# B.Tech in Computer Science & Engineering – Software Engineering
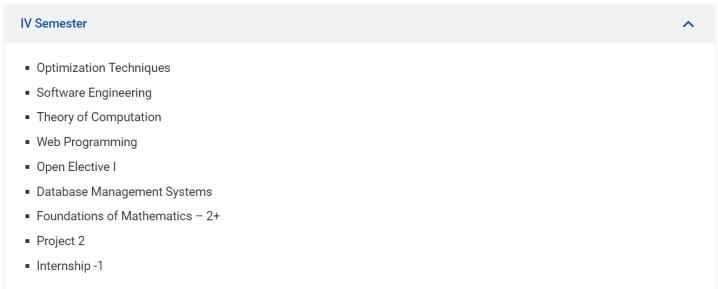
## I Semester ⌃

- Engineering Physics
- Fundamentals of Electrical and Electronics Engineering
- Communicative English
- Problem Solving Techniques
- Calculus and Matrix Algebra
- Applied Chemistry
- Mind Management and Human Values – 1
- PCL 1- Research and Entrepreneurship Project

## II Semester ⌃

- Data Structures
- Probability and Vector Space
- Mind Management and Human Values – 2
- Object Oriented Programming
- Digital Logic Design
- Workshop Practices
- Biology for Engineers
- Python Programming
- PCL 1- Research and Entrepreneurship Project

## III Semester

- Economics for Engineers
- Operating Systems
- Computer Organization and Architecture
- Foundations of Mathematics – 1+
- Discrete Mathematics and Graph Theory
- Design and Analysis of Algorithms
- Indian Constitution
- Project Centric Learning

## IV Semester

- Optimization Techniques
- Software Engineering
- Theory of Computation
- Web Programming
- Open Elective I
- Database Management Systems
- Foundations of Mathematics – 2+
- Project 2
- Internship -1

## V Semester

- Data Communication and Networks
- Software Testing
- Department Specific Elective – 1
- Research Methodology
- Agile Software Development
- Open Elective – 2
- Project Centric Learning
- Business Communication and Presentation Skills

## VI Semester

- Automation Testing
- Department Specific Elective – 2
- Software Architecture and Design
- Department Specific Elective – 3
- Open Elective – 3
- Environmental Studies
- Project – 3
- Internship – 2

## VII Semester

- Object Oriented Analysis and Design
- Department Specific Elective – 4
- DevOps
- Software Quality Management
- Department Specific Elective – 5
- Open Elective – 4
- Project – 4

## VIII Semester

- Software Project Management
- Department Specific Elective – 6
- Intellectual Property Rights
- IT Infrastructure Technology
- Research*
- Internship - 3

| Department Specific Electives | | | | | | |
|---|---|---|---|---|---|---|
| DSE Tracks | | Elective-I | Elective-II | Elective-III | Elective-IV | Elective-V | Elective-VI |
| | | 5th Semester | 6th Semester | 6th Semester | 7th Semester | 7th Semester | 8th Semester |
| Track - I | Cloud Developer | Cloud Computing and Virtualization | API Programming | Micro-services Architecture | Containers and Dockers | Cloud Web Services | IDE (Integrated Development Environment) on Cloud |
| Track - II | Full Stack Developer | Communication Protocols | Enterprise Java Programming | Frameworks for Full-stack development | Data Modelling with NoSQL Databases | UI/UX Design Principles | Repository Maintenance on Git |
| Track - III | Security in Software Engineering | Information and Network Security | Cyber Security | Secure Programming | Security Testing | Software Security | Ethical Hacking |

| Computer Science and Engineering (Open Elective Baskets) | | | |
|---|---|---|---|
| Sl. No | Finance and Accounting | Entrepreneurship and new venture creation | Marketing and Management |
| 1 | Finance for non-finance professionals | Entrepreneurship Theory and Practice | Marketing Management |
| 2 | Wealth Management | Launching and managing an enterprise | Consumer Behavior |
| 3 | Indian Financial System | Business Plan and Project Implementation | Brand Management |
| 4 | Financial Reporting | Sustainable Entrepreneurship | Product Management |