1BSP212	Chemistry for Engineers	TP	4
3	S1/S2	J1BSP112	Physics for Information Science	TP	4
4	S2	J1BST211	Applied Linear Algebra for Computing	TC	3
5	S3	J1CST311	Probability and Stochastic Processes	TC	3
6	S4	J1BSP414	Graph Theory and Network Algorithms	TP	4
Total Credits					21

8. ENGINEERING SCIENCE COURSES

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1	J1EST103	Programming in C	TC	4
2	S1/S2	J1ESP104	Engineering Graphics and Computer Aided Drawing	TP	3
3	S1/S2	J1ESP105	Fundamentals of Electrical and Electronics Engineering	TP	4
4	S1/S2	J1ESL117	Programming in C workshop	PL	1
5	S2	J1EST205	Engineering Entrepreneurship and IPR	TC	2
6	S2	J1EST213	Python Programming	TC	3
7	S2	J1ESP234	Computer Systems and Web Design Fundamentals	TP	4
8	S2	J1EST218	Python Programming Workshop	PL	1
9	S3	J1ESP304	Logic Circuits & System Design	TP	4
10	S6	J1EST603	Design Thinking and Product Development	TC	2
Total Credits					28

9. SKILL ENHANCEMENT COURSES / ADD ON COURSES

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1	J1SET1N9	Skill Enhancement Course		-

2	S2	J1SET1N9	Skill Enhancement Course		1
3	S3	J1SET3N9	Skill Enhancement Course (Aptitude Proficiency-1)		1
4	S4	J1SET4N9	Skill Enhancement Course (Aptitude Proficiency-2)		1
5	S5		ADD ON Courses		P/F
4	S6		ADD ON Courses		P/F
Total Credits					3