

B. TECH CURRICULUM - 2025



Semester I to VIII

COMPUTER SCIENCE AND ENGINEERING (CYBER SECURITY)

Branch Code: CC

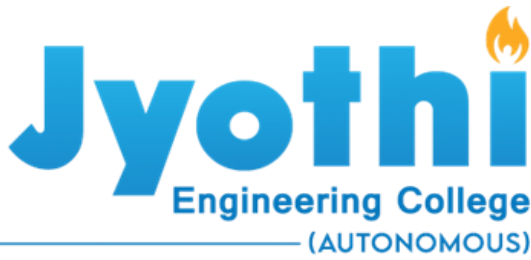
Approved by the Academic Council on 25-08-2025. (Ref:JEC/2025/AC/MOM/01/AC/01/A2)



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
04884 259000 | info@jecc.ac.in | www.jecc.ac.in

A Centre of Excellence in Science and Technology by the Catholic Archdiocese of Trichur



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VISION AND 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 AND MISSION OF THE DEPARTMENT

VISION: To become a globally recognized institute in Cyber Security fostering effective innovation and encouraging research aimed at creating skilled professionals to safeguard the evolving digital landscape from current threats in cyber space.

MISSION

- Committed to deliver value-based education, empowering students to become ethically grounded in theoretical and practical aspects of computing and security technologies.
- To promote Cyber Security research and foster innovation through active collaboration with industry partners and esteemed academic institutions.



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PROGRAMME EDUCATIONAL OBJECTIVES

1. Graduates will be able to develop themselves progressively in various technical or managerial roles using quality education acquired in the field of cyber security.
2. Graduates will be able to advance themselves and to adapt quickly to new environments and technologies, assimilate new information efficiently, and thrive in multi-disciplinary settings with a strong focus on innovation and entrepreneurship.
3. Graduates will be to apply the knowledge of various tools and techniques gained through program to identify, counter and recover from cyber threats.

PROGRAMME SPECIFIC OUTCOMES

1. Graduates will demonstrate the ability to identify and assess cyber threats and apply appropriate tools, methods, and techniques to protect data, systems, and networks.
2. Graduates will gain knowledge with respect to ever growing threats including both hardware and software.
3. Graduates develop skills to anticipate future cyber threats without compromising Cyber laws and individual's privacy.



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 | 25PHT101 | BSC | GC | Physics for Information Science | 3 | 0 | 2 | 0 | 5.5 | 40 | 60 | 4 | 5 |
| | S1/S2 | 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** | 25HUT106 | HWP | UC | Health and Wellness | 1 | 0 | 1 | 0 | 0 | 50 | 0 | 1 | 2/3 |
| | S1/S2 | 25HUT107 | HMC | | Life Skills and Professional Communication | 2 | 0 | 1 | 0 | 3.5 | 100 | 0 | | |
| 8 | S1/S2 | 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 | 25PHT101 | BSC | GC | Physics for Information Science | 3 | 0 | 2 | 0 | 5.5 | 40 | 60 | 4 | 5 |
| | S1/S2 | 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 | 25CST204 | 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* | 25HUT106 | HWP | UC | Health and Wellness | 1 | 0 | 1 | 0 | 0 | 50 | 0 | 1 | 2/3 |
| | S1/S2 | 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 |
| | S1/S2 | 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 | 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 | 25CCZ304 | PC-PBL | PB | Basic Concepts in Computer Networks | 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 | 25CCL308 | PCL | PC | Shell Scripting and network administration using Linux | 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 | 25CCT41N | 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 | 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/Honors 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: 25CCT41N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|-------------|--|---------|-------|--------|
| E | 25CCT411 | Introduction to Parallel and Distributed Programming | 3-0-0-0 | 3 | 3 |
| | 25CCT412 | Introduction to Block Chain Technologies | 3-0-0-0 | | 3 |
| | 25CCT413 | Introduction to AI and ML | 3-0-0-0 | | 3 |
| | 25CCT414 | Fundamentals of Industrial Control system security | 3-0-0-0 | | 3 |
| | 25CST 495 | 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 | | | | | Total Marks | | Credits | Hrs/ Week |
| | | | | | | L | T | P | R | SS | CIA | ESE | | |
| 1 | A | 25CCT501 | PC | PC | Applied Cryptography | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 2 | B | 25CCT502 | PC | PC | Network and System Security | 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 | 25CCT52N | 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 | 25CCL507 | PCL | PC | Cryptography Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 8 | Q | 25CCL508 | PCL | PC | Network and System Security Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 9 | R/M / H | | VAC | | Remedial/Minor/Honors Course | 3 | 1 | 0 | 0 | 5 | | | 4* | 4* |
| | S5/ S6 | 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: 25CCT5

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|----------|-----------------|------------------------------------|----------------|----------|------------|
| E | 25CCT521 | Network fundamentals for cloud | 3-0-0-0 | 3 | 3 |
| | 25CCT522 | Block chain and crypto currency | 3-0-0-0 | | 3 |
| | 25CCT523 | AI in Cyber Security | 3-0-0-0 | | 3 |
| | 25CCT524 | Advanced Industrial cyber security | 3-0-0-0 | | 3 |
| | 25CST521 | Software project management | 3-0-0-0 | | 3 |
| | 25CST525 | Data Mining | 3-0-0-0 | | 5/3 |

SIXTH SEMESTER (January-June)

| Sl. No: | Slot | Course Code | Course Type | Course Category | Course Title (CourseName) | Credit Structure | | | | | Total Marks | | Credits | Hrs/Week |
|--------------|-------|--|-------------|-----------------|---|------------------|---|---|---|-----|--------------|-----|---------------|---------------|
| | | | | | | L | T | P | R | SS | CIA | ESE | | |
| | | | | | | | | | | | | | | |
| 1 | A | 25CST601 | PC | PC | Compiler Design | 3 | 1 | 0 | 0 | 5 | 40 | 60 | 4 | 4 |
| 2 | B | 25CCT602 | PC | PC | Cyber Forensics | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 3 | C | 25CCT63N | PE | PE | PE-3 | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 4 | D | 25CCZ604 | PC-PBL | PB | Ethical Hacking and IoT 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 | OE | OE | OE | 3 | 0 | 0 | 0 | 4.5 | 40 | 60 | 3 | 3 |
| 7 | L | 25CCL607 | PCL | PC | Cyber Forensic Lab | 0 | 0 | 3 | 0 | 1.5 | 50 | 50 | 2 | 3 |
| 8 | P | 25CCP608 | 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: 25CCT63N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|-------------|--|----------------|-------|------------|
| C | 25CCT 631 | Cloud Infrastructure and Systems | 3-0-0-0 | 3 | 3 |
| | 25CCT 632 | Cryptographic algorithms in blockchain | 3-0-0-0 | | 3 |
| | 25CCT 633 | AI and ML in Cyber Security Defense | 3-0-0-0 | | 3 |
| | 25CCT 634 | OT Threat Prevention | 3-0-0-0 | | 3 |
| | 25CCT 635 | Biometric Security | 2-1-0-0 | | 5/3 |

OPEN ELECTIVE 1: 25CST 61N

| 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 | CourseCode | Course Type | Course Category | Course Title (Course Name) | Credit Structure | | | | | Total Marks | | Credits | Hrs/Week |
|--------------|------|--------------------------------|-------------|-----------------|--|------------------|---|---|---|--------------|-------------|-----|---------------|---------------|
| | | | | | | L | T | P | R | SS | CIA | ESE | | |
| 1 | A | 25CCT74N / 25CCX74N | 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 | 25CCT75N / 25CCX75N | 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 / 25CCI72N / 25CCX72N | OE/ILE | OE/IE | OE/ILE-1 (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 | 25CCS705 | PWS | PC | Seminar | 0 | 0 | 3 | 0 | 1.5 | 50 | 0 | 2 | 3 |
| 6 | P | 25CCP706 / 25CCI706 | 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 1 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: 25CCT74N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|----------|------------------|--|----------------|----------|------------|
| A | 25CCT 741 | Malware Forensics | 3-0-0-0 | 3 | 3 |
| | 25CCT 742 | Intrusion Detection and Prevention Systems | 3-0-0-0 | | 3 |
| | 25CCT 743 | Big Data Security | 3-0-0-0 | | 3 |
| | 25CCT 746 | Security operations analysis | 3-0-0-0 | | 3 |
| | 25CST 745 | Computer Vision | 3-0-0-0 | | 5/3 |

PROGRAM ELECTIVE 5: 25CCT75N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|----------|------------------|--|----------------|----------|------------|
| B | 25CCT 751 | Data & Computer Communication | 3-0-0-0 | 3 | 3 |
| | 25CCT 752 | Social and Ethical issues of the Internet | 3-0-0-0 | | 3 |
| | 25CCT 753 | Information Security in public and private sectors | 3-0-0-0 | | 3 |
| | 25CCT 754 | Engineering of Trustworthy Secure Systems | 3-0-0-0 | | 3 |
| | 25CCT 755 | Cyber Threat Intelligence | 3-0-0-0 | | 5/3 |

OPEN ELECTIVE 2: 25CST72N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|----------|-------------|--------------------------------|---------|----------|----------|
| O | 25CST 721 | Cyber Security | 3-0-0-0 | 3 | 3 |
| | 25CST 722 | Cloud Computing | 3-0-0-0 | | 3 |
| | 25CST 723 | Software Engineering | 3-0-0-0 | | 3 |
| | 25CST 724 | Computer Networks | 3-0-0-0 | | 3 |
| | 25CST 725 | 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 | 25CCT86N / 25CCX86N | 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 /25CCI83N/ 25CCX83N | 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 |
| 3 | I* | 25HUT803 /25HUX803 | 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 | 25CCP806/ 25CCI806/ 25CCP807 | 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: 25CCT86N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|------|-------------|---------------------------------------|---------|-------|--------|
| A | 25CCT 861 | IPR and Cyber Law | 3-0-0-0 | 3 | 3 |
| | 25CCT 862 | Security in Wireless networks | 3-0-0-0 | | 3 |
| | 25CCT 863 | Secure mobile application development | 3-0-0-0 | | 3 |
| | 25CCT 864 | Network Forensics | 3-0-0-0 | | 3 |
| | 25CCT 866 | Windows and Linux Forensics | 3-0-0-0 | | 3 |
| | 25CST 865 | Next Generation Interaction Design | 3-0-0-0 | | 5/3 |

OPEN ELECTIVE 3: 25CST83N

| SLOT | COURSE CODE | COURSES | L-T-P-R | HOURS | CREDIT |
|----------|-------------|----------------------------|---------|----------|----------|
| O | 25CST 831 | Introduction to Algorithms | 3-0-0-0 | 3 | 3 |
| | 25CST 832 | Web Programming | 3-0-0-0 | | 3 |
| | 25CST 833 | Software Testing | 3-0-0-0 | | 3 |
| | 25CST 834 | Internet of Things | 3-0-0-0 | | 3 |
| | 25CST 835 | 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 |
| 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 Elective(OE/IEL) | | | |
|--|----------|-------------|----------|
| Sl. No: | Semester | Course Type | Credits |
| 1 | S6 | OE | 3 |
| 2 | S7 | OE/ILE-1 | 3 |
| 3 | S8 | OE/ILE-2 | 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 |