**Faculty of Engineering**
**School of Computing and Intelligent Systems**
**Department of Computer and Communication Engineering**
**Degree: B. Tech.  Computer and Communication Engineering**
**Total Credits: 160**

| Code | Third Semester Subject Name | L | T | P | C | Code | Fourth Semester Subject Name | L | T | P | C |
|------|------|---|---|---|---|------|------|---|---|---|---|
| MEE20XX | Engineering Economics | 3 | 0 | 0 | 3 | MAS20XX | Statistics & Probability | 3 | 0 | 0 | 3 |
| MBB21XX | Management of Technology | 3 | 0 | 0 | 3 | CCE2201 | Relational Database Management Systems | 3 | 1 | 0 | 4 |
| CCE2101 | Digital Design and Computer Architecture | 3 | 1 | 0 | 4 | CCE2202 | Operating Systems | 3 | 1 | 0 | 4 |
| CCE2102 | Data Communication and Computer Networks | 3 | 1 | 0 | 4 | CCE222X | Flexi Core 2 | 3 | 1 | 0 | 4 |
| CCE2103 | Data Structures and Algorithms | 3 | 1 | 0 | 4 | CCE22XX | Program Elective 1 | 3 | 0 | 0 | 3 |
| CCE212X | Flexi Core 1 | 3 | 1 | 0 | 4 | CCE00XX | Open Elective 1 | 3 | 0 | 0 | 3 |
| CCE2130 | Data Communication and Computer Networks Lab | 0 | 0 | 2 | 1 | CCE2230 | Relational Database Management Systems Lab | 0 | 0 | 2 | 1 |
| CCE2131 | Data Structures and Algorithms Lab | 0 | 0 | 2 | 1 | CCE2231 | Operating Systems Lab | 0 | 0 | 2 | 1 |
| CCE2170 | Project-based Learning 1 | 0 | 0 | 2 | 1 | CCE2270 | Project-based Learning 2 | 0 | 0 | 2 | 1 |
|  |  |  |  |  | 25 |  |  |  |  |  | 24 |
|  | Total Contact Hours (L+T+P) |  | 28 |  |  |  | Total Contact Hours (L+T+P) | 27 |  |  |  |

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| | Fifth Semester | L | T | P | C | Code | Sixth Semester | L | T | P | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Code** | **Subject Name** | **L** | **T** | **P** | **C** | **Code** | **Subject Name** | **L** | **T** | **P** | **C** |
| CCE3101 | Design and Analysis of Algorithms | 3 | 1 | 0 | 4 | CCE3201 | Next Generation Communication Systems | 3 | 1 | 0 | 4 |
| CCE3102 | Artificial Intelligence and Machine Learning | 3 | 1 | 0 | 4 | CCE32XX | Program Elective 4 | 3 | 0 | 0 | 3 |
| CCE312X | Flexi Core 3 | 3 | 1 | 0 | 4 | CCE32XX | Program Elective 5 | 3 | 0 | 0 | 3 |
| CCE31XX | Program Elective 2 | 3 | 0 | 0 | 3 | CCE32XX | Program Elective 6 | 3 | 0 | 0 | 3 |
| CCE31XX | Program Elective 3 | 3 | 0 | 0 | 3 | CCE00XX | Open Elective 3 | 3 | 0 | 0 | 3 |
| CCE00XX | Open Elective 2 | 3 | 0 | 0 | 3 | CCE3202 | Professional Practice | 1 | 0 | 0 | 1 |
| CCE3130 | Design and Analysis of Algorithms Lab | 0 | 0 | 2 | 1 | CCE3230 | Next Generation Communication Systems Lab | 0 | 0 | 2 | 1 |
| CCE3131 | Artificial Intelligence and Machine Learning Lab | 0 | 0 | 2 | 1 | CCE3231 | Competitive Programming | 0 | 0 | 2 | 1 |
| CCE3170 | Project-based Learning 3 | 0 | 0 | 2 | 1 | CCE3270 | Project-based Learning 4 | 0 | 0 | 6 | 3 |
| | | | | | 24 | | | | | | 22 |
| | **Total Contact Hours (L+T+P)** | **27** | | | | | **Total Contact Hours (L+T+P)** | **26** | | | |

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| Code | Seventh Semester Subject Name | L | T | P | C | Code | Eighth Semester Subject Name | L | T | P | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CCE41XX | Program Elective 7 | 3 | 0 | 0 | 3 | CCE4270 | Major Project | | | | 12 |
| CCE41XX | Program Elective 8 | 3 | 0 | 0 | 3 | | | | | | |
| CCE00XX | Open Elective 4 | 3 | 0 | 0 | 3 | | | | | | |
| CCE00XX | Open Elective 5 | 3 | 0 | 0 | 3 | | | | | | |
| CCE4170 | Internship (Industry or Research) | 0 | 0 | 2 | 1 | | | | | | |
| | | | | | 13 | | | | | | 12 |
| | **Total Contact Hours (L+T+P)** | | **14** | | | | **Total Contact Hours (L+T+P)** | | **12** | | |

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**Flexi Core**

| Flexi Core 1 | Flexi Core 2 | Flexi Core 3 |
|---|---|---|
| CCE2120: Object Oriented Programming using C++<br>CCE2121: Object Oriented Programming using Java | CCE2220: Software Engineering<br><br>CCE2221: Automata theory | CCE3120: Digital Image Processing and Computer Vision<br>CCE3121: Cloud and Edge Computing |
| **Program Electives** | | |
| **Sem IV – PE1** | **Sem V – PE2** | **Sem V – PE3** | **Sem VI – PE4** |
| CCE2240: Foundation of Data Science<br>CCE2241: Web Programming<br>CCE2242: Cryptography and Network Security | CCE3140: Soft Computing<br>CCE3141: Information System Security<br>CCE3142: Information System Auditing, Control, and Assurance | CCE3143: Advanced Internet Technologies<br>CCE3144: Deep Learning<br>CCE3145: Foundations of Blockchain Technology | CCE3240: Principles of Web Services<br>CCE3241: Big Data Analytics<br>CCE3242: Foundation of Digital Forensics |
| **Sem VI – PE5** | **Sem VI – PE6** | **Sem VII – PE7** | **Sem VII – PE8** |
| CCE3243: DevOps Fundamentals<br>CCE3244: Recommender Systems<br>CCE3245: Cloud Security | CCE3246: Full Stack Development<br>CCE3247: Image and Video Analytics<br>CCE3248: Network Vulnerabilities | CCE4140: Social Network Analysis<br>CCE4141: Human-Computer Interaction<br>CCE4142: Natural Language Processing | CCE4143: Mobile Application Development<br>CCE4144: Information Retrieval<br>CCE4145: Wireless Sensors & Adhoc Networks |

Open Electives

| Graded OE | Non-Graded OE |
|---|---|
| OE1 CCE0001: Introduction to Data Structures<br>OE2 CCE 0002: Software Testing<br>OE3 CCE0003: Introduction to Operating Systems | |