ACADEMIC CURRICULA

UNDERGRADUATE DEGREE PROGRAMMES

Bachelor of Technology In Information Technology

(B.Tech. - Four Years)

(Choice Based Flexible Credit System)

Regulations 2021

CURRICULUM

SCHOOL OF COMPUTING



SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

(Deemed to be University u/s 3 of UGC Act, 1956)

Kattankulathur, Chengalpattu District 603203, Tamil Nadu, India



SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

B.Tech. Information Technology

(a) Mission of the Department

| Mission Stmt - 1 | To impart knowledge in cutting edge Computer Science and Engineering technologies in par with industrial standards. |
|------------------|--|
| Mission Stat 2 | To collaborate with renowned academic institutions to uplift innovative research and development in Computer Science and Engineering and its allied fields |
| | to serve the needs of society |
| Mission Stmt - 3 | To demonstrate strong communication skills and possess the ability to design computing systems individually as well as part of a multidisciplinary teams. |
| Mission Stmt - 4 | To instill societal, safety, cultural, environmental, and ethical responsibilities in all professional activities |
| Mission Stmt - 5 | To produce successful Computer Science and Engineering graduates with personal and professional responsibilities and commitment to lifelong learning |

(b) Program Educational Objectives (PEO)

| PEO - 1 | Graduates will be able to perform in technical/managerial roles ranging from design, development, problem solving to production support in software industries and R&D sectors. |
|---------|---|
| PEO - 2 | Graduates will be able to successfully pursue higher education in reputed institutions. |
| PEO - 3 | Graduates will have the ability to adapt, contribute and innovate new technologies and systems in the key domains of Computer Science and Engineering. |
| PEO - 4 | Graduates will be ethically and socially responsible solution providers and entrepreneurs in Computer Science and other engineering disciplines. |
| PEO - 5 | Graduates will possess the additional skills in core computer science discipline with knowledge of Hardware, Software , Programming , Logic & Reasoning. |

(c) Mission of the Department to Program Educational Objectives (PEO) Mapping

| | Mission Stmt 1 | Mission Stmt 2 | Mission Stmt 3 | Mission Stmt 4 | Mission Stmt 5 |
|---------|----------------|----------------|----------------|----------------|----------------|
| PEO - 1 | 3 | 3 | 3 | 3 | 3 |
| PEO - 2 | 1 | 3 | 3 | 3 | 3 |
| PEO - 3 | 3 | 3 | 2 | 1 | 3 |
| PEO - 4 | 2 | 3 | 2 | 3 | 3 |
| PEO - 5 | 3 | 3 | 2 | 2 | 3 |

1 - Low Correlation, 2 - Medium Correlation, 3 - High Correlation

(d) Mapping Program Educational Objectives (PEO) to Program Learning Outcomes (PLO)

| | | | | | | Prog | ram Lea | rning Out | tcomes (I | PLO) | | | | | |
|---------|----------------------------------|---------------------|-----------------------------|----------------------------------|------------------------|----------------------|---|-----------|------------------------------|-------------------|------------------------------|-----------------------|---------|-----------------------|----------|
| | | | | | G | Graduate At | tributes (G | A) | | | | | Program | n Specific C (PSO) | outcomes |
| | Engineeri ng Knowledg e | Problem Analysis | Design & Develop ment | Analysis, Design, Research | Modem Tool Usage | Society & Culture | Environm ent & Sustaina bility | Ethics | Individual & Team Work | Communi cation | Project Mgt. & Finance | Life Long Learning | PSO - 1 | PSO - 2 | PSO - 3 |
| PEO - 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| PEO - 2 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 1 | 3 | 1 | 3 | 3 | 3 | 3 |
| PEO - 3 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 |
| PEO - 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| PEO - 5 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

1 - Low Correlation, 2 - Medium Correlation, 3 - High Correlation

PSO - Program Specific Outcomes (PSO)

| PSO - 1 | Ability to demonstrate the knowledge of computer applications in both hardware and software systems. |
|---------|--|
| PSO - 2 | Ability to create Software for automation of functions in the respective field of application |
| PSO - 3 | Ability to utilize Logic & Reasoning Skills in building systems |

| | | | | | Pro | ogra | m Le | arni | 'ng C | Dutc | ome | s (P | LO) | | | |
|------------------------|--|-----------------------|------------------|----------------------|----------------------------|-------------------|-------------------|------------------------------|--------|------------------------|---------------|------------------------|--------------------|---------|----------|---------|
| | | | | | | Gra | duate | Attribu | utes | | | | | | PSO | |
| Course Code | Course Name | Engineering Knowledge | Problem Analysis | Design & Development | Analysis, Design, Research | Modern Tool Usage | Society & Culture | Environment & Sustainability | Ethics | Individual & Team Work | Communication | Project Mgt. & Finance | Life Long Learning | PSO - 1 | PSO - 2 | PSO - 3 |
| 21CSS101J | Programming for Problem Solving | 3 | | | | | | | | | | | | | | |
| 21CSC201J | Data Structures and Algorithms | | | 3 | | | | | | | | | | | | |
| 21CSC101T | Object Oriented Design and Programming | | 3 | 2 | | | | | | | | | | | | |
| 21CSS201T | Computer Organization and Architecture | 3 | | | | | | | | | | | | | | |
| 21CSC204J | Design and Analysis of Algorithms | | | 3 | 2 | | | | | | | | | | | |
| 21CSC202J | Operating Systems | | 2 | 3 | | | | | | | | | | | | |
| 21CSC303J | Software Engineering and Project Management | | | | | | | | | | | 3 | | | | |
| 21CSC203P | Advanced Programming Practice | | 3 | | | | | | | | | | | | | |
| 21CSC301T | Formal Language and Automata | 2 | | 3 | | | | | | | | | | | | |
| 21CSC302J | Computer Networks | | | | 2 | 3 | | | | | | | | | | |
| 21CSC205P | Database Management Systems | | | | | 2 | | | | | | 3 | | | | |
| 21CSC206T | Artificial Intelligence | | | | | | | 2 | | | 3 | | | | | |
| 21CSC317J | Information Retrieval Techniques | 3 | | | | | | | | | | | | | | |
| 21CSC314P | Big Data Essentials | 3 | | | | 2 | | | | | | | | | | |
| 21CSE251T | Digital Image Processing | 3 | | | | | | | | | | | | | | |
| 21ITE201T | Machine Learning | 3 | 2 | | | | | | | | | | | | | |
| 21CSE268T | Bio Inspired Computing | | | | | | | | | | | | | | | |
| 21CSE351T | Computational Logic | 2 | | 3 | | | | | | | | | | | | |
| 21CSE352T | Neuro Fuzzy and Genetic Programming | 3 | | | 2 | | | | | | | | | | | |
| 21CSE358T | Cryptography and Network Security | 3 | | | | | | | | | | | | | | |
| 21CSE355T | Data Mining and Analytics | 3 | | | | 2 | | | | | | | | | | |
| 21CSE356T | Natural Language Processing | 3 | | | | | | | | | | | | | | |
| 21CSE359T | Information Storage and Management | 3 | | | | | | | | | | | | | | |
| 21CSE361T | Database Security and Privacy | 2 | | | | | | | | | | | | | | |
| 21CSE354T | Full Stack Web Development | 3 | | | | | | | | | | | | | | |
| 21CSE362T | Cloud Computing | 3 | | | | | | | | | | | | | | |
| 21CSE310J | Quantum Computation | 3 | 2 | | | | | | | | | | | | | |
| <mark>21ITE302T</mark> | Internet of Things | 3 | | 2 | | 2 | | 2 | | | | | | | | |
| 211TE303T | Block chain Technology | 3 | | | 2 | 2 | | | | | | | | | | |
| 21CSE451T | Pattern Recognition Techniques | 3 | | | | | | | | | | | | | | |
| 21CSE454T | Computer Vision | 3 | | | | | | | | | | | | | | |
| 21CSE456T | Software Defined Networks | 2 | 2 | | | | | | | | | | | | | |
| 21CSE457T | Service Oriented Architecture | 3 | | | | | | | | | | | | | | |
| 21CSE460T | Network Protocols and Algorithms | 3 | | | | | | | | | | | | | | |
| 21CSE475T | Applied Graph theory | 3 | | | | | | | | | | | | | | |
| 21CSE477T | Cloud Native Architecture for Modern Platforms | 3 | | | | 3 | | | | | | | | | | |
| 21CSE479T | Fault Tolerant Systems | 3 | | | | | | | | | | | | | | |
| 21CSE480T | Image and Video Processing | 3 | | | | | | | | | | | | | | |
| 21CSP339L | Community Connect (To be completed in 4 th sem vacation) | | | | | | | | | 3 | | | 3 | | | |
| 21CSP340L / | Project (Compulsory for exit option at 6 th sem) / MOOC | | | | | | | | | | | | | | | |
| 2105P3411 | Major Project | | | | | | | | | 2 | | | 2 | | <u> </u> | + |
| 2100F400L | Ividjul Flujevi Somootor Internatio | | | | | | | | | ა ა | | | ა ა | | <u> </u> | |
| 2100F404L | Community Connect (To be completed in the community Connect (To be completed in the community) | | | | | | | | | 3 | | | 3 | | <u> </u> | |
| 2103P339L | Community Connect (To be completed in 4 ^{er} sem Vacation) | 1 | 1 | 1 | | | 1 | | | | | | | | | |

3– High Correlation, 2 – Medium Correlation, 1 – Low Correlation

Program Structure: B.Tech. in Computer Science and Engineering w/s Information Technology

| | 1. Humanities & Social Sciences | | | | | | |
|--|---|---|-------|--|---|-----|---|
| 0 | Contracting management Courses (H) | H | lours | 1 | | | C |
| Course | Course | | Weel | | | | |
| Code | Title | L | Т | Ρ | С | | |
| 21LEH101T | Communicative English | 2 | 1 | 0 | 3 | 1 | 211 |
| 21LEH102T | Chinese Language | | | | | | 210 |
| 21LEH103T | French Language | | | | | | 211 |
| 21LEH104T | German Language | | 1 | 0 | 2 | | 014 |
| 21LEH105T | Japanese Language | 2 | 1 | 0 | 3 | | 211 |
| 21LEH106T | Korean Language | | | | | | 211 |
| 21LEH107T | Spanish Language | | | | | | 211 |
| 21GNH101J | Philosophy of Engineering | 1 | 0 | 1 | 2 | | 211 |
| 21PDH201T | Social Engineering | 2 | 0 | 0 | 2 | | 218 |
| 21GNH401T | Behavioral Psychology | 2 | 1 | 0 | 3 | | |
| | Total Learning Credits | | | | 13 | | |
| | | | | | | | |
| | 3. Engineering Science Courses (S) | <u> </u> | 1 | | | | C |
| Course | Course | | Nool | 1/ 5 | | | |
| Code | Title | T | T | Р | C | | |
| 21MES1011 | Basic Civil and Mechanical Workshop | 0 | 0 | Δ | 2 | | 210 |
| 21MES101L | Engineering Graphics and Dosign | 0 | 0 | 4 | 2 | | 04 |
| 211WL3102L | Electrical and Electronics Engineering | 2 | 1 | 4 | 2 | | 21 |
| 210001011 | Programming for Problem Solving | 3 | 1 | 0 | 4 | | 21 |
| 210331013 | Computer Organization and Architecture | 2 | 1 | 2 | 4 | | 210 |
| 210002011 | Docign Thinking and Mathedalage | 3 | 2 | 0 | 4 | | 21 |
| 210052017 | Design Thinking and Methodology | 1 | 2 | 0 | 3 | | 210 |
| 210333031 | Data Science | Z | 0 | 0 | 2 | | 210 |
| | Total Learning Credits | | | | 21 | | 21 |
| | | | | | | | 21 |
| | 5. Professional Elective Courses (E) | | | | | 1 | 21 |
| | (Any 8 Elective Courses) | | | | | | 21 |
| | | F | lour | 5/ | | 1 | 210 |
| Course | Course | | Nee | k | | | 27 |
| Code | Title | L | Τ | Р | С | | |
| 21CSE251T | Digital Image Processing | 2 | 1 | 0 | 3 | 1 📖 | |
| 21ITE201T | Machine Learning | | | | 3 | 1 | |
| 21CSE268T | Bio Inspired Computina | 1 | | | 3 | 1 | |
| 21CSE351T | Computational Logic | | | | 3 | 1 | |
| 21CSE352T | Neuro Fuzzy and Genetic Programming | 1 | | | 3 | 1 | |
| 21CSE358T | Cryptography and Network Security | | | | 3 | 1 | C |
| 21CSE355T | Data Mining and Analytics | | | | 3 | 1 | |
| 21CSE356T | Natural Language Processing | | | | 3 | 1 | 210 |
| 21CSE359T | Information Storage and Management | 1 | | | 3 | 1 | 210 |
| 21CSE361T | Database Security and Privacy | - | | - | 3 | 1 | 210 |
| | Dulubuse decunity and I made | | | | | 1 | 210 |
| 21CSE354T | Full Stack Web Development | | | | 3 | 1 | - 1-1-1 |
| 21CSE354T 21CSE362T | Full Stack Web Development Cloud Computing | | | | 3 | | 210 |
| 21CSE354T 21CSE362T 21CSE310J | Full Stack Web Development Cloud Computing Quantum Computation | 2 | 0 | 2 | 3 | | 210 |
| 21CSE354T 21CSE362T 21CSE310J 21JTE302T | Full Stack Web Development Cloud Computing Quantum Computation | 2 | 0 | 2 | 3 3 3 3 | | 210 |
| 21CSE354T 21CSE362T 21CSE310J 21ITE302T 21ITE303T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology | 2 | 0 | 2 | 3 3 3 3 3 3 | | 210 |
| 21CSE354T 21CSE362T 21CSE310J 21ITE302T 21ITE303T 21CSE451T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques | 2 | 0 | 2 | 。 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 |
| 21CSE354T 21CSE362T 21CSE310J 21ITE302T 21ITE303T 21CSE451T 21CSE454T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision | 2 | 0 | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 |
| 21CSE354T 21CSE362T 21CSE310J 211TE302T 211TE303T 21CSE451T 21CSE454T 21CSE456T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks | 2 | 0 | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | |
| 21CSE354T 21CSE362T 21CSE310J 211TE302T 211TE303T 21CSE451T 21CSE454T 21CSE456T 21CSE457T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture | 2 | 0 | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | |
| 21CSE354T 21CSE362T 21CSE310J 21ITE302T 21ITE303T 21CSE451T 21CSE456T 21CSE450T 21CSE450T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms | 2 | 0 | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | |
| 21CSE354T 21CSE362T 21CSE310J 21TE302T 21TE303T 21CSE451T 21CSE454T 21CSE456T 21CSE456T 21CSE460T 21CSE460T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory | 2 | 0 | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | |
| 21CSE354T 21CSE362T 21CSE310J 21TE302T 21TE303T 21CSE451T 21CSE454T 21CSE456T 21CSE457T 21CSE460T 21CSE475T 21CSE477T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern | 2 | 0 | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 |
| 21CSE354T 21CSE362T 21CSE310J 21TE302T 21TE303T 21CSE454T 21CSE454T 21CSE456T 21CSE456T 21CSE457T 21CSE460T 21CSE477T 21CSE477T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms | 2 | 0 | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 |
| 21CSE354T 21CSE362T 21CSE310J 21ITE302T 21ITE303T 21CSE451T 21CSE454T 21CSE454T 21CSE456T 21CSE457T 21CSE477T 21CSE477T 21CSE477T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems | 2 | 0 | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 |
| 21CSE354T 21CSE362T 21CSE362T 21CSE310J 21ITE302T 21CSE451T 21CSE454T 21CSE456T 21CSE456T 21CSE456T 21CSE475T 21CSE477T 21CSE479T 21CSE479T 21CSE479T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems Image and Video Processing | 2 | 0 | 2 | 3 3 | | 210 210 210 210 210 |
| 21CSE354T 21CSE362T 21CSE362T 21CSE310J 21ITE302T 21CSE451T 21CSE454T 21CSE456T 21CSE456T 21CSE460T 21CSE475T 21CSE477T 21CSE479T 21CSE479T 21CSE480T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems Image and Video Processing Total Learning Credits | | 0 | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 2 4 | | 210 210 210 210 210 |
| 21CSE354T 21CSE362T 21CSE310J 21ITE302T 21ITE302T 21CSE451T 21CSE454T 21CSE454T 21CSE456T 21CSE456T 21CSE475T 21CSE475T 21CSE479T 21CSE479T 21CSE479T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems Image and Video Processing Total Learning Credits | | 0 | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 210 210 210 210 210 |
| 21CSE354T 21CSE362T 21CSE362T 21CSE310J 21TE302T 21CSE451T 21CSE454T 21CSE454T 21CSE456T 21CSE456T 21CSE457T 21CSE475T 21CSE477T 21CSE479T 21CSE479T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems Image and Video Processing Total Learning Credits 8. Mandatory Courses (M) | | | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 210 210 210 210 210 210 |
| 21CSE354T 21CSE362T 21CSE362T 21CSE310J 21ITE302T 21CSE450T 21CSE456T 21CSE456T 21CSE456T 21CSE456T 21CSE477T 21CSE477T 21CSE479T 21CSE479T 21CSE479T 21CSE479T 21CSE479T 21CSE480T | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems Image and Video Processing Total Learning Credits 8. Mandatory Courses (M) Course Title | | | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 210 210 210 210 |
| 21CSE354T 21CSE362T 21CSE310J 21TE302T 21TE303T 21CSE451T 21CSE456T 21CSE456T 21CSE456T 21CSE477T 21CSE477T 21CSE479T 21CSE479T 21CSE479T 21CSE479T 21CSE480T Code 21PDM101L | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems Image and Video Processing Total Learning Credits 8. Mandatory Courses (M) Course Title Professional Skills and Practices | | | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 210 210 210 210 |
| 21CSE354T 21CSE362T 21CSE310J 21TE302T 21CSE451T 21CSE451T 21CSE456T 21CSE456T 21CSE457T 21CSE475T 21CSE479T 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CS | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Biockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems Image and Video Processing Total Learning Credits 8. Mandatory Courses (M) Course Title Professional Skills and Practices Environmental Science Original Arthode | 2 2 | 0 | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 211 211 211 211 211 211 |
| 21CSE354T 21CSE362T 21CSE362T 21CSE360J 21TE302T 21CSE451T 21CSE451T 21CSE456T 21CSE457T 21CSE475T 21CSE477T 21CSE479T 21CSE479T 21CSE480T 21CSE480T 21CSE479T 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE477 21CSE4 | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems Image and Video Processing Total Learning Credits 8. Mandatory Courses (M) Course Title Professional Skills and Practices Environmental Science General Aptitude Development Course Title | 2 2 | | 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 210 210 210 210 210 |
| 21CSE354T 21CSE362T 21CSE362T 21CSE360J 21CSE451T 21CSE451T 21CSE456T 21CSE456T 21CSE456T 21CSE477T 21CSE477T 21CSE479T 21CSE479T 21CSE480T 21CSE480T 21CSE479T 21CSE477 2 | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems Image and Video Processing Total Learning Credits 8. Mandatory Courses (M) Course Title Professional Skills and Practices Environmental Science General Aptitude Professional Ethics' | L 0 1 0 1 | 0 | 2 P 2 0 2 0 2 0 2 0 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 |
| 21CSE354T 21CSE362T 21CSE310J 21TE302T 21TE302T 21CSE451T 21CSE454T 21CSE456T 21CSE456T 21CSE477T 21CSE477T 21CSE479T 21CSE479T 21CSE479T 21CSE479T 21CSE470T 21 | Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems Image and Video Processing Total Learning Credits 8. Mandatory Courses (M) Course Title Professional Skills and Practices Environmental Science General Aptitude Professional Ethics' Verbal Reasoning' | L 0 1 0 0 | 0 | 2 P 2 0 2 2 0 2 2 0 2 0 2 0 2 2 0 2 2 2 2 2 2 2 2 2 2 2 2 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 |
| 21CSE354T 21CSE362T 21CSE362T 21CSE362T 21CSE4517 21CSE4517 21CSE454T 21CSE456T 21CSE456T 21CSE4757 21CSE4777 21CSE4797 21CSE4797 21CSE4797 21CSE4807 | Database Geomy and Hudy Full Stack Web Development Cloud Computing Quantum Computation Internet of Things Blockchain Technology Pattern Recognition Techniques Computer Vision Software Defined Networks Service Oriented Architecture Network Protocols and Algorithms Applied Graph theory Cloud Native Architecture for Modern Platforms Fault Tolerant Systems Image and Video Processing Total Learning Credits 8. Mandatory Courses (M) Course Title Professional Skills and Practices Environmental Science General Aptitude Professional Ethics' Verbal Reasoning' Critical and Creative Thinking Skills' | L 0 1 0 0 1 0 0 0 0 0 | 0 | 2 P 2 0 2 0 2 2 2 2 2 2 2 2 2 2 2 2 2 | 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 210 210 210 210 210 210 |

| | 2. Basic Science Courses (B) | | | | |
|---------------------------------------|--|---|---------------|---|----|
| Course | Course | ŀ | Hours Week | / | |
| Code | Title | L | Т | Ρ | С |
| 21PYB102J | PYB102J Semiconductor Physics and Computational Methods CYB101.I Chemistry | | 1 | 2 | 5 |
| 21CYB101J | Chemistry | 3 | 1 | 2 | 5 |
| 21MAB101T Calculus and Linear Algebra | | 3 | 1 | 0 | 4 |
| 21MAB102T | Advanced Calculus and Complex Analysis | 3 | 1 | 0 | 4 |
| 21MAB206T | Numerical Methods and Analysis | 3 | 1 | 0 | 4 |
| 21MAB204T | Probability and Queueing Theory | 3 | 1 | 0 | 4 |
| 21MAB302T | Discrete Mathematics | 3 | 1 | 0 | 4 |
| 21BTB102T | Introduction to Computational Biology | 2 | 0 | 0 | 2 |
| | Total Learning Credits | | | | 32 |

| | 4. Professional Core Courses (C) | | | | |
|-----------|--|---|---|---|----|
| Course | 4. Professional Core Courses Hours/ Week Course I Title L T Object Oriented Design and Programming 2 1 Data Structures and Algorithms 3 0 Operating Systems 3 0 Advanced Programming Practice 3 1 Design and Analysis of Algorithms 3 0 Database Management Systems 3 1 Artificial Intelligence 2 1 Formal Language and Automata 3 0 Computer Networks 3 0 Software Engineering and Project 2 0 Management 2 0 Big Data Essentials 2 1 | / | | | |
| Code | Title | L | Т | Ρ | С |
| 21CSC101T | Object Oriented Design and Programming | 2 | 1 | 0 | 3 |
| 21CSC201J | Data Structures and Algorithms | 3 | 0 | 2 | 4 |
| 21CSC202J | Operating Systems | 3 | 0 | 2 | 4 |
| 21CSC203P | Advanced Programming Practice | 3 | 1 | 0 | 4 |
| 21CSC204J | Design and Analysis of Algorithms | 3 | 0 | 2 | 4 |
| 21CSC205P | Database Management Systems | 3 | 1 | 0 | 4 |
| 21CSC206T | Artificial Intelligence | 2 | 1 | 0 | 3 |
| 21CSC301T | Formal Language and Automata | 3 | 0 | 0 | 3 |
| 21CSC302J | Computer Networks | 3 | 0 | 2 | 4 |
| 21CSC303J | Software Engineering and Project Management | 2 | 0 | 2 | 3 |
| 21CSC317J | Information Retrieval Techniques | 2 | 0 | 2 | 3 |
| 21CSC314P | Big Data Essentials | 2 | 1 | 0 | 3 |
| | Total Learning Credits | | | | 42 |

| | 6. Open Elective Courses (O) (Any 3 courses) offered by School of Computing | | | | |
|-----------|---|---|---------------|---------|---|
| Course | Course | ł | Hours Week | ;/ (| |
| Code | Title | L | Т | Ρ | С |
| 21CSO351T | Web Programming | | | | 3 |
| 21CSO352T | Python Programming | | | | 3 |
| 21CSO353T | Mobile Application Development | | | | 3 |
| 21CSO354T | Data Analytics | | | | 3 |
| | Total Learning Credits | | | | 9 |

| | 7. Project Work, Seminar, Internship In Industry / Higher Technical | | | | |
|------------------------|---|-------------|---------------|-------------|----|
| Course | Course | H | Hours Week | / | |
| Code | Title | L | Т | Ρ | С |
| 21CSP345L | Community Connect (To be completed in 4 th sem vacation) | 0 | 0 | 2 | 1 |
| 21CSP346L 21CSP347T | Project (Compulsory for exit option at 6 th sem) / MOOC | 0 / 3 | 0 | 6 / 0 | 3 |
| 21CSP437L 21CSP438L | Major Project Semester Internship | 0 | 0 | 3 0 | 15 |
| | Total Learning Credits | • | | | 19 |

Implementation Plan: B.Tech. in Computer Science and Engineering w/s Information Technology

| | Semester – I | | | | | | Semester - II | | | |
|-------------|--|-----|---------|------|----|-------------|--|-----|--------------|------|
| Code | Course Title | Hou | irs/ W | /eek | C | <u> </u> | | | Hours | s/ |
| Ooue | Obdise Thie | L | Т | Ρ | 0 | Code | Course Litle | | Weel | K D |
| 1LEH102T/ | | | | | | | | L | Ľ | P |
| 21LEH103T/ | Chinaga Languaga / French Languaga / | | | | | 21LEH101 | T Communicative English | 2 | 1 | 0 |
| 21LEH104T/ | Chinese Language/ French Language / | | | _ | | 21MAB102 | T Advanced Calculus and Complex Analysis | 3 | 1 | 0 |
| 211 FH105T/ | German Language / Japanese Language / | 2 | 1 | 0 | 3 | 0401/0400 | , Semiconductor Physics and Computational | _ | | |
| | Korean Language / Spanish Language | | | | | 21PYB102 | Methods | 3 | 1 | Ż |
| 211 EU107T | | | | | | | Engineering Graphics and Design / | | | |
| | | - · | _ | | - | 21MES102 | U Booio Civil and Machanical Workshap | 0 | 0 | |
| 21GNH101J | Philosophy of Engineering | 1 | 0 | 2 | 2 | 21MES101 | L Basic Civil and Mechanical Workshop | 0 | 0 | 4 |
| 21MAB101T | Calculus and Linear Algebra | 3 | 1 | 0 | 4 | | | | | |
| 21CYB101J | Chemistry | 3 | 1 | 2 | 5 | 21EES101 | T Electrical and Electronics Engineering | 3 | 1 | (|
| 21BTB102T | Introduction to Computational Biology | 2 | 0 | 0 | 2 | 21CSC101 | T Object Oriented Design and Programming | 2 | 1 | (|
| | Basic Civil and Mechanical Workshop / | - | Ŭ | Ŭ | - | 21CYM101 | T Environmental Science* | 1 | 0 | (|
| 21MES101L/ | Engineering Crephics and Design | 0 | 0 | 1 | 2 | 210011107 | | 0 | 0 | |
| 21MES102L | Engineening Graphics and Design | 0 | 0 | 4 | 2 | ZIFDIVITUZ | | U | U | 2 |
| | | _ | | | | | Total Learning Credits | S | | |
| 21CSS101J | Programming for Problem Solving | 3 | 0 | 2 | 4 | | | | | |
| 21PDM101L | Professional Skills and Practices | 0 | 0 | 2 | 0 | | | | | |
| | Semester - I Semester - II Code Course Title Non-Week Code Course Title Non-Week Code Course Title Non-Week Minor Course Title Non-Week Course Title Non-Week Minor Course Title Non-Week Code Non-Week Course Title Non-Week Course Title Non-Week Course Title | | | | | | | | | |
| | | - | | | | C | | | | |
| | Semester – III | | | | | | Semester – IV | | | |
| Codo | Semester - I Semester - II Code Course Title Image: Course Title <th co<="" td=""></th> | | | | | | | | | |
| Code | Semester - I Semester - II Code Course Title Hour Week Semester - II Semester - II Course Title Hour Week Semester - IV Course Title Hour Week Semester - IV Code Course Title Hour Week Code Semester - IV Code <th colspan="2</td> | | | | | | | | | |
| 21MAB206T | Numerical Methods and Analysis | .3 | 1 | 0 | 4 | 21MAB204T | Probability and Queueing Theory | .3 | 1 | 0 |
| 21DCS201P | Design Thinking and Methodology | 1 | 2 | Ô | 3 | 210502041 | Design and Analysis of Algorithms | 3 | 0 | 2 |
| 21DC3201F | | 1 | 2 | 0 | 3 | 210302045 | Design and Analysis of Algonanis | 2 | 1 | 2 |
| 210552011 | Computer Organization and Architecture | 3 | 1 | 0 | 4 | 21030203P | Database Management Systems | 3 | 1 | 0 |
| 21CSC201J | Data Structures and Algorithms | 3 | 0 | 2 | 4 | 21CSC2061 | Artificial Intelligence | 2 | 1 | 0 |
| 21CSC202J | Operating Systems | 3 | 0 | 2 | 4 | E | Professional Elective-I | | | |
| 21CSC203P | Advanced Programming Practice | 3 | 1 | 0 | 4 | 21PDH201T | Social Engineering | 2 | 0 | 0 |
| 211 FM201T | Professional Ethics | 1 | 0 | 0 | 0 | 21PDM2021 | Critical and Creative Thinking Skills | 0 | 0 | 2 |
| 210012011 | Verbal Peacening | 0 | 0 | 2 | 0 | 211 2112022 | Total Learning Credits | Ť | | - |
| | Total Learning Credit | | U | 2 | 23 | | Total Learning Oregits | | | |
| | | 3 | | | 20 | _ | | | | |
| | Semester – V | | | | | | Semester – VI | | | |
| Codo | H1037/ H10477/ German Language / Japanese Language / German Language / Japanese Language / Korean Language / Spanish Language H10577/ Korean Language / Spanish Language WH101J Philosophy of Engineering AB101T Calculus and Linear Algebra YB101J Chemistry TB102T Introduction to Computational Biology ES101L/ ES102L Basic Civil and Mechanical Workshop / Engineering Graphics and Design SS101J Programming for Problem Solving DM101L Professional Skills and Practices Total Learning Crect Semester - III Ode Course Title AB206T Numerical Methods and Analysis CS201P Design Thinking and Methodology SS2017 Computer Organization and Architecture SC2020J Derating Systems SC2021J Data Structures and Algorithms SC2023P Advanced Programming Practice M2011 Professional Ethics M2011 Professional Ethics M2011 Professional Elective - V Ode Course Title Aba3027 Discrete Mathematics SC3021 Community Connect (To be completed in 4 th sem vacation) | | irs/ W | leek | 0 | Codo | Course Title | Hou | rs/ W | /eel |
| Code | Course Title | L | Т | Ρ | | Code | Course Title | L | T | Ρ |
| 21MAB302T | Discrete Mathematics | 3 | 1 | 0 | 4 | 21CSS303T | Data Science | 2 | 0 | 0 |
| 210802017 | Formal Language and Automata | 2 | 0 | 0 | 2 | 210000001 | Software Engineering and Project | 2 | | 0 |
| 210303011 | | 0 | 0 | 0 | 5 | 21CSC303J | | 2 | 0 | 2 |
| 21CSC302J | Computer Networks | 3 | 0 | 2 | 4 | | Management | _ | | |
| 21CSC314P | Big Data Essentials | 2 | 1 | 0 | 3 | 21CSC317J | Information Retrieval Techniques | 2 | 0 | 2 |
| Е | Professional Elective – II | | | | 3 | E | Professional Elective – III | | | |
| 0 | Open Elective – I | | | | 3 | E | Professional Elective – IV | | | |
| | Community Connect (To be completed in 4th | | | - | | 0 | Open Elective – II | | | |
| 21CSP345L | som vacation) | 0 | 0 | 2 | 1 | 210502461 | Project (compulson) for exit ention at 6th | 0/ | | 6 |
| 040040041 | Analytical and Laniard Thinking Okilla | 0 | 0 | 0 | 0 | 210373401/ | | 0/ | 0 | 0/ |
| ZIPDM301L | Analytical and Logical Thinking Skills | 0 | 0 | 2 | 0 | 2105P34/1 | semester) / MOOC | 3 | | 0 |
| | Total Learning Credits | | | | 21 | 21PDM302L | Employability Skills and Practices | 0 | 0 | - 2 |
| | | | | | | | Total Learning Credits | | | |
| | | | | | | | | | | |
| | Semester - VII | | | | | | Semester - VIII | | | |
| | Jeilie2(61 - VII | Her | ire/\\ | look | | | Jeinestei - Vili | Ho | ire/\/ | 100 |
| Code | Course Title | I | 115/ VI | D | С | Code | Course Title | I | 13/ W | |
| 04.000 | Data viewal Davahala w | L | | | 0 | 04000407 | Main Duris at | L | \downarrow | F |
| | Bernavioral Psychology | 2 | 1 | 0 | 3 | 210SP437L | Major Project | 0 | 0 | .3 |
| E | Protessional Elective – V | | | | 3 | 21CSP438L | Semester Internship | Ŭ | Ľ | Ľ |
| E | Professional Elective – VI | | | | 3 | | | | | |
| Г | Professional Elective – VII | | | | 3 | 1 | | | 1 | |
| E | | | | | 2 | 1 | | | 1 | 1 |
| E F | Protessional Elective - VIII | | | 1 | | 1 | | 1 | 1 | 1 |
| E | Protessional Elective – VIII | | | | 2 | | | | | |
| E E O | Protessional Elective – VIII Open Elective –III | | | | 3 | | Total Looming Credits | | | |