

1. Curriculum Structure: BSc in CSE

- a. **Duration of the program:** 4 years/8 Semesters
- b. **Total minimum credit requirement:** 140
- c. **Course Distribution**
 - i. **General Course**
 1. **Arts and Humanities:** 15 Credits
 2. **Social Sciences:** 15 Credits
 3. **ICT:** N/A
 4. **Basic science:** 36 Credits
 - ii. **Core Courses**
 1. **Major:** 55 Credits
 2. **Minor:** 0 Credit
 - iii. **Optional/Elective Courses-**
 1. **Major:** 9 Credits
 2. **Minor**
 - iv. **Capstone Course/Internship/Thesis/Projects:** 10 Credits

d. Course List

| BSc in CSE Curriculum | | | |
|------------------------------|---|---------------|------------|
| COURSE_NUM | COURSE_TITLE | CREDIT | 140 |
| Language Courses | | | 15 |
| ENG099 | Basic English (Waived for O/A Level Students) | 3 | |
| ENG101 | English Reading and Composition | 3 | |
| ENG105 | Advanced English Reading and Composition | 3 | |
| ENG215 | Professional English Communication | 3 | |
| BNG101 | Bangla Literature | 3 | |
| | | | |
| GED | All courses | | 15 |
| ACT235 | Financial and Managerial Accounting | 3 | |
| ECO235 | Engineering Economics | 3 | |
| HIS105 | Emergence of Bangladesh | 3 | |
| PHI301 | Engineering Ethics | 3 | |
| SOC103 | Sociology | 3 | |
| | | | |
| Science | | | 12 |
| CHE101 | General Chemistry | 3 | |
| CHE102 | General Chemistry Laboratory | 1 | |
| PHY107 | General Physics I | 3 | |
| PHY108 | General Physics I Laboratory | 1 | |
| PHY109 | General Physics II | 3 | |
| PHY110 | General Physics II Laboratory | 1 | |

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| Mathematics Courses | | | 24 |
| MAT099 | Pre-Math (for non-Math HSC students) | 0 | |
| MAT121 | Pre-Calculus | 3 | |
| MAT123 | Calculus I | 3 | |
| MAT125 | Calculus II | 3 | |
| MAT227 | Calculus III | 3 | |
| MAT229 | Calculus IV | 3 | |
| MAT331 | Engineering Mathematics | 3 | |
| MAT333 | Linear Algebra | 3 | |
| MAT335 | Probability and Statistics | 3 | |
| | | | |
| CSE Core Courses | | | 55 |
| | | | |
| EDR101 | Engineering Drawing | 1 | |
| CSE107 | Introduction to Computer Science | 3 | |
| CSE109 | Computer Programming | 3 | |
| CSE110 | Computer Programming Laboratory | 1 | |
| CSE205 | Object Oriented Programming | 3 | |
| CSE206 | Object Oriented Programming Laboratory | 1 | |
| CSE207 | Digital Logic Design | 3 | |
| CSE208 | Digital Logic Design Laboratory | 1 | |
| CSE209 | Discrete Mathematics | 3 | |
| CSE211 | Data Structures and Algorithms | 3 | |
| CSE212 | Data Structures and Algorithms Laboratory | 1 | |
| EEE201 | Electrical Circuits I | 3 | |
| EEE205 | Electronics I | 3 | |
| EEE206 | Electrical and Electronics Laboratory | 1 | |
| CSE307 | Computer Architecture | 3 | |
| CSE311 | Operating Systems | 3 | |
| CSE317 | Computer Networks and Security | 3 | |
| CSE318 | Computer Networks and Security Laboratory | 1 | |
| CSE321 | Microprocessors Based System Design | 3 | |
| CSE322 | Microprocessors Based System Design Laboratory | 1 | |
| CSE323 | Database Management Systems | 3 | |
| CSE324 | Database Management Systems Laboratory | 1 | |
| CSE401 | Software Engineering | 3 | |
| CSE402 | Software Engineering Laboratory | 1 | |
| CSE403 | Internet and Web Technologies | 3 | |
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| Capstone Design Project | | | 5 |
| CSE491 | Capstone Design Project I | 2 | |
| CSE492 | Capstone Design Project II | 3 | |
| | | | |
| Research and Practical Training | | | 5 |
| INT401 | Internship (minimum 8 weeks) | 1 | |
| CSE471 | Directed Research | 1 | |
| PME403 | Project Management and Entrepreneurship | 3 | |
| | | | |
| Electives | Any 2 courses | | 6 |
| I. SOFTWARE & INFORMATION SYSTEMS | | | |
| EEE311 | Numerical Methods | 3 | |
| CSE405 | Artificial Intelligence | 3 | |
| CSE407 | Compiler Design | 3 | |
| CSE411 | Theory of Automata and Formal Languages | 3 | |
| CSE413 | Advanced Computer Architecture | 3 | |
| CSE415 | Cryptography | 3 | |
| CSE417 | Computer Graphics | 3 | |
| CSE419 | Simulation and Modelling | 3 | |
| CSE421 | Multimedia Systems Design | 3 | |
| CSE423 | Digital Image Processing | 3 | |
| CSE425 | Pattern Recognition | 3 | |
| CSE427 | Real Time Computer Systems | 3 | |
| CSE429 | Management Information Systems | 3 | |
| CSE431 | Fuzzy Systems and Neural Networks | 3 | |
| CSE433 | Data Science | 3 | |
| CSE435 | Deep Learning | 3 | |
| CSE437 | Machine Learning | 3 | |
| CSE445 | Internet of Things (IoT) | 3 | |
| CSE447 | Natural Language Processing | 3 | |
| CSE455 | Design and Analysis of Algorithms | 3 | |
| CSE457 | Principles of Programming Languages | 3 | |
| | | | |
| II. HARDWARE SYSTEMS | | | |
| CSE439 | Embedded Systems | 3 | |
| CSE441 | Introduction to VLSI Systems | 3 | |
| CSE443 | Digital System Design | 3 | |
| CSE451 | Robotics | 3 | |
| III. COMPUTER COMMUNICATIONS AND NETWORKS | | | |
| EEE441 | Digital Signal Processing | 3 | |
| EEE443 | Telecommunication Engineering | 3 | |

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|-----------------------|---|---|----------|
| EEE445 | Wireless Communication | 3 | |
| EEE447 | Optical Fiber Communication | 3 | |
| EEE449 | Microwave Engineering | 3 | |
| EEE451 | Digital Communication | 3 | |
| EEE453 | Satellite Communication | 3 | |
| CSE453 | Data Communication | 3 | |
| CSE459 | Blockchain Systems and Communication Networks | 3 | |
| | | | |
| CSE48x | Special Topic in Computer Science and Engineering | 3 | |
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| Open Electives | (Approved by the ECE Department) | | 3 |
| | Any course from the CSE Electives or any other course not similar to a course in the CSE curriculum | 3 | |

2 Semester/Term/Year/Level wise Courses

| | Year: 1st | Semester: 1st | | |
|------------------|--------------------------------|----------------------|--------------|--|
| Course No | Course Title | Credits | Total | |
| ENG099 | Basic English | 3 | | |
| MAT121 | Pre-Calculus | 3 | | |
| BNG101 | Bangla Language and Literature | 3 | 16 | |
| HIS105 | Emergence of Bangladesh | 3 | | |
| CHE101 | General Chemistry | 3 | | |
| CHE102 | General Chemistry Laboratory | 1 | | |

| | Year: 1st | Semester: 2nd | | |
|------------------|----------------------------------|----------------------|--------------|--|
| Course No | Course Title | Credits | Total | |
| ENG101 | English Reading and Composition | 3 | | |
| MAT123 | Calculus I | 3 | | |
| CSE107 | Introduction to Computer Science | 3 | | |
| SOC103 | Sociology | 3 | 17 | |
| PHY107 | General Physics I | 3 | | |
| PHY108 | General Physics I Laboratory | 1 | | |
| EDR101 | Engineering Drawing | 1 | | |

Year: 2nd Semester: 1st

| Course No | Course Title | Credits | Total |
|------------------|--|----------------|--------------|
| ENG105 | Advanced English Reading and composition | 3 | |
| MAT125 | Calculus II | 3 | |
| CSE109 | Computer Programming | 3 | |
| CSE110 | Computer Programming Laboratory | 1 | |
| EEE201 | Electrical Circuits I | 3 | 20 |
| PHY109 | General Physics II | 3 | |
| PHY110 | General Physics II Laboratory | 1 | |
| ECO235 | Engineering Economics | 3 | |

Year: 2nd Semester: 2nd

| Course No | Course Title | Credits | Total |
|------------------|------------------------------------|----------------|--------------|
| ENG215 | Professional English Communication | 3 | |
| MAT227 | Calculus III | 3 | |
| EEE205 | Electronics I | 3 | |
| EEE206 | Electrical and Electronics Lab. | 1 | |
| CSE205 | Object Oriented Programming | 3 | |
| CSE206 | Object Oriented Programming Lab. | 1 | 21 |
| CSE207 | Digital Logic Design | 3 | |
| CSE208 | Digital Logic Design Lab. | 1 | |
| CSE209 | Discrete Mathematics | 3 | |

Year: 3rd Semester: 1st

| Course No | Course Title | Credits | Total |
|------------------|-------------------------------------|----------------|--------------|
| MAT229 | Calculus IV | 3 | |
| MAT335 | Probability and Statistics | 3 | |
| CSE211 | Data Structures and Algorithms | 3 | |
| CSE212 | Data Structures and Algorithms Lab. | 1 | |
| CSE307 | Computer Architecture | 3 | |
| CSE323 | Database Management Systems | 3 | 20 |
| CSE324 | Database Management Systems Lab. | 1 | |
| ACT235 | Financial and Managerial Accounting | 3 | |

Year: 3rd Semester: 2nd

| Course No | Course Title | Credits | Total |
|------------------|--|----------------|--------------|
| MAT331 | Engineering Mathematics | 3 | |
| MAT333 | Linear Algebra | 3 | |
| CSE321 | Microprocessor Based System Design | 3 | |
| CSE322 | Microprocessor Based System Design Lab | 1 | 20 |
| CSE317 | Computer Networks and Security | 3 | |
| CSE318 | Computer Networks and Security Lab | 1 | |
| CSE311 | Operating Systems | 3 | |
| PHI301 | Engineering Ethics | 3 | |

Year: 4th Semester: 1st

| Course No | Course Title | Credits | Total |
|------------------|---|----------------|--------------|
| CSE401 | Internet and Web Technologies | 3 | |
| CSE403 | Software Engineering | 3 | |
| CSE404 | Software Engineering Laboratory | 1 | |
| CSE4xx/EEE4xx | Elective Course 1 | 3 | |
| CSE4xx/EEE4xx | Elective Course 2 | 3 | 18 |
| CSE491 | Capstone Design Project I | 2 | |
| PME403 | Project Management and Entrepreneurship | 3 | |

Year: 4th Semester: 2nd

| Course No | Course Title | Credits | Total |
|------------------|------------------------------|----------------|--------------|
| XXXxxx | Open Elective | 3 | |
| CSE471 | Directed Research | 1 | |
| CSE492 | Capstone Design Project II | 3 | 8 |
| INT101 | Internship (minimum 8 weeks) | 1 | |