



**PERIYAR
MANIAMMAI**
INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University)
Established Under Sec. 3 of UGC Act, 1956 • NAAC Accredited
think • innovate • transform

Criterion 1 – Curricular Aspects

| | | |
|----------------------|-------|---|
| Key Indicator | 1.2 | Academic Flexibility |
| Metric | 1.2.2 | Percentage of Programmes in which Choice Based Credit System (CBCS)/elective course system has been implemented (Data for the latest completed academic year) |

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
STRUCTURE OF THE PROGRAM CLEARLY
INDICATING COURSES, CREDITS/ELECTIVES**

Programmes

1. B. Tech., Computer Science and Engineering Full Time
2. B.Tech., CSE (AI and ML) and B.Tech., CSE (Cyber Security) Full Time

1 Curriculum and Syllabus for the B.Tech., Computer Science and Engineering Programme after Revision

2021 Regulation Revision 1

SEMESTER - I

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|-------|-------------|-------------|-------------|---|---------|---|---|-----------|-------|---|---|-----------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1 | MA-I | BSC | XMA101 | Calculus and Linear Algebra | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 2 | BE | ESC | XBE102 | Electrical and Electronics Engineering Systems | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 3 | C | BSC | XAC103 | Applied Chemistry for Engineers | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 4 | Works | ESC | XWP104 | Workshop Practices | 1 | 0 | 2 | 3 | 1 | 0 | 4 | 3 |
| 5 | SC | HSMC | XGS105 | Speech Communication | 0 | 1 | 2 | 3 | 0 | 1 | 4 | 5 |
| 6 | UMAN-I | MC | XUM106 | Constitution of India | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 |
| 7 | BEL | ESC | XBE107 | Electrical and Electronics Engineering Systems Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| 8 | CL | BSC | XAC108 | Applied Chemistry for Engineers Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| | | | | Total | | | | 20 | | | | 27 |

Total Credits – 20 Total Hours- 27

SEMESTER II

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|-------|-------------|-------------|-------------|--|---------|---|---|-----------|-------|---|---|-----------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1. | MA-II | BSC | XMA201 | Calculus, Ordinary Differential Equations and Complex Variable | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 2. | PPS-T | ESC | XCP202 | Programming for Problem Solving | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 3 | P | BSC | XAP203 | Applied Physics for Engineers | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 4 | TC | HSMC | XGS204 | Technical Communication | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 2 |
| 5 | PPS-T | ESC | XCS205 | Basics of Electronic Devices and Circuits. | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 6 | EG/BT | ESC | XEG206 | Engineering Graphics and Design | 1 | 0 | 2 | 3 | 1 | 0 | 4 | 5 |
| 7 | PPS-L | ESC | XCP207 | Programming for Problem Solving Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| 8 | PL | BSC | XAP208 | Applied Physics for Engineers Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| | | | | Total | | | | 21 | | | | 25 |

Total Credits – 21 Total Hours- 25

2021 Regulation

SEMESTER – III

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|-------|-------------|-------------|-------------|--|---------|---|---|-----------|-------|---|---|-----------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1. | MA-III | BSC | XPS301 | Probability and Statistics | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 2. | PCC T | PCC | XCS302 | Digital Electronics | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 3. | PCC-T | PCC | XCS303 | Data Structure & Algorithms | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 4. | PCC-T | PCC | XCS304 | Object Oriented Programming | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 5. | PCC-T | PCC | XCS305 | Signals & Systems | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 6. | MNGT-I | HSMC | XUM306 | Entrepreneurship Development | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 2 |
| 7. | UMAN-I | MC (HSMC) | XUM307 | Universal Human Values 2: Understanding Harmony and Gender | 2 | 1 | 0 | 3 | 2 | 1 | 0 | 3 |
| 8 | PCC-L | PCC | XCS308 | Data Structure & Algorithms Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| 9 | PCC-L | PCC | XCS309 | Object Oriented Programming Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| 10 | IPT-I | PROJ | XCS310 | In-plant Training - I | - | - | - | 1 | - | - | - | - |
| | | | | Total | | | | 25 | | | | 26 |

Total Credits – 25 Total Hours- 26

SEMESTER – IV

| S.No. | Description | | Course Code | Courses | Credits | | | | Hours | | | |
|-------|-------------|------|-------------|--|---------|---|---|-----------|-------|---|---|-----------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1. | MA-IV | BSC | XCS401 | Discrete Mathematics | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 2. | PCC T | PCC | XCS402 | Computer Organization & Architecture | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 3. | PCC-T | PCC | XCS403 | Operating Systems | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 4. | PCC-T | PCC | XCS404 | Design & Analysis of Algorithms | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 5. | MNGT-II | HSMC | XUM009 | Economics for Engineers | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 6 | UMAN-III | MC | XUM003 | Disaster Management | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 |
| 7 | PCC-L | PCC | XCS407 | IT Workshop Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| 8 | PCC-L | PCC | XCS408 | Operating Systems Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| 9 | PCC-L | PCC | XCS409 | Design and Analysis of Algorithms Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| | | | | Total | | | | 19 | | | | 25 |

Total Credits – 19 Total Hours- 25

SEMESTER – V

| S.No. | Description | | Course Code | Courses | Credits | | | | Hours | | | |
|-------|-------------|------|-------------|--|---------|---|---|-----------|-------|---|---|-----------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1 | PCC T | PCC | XCS501 | Formal Language and Automata Theory | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 2 | PCC-T | PCC | XCS502 | Database Management Systems | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 3 | PCC-T | PCC | XCS503 | Software Engineering | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 4 | PCC-T | PCC | XCS504 | Computer Networks | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 5 | PEC-I | PEC | XCSE** | Professional Elective Course | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 6 | OE I | OE | XOE** | Open Elective Course | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 7 | PCC-L | PCC | XCS507 | Database Management Systems Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| 8 | PCC-L | PCC | XCS508 | Software Engineering Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| 9 | IPT-II | PROJ | XCS509 | In-Plant Training – II | - | - | - | 1 | - | - | - | - |
| | | | | Total | | | | 22 | | | | 23 |

Total Credits – 22 Total Hours- 23

SEMESTER – VI

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|-------|-------------------|-------------|-------------|-------------------------------|---------|---|---|-----------|-------|---|---|-----------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1 | PCC T | PCC | XCS601 | Compiler Design | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 2 | PCC-T | PCC | XCS602 | Big Data Analytics | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 3 | PEC-II | PEC | XCSE** | Professional Elective courses | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 4 | OE II | OE | XOE** | Open Elective Course | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 5 | ELS | HSMC | XGS605 | Professional Skills | 1 | 0 | 2 | 3 | 1 | 0 | 4 | 5 |
| 6 | UMAN-IV/ PCC-T | PCC | XCS606 | Cyber Security | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 9 | PCC-L | PCC | XCS607 | Compiler Design Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| 10 | PCC-L | PCC | XCS608 | Big Data Analytics Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| | | | | Total | | | | 20 | | | | 24 |

Total Credits – 20 Total Hours- 24

2018 Regulation Revision 1

SEMESTER – VII

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|--------------|-------------|--------------|-------------|-------------------------|---------|---|---|-----------|-------|---|----|-----------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1 | PCC T | OE | XCSOE3 | Open Elective –III | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 2 | PCC-T | PEC | XCSE** | Elective-IV | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 3 | PEC-III | PEC | XCSE** | Elective-V | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 4 | OE III | BSC | XUM704 | Biology | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 3 |
| 5 | UMAN-V | MC | XUM705 | Disaster Management | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 3 |
| 6 | PCC-L | PROJ | XCS706 | Project Phase– I | 0 | 0 | 6 | 6 | 0 | 0 | 12 | 12 |
| 7 | PCC-L | PROJ | XCS707 | In plant Training – III | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| 8 | Proj I | Minor Course | XCSM03 | R Programming | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Total | | | | | | | | 15 | | | | 29 |

Total Credits – 15 Total Hours- 29

SEMESTER – VIII

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|--------------|-------------|-------------|-------------|-------------------------|---------|---|---|-----------|-------|---|----|-----------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1 | MC | MC | XUM801 | Cyber Security | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 2 | OE IV | OE | XCSOE4 | Open Elective -IV | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 3 | OE V | OE | XCSOE5 | Open Elective -V | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 4 | Proj II | PROJ | XCS804 | Project Work Phase – II | 0 | 0 | 6 | 6 | 0 | 0 | 12 | 18 |
| Total | | | | | | | | 15 | | | | 27 |

2 Curriculum and Syllabus for the B.Tech., CSE (AI and ML) and B.Tech., CSE (Cyber Security) Programme after Revision

2023 Regulation

SEMESTER - I

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|-----------------------|-------------|-------------|-------------|---|-----------|---|---|-------|-----------|---|---|-------|
| | | | | | L | T | P | Total | L | T | P | Total |
| Theory Courses | | | | | | | | | | | | |
| 1. | MA-I | BSC | XMA101 | Calculus and Linear Algebra | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 2. | PPS-T | ESC | XCS102 | Programming for Problem Solving using Python | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 3. | C | BSC | XAC103 | Applied Chemistry for Engineers | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 4. | EDC | ESC | XWP104 | Workshop Practices | 1 | 0 | 2 | 3 | 1 | 0 | 4 | 5 |
| 5. | SC | HSMC | XGS105 | Speech Communication | 0 | 1 | 2 | 3 | 0 | 1 | 4 | 5 |
| 6. | UMAN-I | MC | XUM106 | Constitution of India | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 |
| Lab Courses | | | | | | | | | | | | |
| 7. | PPS-L | ESC | XCP107 | Programming for Problem Solving using Python Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| 8. | CL | BSC | XAC108 | Applied Chemistry for Engineers Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| Total | | | | | 19 | | | | 28 | | | |

Total Credits – 19 Total Hours- 28

SEMESTER - II

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|-----------------------|-------------|-------------|-------------|--|-----------|---|---|-----|-----------|---|---|-----|
| | | | | | L | T | P | Tot | L | T | P | Tot |
| Theory Courses | | | | | | | | | | | | |
| 1. | MA-II | BSC | XMA201 | Calculus, Ordinary Differential Equations and Complex Variable | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 2. | PPS-T | ESC | XBE202 | Electrical and Electronics Engineering Systems | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 3. | P | BSC | XAP203 | Applied Physics for Engineers | 3 | 1 | 0 | 4 | 3 | 1 | 0 | 4 |
| 4. | TC | HSMC | XGS204 | Technical Communication | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 2 |
| 5. | PPS-T | ESC | XCS205 | Basics of Electronic Devices and Circuits. | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 6. | PCC T | PCC | XEG206 | Engineering Graphics and Design | 1 | 0 | 2 | 3 | 1 | 0 | 4 | 5 |
| Lab Courses | | | | | | | | | | | | |
| 7. | HS | HSMC | XBE207 | Electrical and Electronics Engineering Systems Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| 8. | PPS-L | ESC | XAP208 | Applied Physics Laboratory | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 |
| Total | | | | | 22 | | | | 26 | | | |

Total Credits – 22 Total Hours- 26

LIST OF ELECTIVES

The Professional Elective Courses are offered from the following Specialized Threads:

| No. | Threads |
|------|---------------------------------------|
| I. | Theory and Algorithms |
| II. | Applications |
| III. | Data Science and Machine Intelligence |
| IV. | Systems |

Semester V PROFESSIONAL ELECTIVES GROUP – I

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|-------|-------------|-------------|-------------|----------------------------|---------|---|---|-------|-------|---|---|-------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1 | PEC-I | PEC | XCSE51 | Graph Theory | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 2 | PEC-I | PEC | XCSE52 | Real Time Systems | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 3 | PEC-I | PEC | XCSE53 | Soft Computing | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 4 | PEC-I | PEC | XCSE54 | Human Computer Interaction | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |

Semester VI PROFESSIONAL ELECTIVES GROUP – II

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|-------|-------------|-------------|-------------|-------------------------------|---------|---|---|-------|-------|---|---|-------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1 | PEC-II | PEC | XCSE61 | Information Theory and Coding | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 2 | PEC-II | PEC | XCSE62 | Distributed Systems | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 3 | PEC-II | PEC | XCSE63 | Data Mining | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 4 | PEC-II | PEC | XCSE64 | Cloud Computing | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 5 | PEC-II | PEC | XCSE65 | Mobile Communication | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |

LIST OF ELECTIVES

Semester VII PROFESSIONAL ELECTIVES GROUP – IV

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|-------|-------------|-------------|-------------|---------------------------|---------|---|---|-------|-------|---|---|-------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1 | PEC-III | PEC | XCSE71 | Information Retrieval | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 2 | PEC-III | PEC | XCSE72 | Cloud Computing | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 3 | PEC-III | PEC | XCSE73 | Fault Tolerant Computing | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 4 | PEC-III | PEC | XCSE74 | Computer Graphics | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 5 | PEC-III | PEC | XCSE75 | Advanced Operating System | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 6 | PEC-III | PEC | XCSE76 | Storage Technologies | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 7 | PEC-III | PEC | XCSE77 | Virtualization | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |

Semester VII PROFESSIONAL ELECTIVES GROUP – V

| S.No. | Description | AICTE Abbr. | Course Code | Courses | Credits | | | | Hours | | | |
|-------|-------------|-------------|-------------|-------------------------------------|---------|---|---|-------|-------|---|---|-------|
| | | | | | L | T | P | Total | L | T | P | Total |
| 1 | PEC-III | PEC | XCSE78 | Machine Learning | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 2 | PEC-III | PEC | XCSE79 | Adhoc and Sensor Networks | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 3 | PEC-III | PEC | XCSE7A | Embedded Systems | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 4 | PEC-III | PEC | XCSE7B | Fog Computing | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 5 | PEC-III | PEC | XCSE7C | Quantum Computing | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 6 | PEC-III | PEC | XCSE7D | Parallel and Distributed algorithms | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |
| 7 | PEC-III | PEC | XCSE7B | Electronic Design Automation | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 3 |