# Curriculum Structure of 2 year MCA Programme

# of

## Department of Computer Science & Engineering
## School of Engineering
## Tezpur University
## (2020-21)

# Curriculum Structure

## Time Duration:

**Minimum duration : 2 Years ( 4 semesters)**
**Maximum duration : 4 Years ( 8 semesters)**

## Credit Requirements:

**Minimum Credit : 80**
**Core Courses : 53**
**Elective Courses : 21**
**Open Electives : 06**

# COURSE STRUCTURE

## (Notional Semester-wise Distribution of Courses)

| Semester | Course | Category of Course | Mode of Delivery & Credit | | | Total Credit |
|---|---|---|---|---|---|---|
| | | | L | T | P | C |
| First | **THEORY** | | | | | |
| | CS405: Discrete Mathematics | Core | 2 | 1 | 0 | 3 |
| | CS412: Data structures | Core | 3 | 1 | 0 | 4 |
| | EF103: Communicative English | Audit | 2 | 0 | 1 | 0 |
| | Elective-1 | Elective | | | | 3 |
| | Elective-2 | Elective | | | | 3 |
| | Elective-3 | Elective | | | | 3 |
| | **Elective-1 - (<u>any one</u> of these courses)** | | | | | |
| | MS509: Probability & Statistics | Elective | 2 | 1 | 0 | 3 |
| | CS204: Mathematical Foundation | Elective | 3 | 0 | 0 | 3 |
| | **Elective-2 : (<u>any one</u> of these courses)** | | | | | |
| | CS422: Numerical Methods | Elective | 2 | 0 | 1 | 3 |
| | CS305: Internet Concepts and Web Technology | Elective | 2 | 1 | 0 | 3 |
| | **Elrctive-3 : (<u>any one</u> of these courses)** | | | | | |
| | CS421: Graph Theory | Elective | 3 | 0 | 0 | 3 |
| | CS424: Formal Language & Automata | Elective | 3 | 0 | 0 | 3 |
| | **Bridge Courses** | | | | | |
| | CS309: Computing fundamentals | Bridge* | 2 | 0 | 1 | 0 |
| | CS410: Computer organization | Bridge* | 2 | 1 | 0 | 0 |
| | *Bridge Courses are noncredit courses | | | | | |
| | **LABORATORY** | | | | | |
| | CS312: OO programming & Data Structures Lab. | Core | 0 | 0 | 2 | 2 |
| | | | | | **Total** | **18** |
| Second | **THEORY** | | | | | |
| | IC361: Accounting & Financial Management | Core | 2 | 1 | 0 | 3 |
| | CS413: Database Management Systems | Core | 3 | 0 | 0 | 3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | CS513: Software Engineering | Core | 3 | 0 | 0 | 3 |
| | Elective-4 | Elective | | | | 3 |
| | Elective-5 | Elective | | | | 3 |
| | **LABORATORIES** | | | | | |
| | CS414: Database Management Systems Lab. | Core | 0 | 0 | 2 | 2 |
| | CS518: Software Engineering Lab | Core | 0 | 0 | 1 | 1 |
| | | | | | **Total** | **18** |
| **Third** | **THEORY** | | | | | |
| | CS519: Computer Networks | Core | 3 | 1 | 0 | 4 |
| | CS516: Operating Systems | Core | 2 | 1 | 0 | 3 |
| | CS510: Minor Project | Core | 0 | 0 | 5 | 5 |
| | Elective -6 | Elective | | | | 3 |
| | Elective-7 | Elective | | | | 3 |
| | Open Elective-I | Open Elective | | | | 3 |
| | **LABORATORIES** | | | | | |
| | CS520: Networks Lab | Core | 0 | 1 | 1 | 2 |
| | CS517: Operating system Lab | Core | 0 | 1 | 1 | 2 |
| | | | | | **Total** | **25** |
| **Fourth** | CS515 Major Project | Core | | | | 16 |
| | Open Elective-2 | Open Elective | | | | 3 |
| | | | | | **Total** | **19** |

## List of Elective Courses

| Course Code | Title | Credit Structure | Total Credit |
|---|---|---|---|
| CS204 | Mathematical Foundation | 3-0-0 | 3 |
| CS305 | Internet Concepts and Web Technology | 2-1-0 | 3 |
| CS309 | Computing Fundamentals | 2-0-1 | 3 |
| IC361 | Accounting & Financial Management | 2-1-0 | 3 |
| CS410 | Computer Organization | 2-1-0 | 3 |
| CS421 | Graph Theory | 3-0-0 | 3 |
| CS422 | Numerical Methods | 3-0-1 | 4 |
| CS424 | Formal Language and Automata | 3-0-0 | 3 |
| CS425 | Database administration | 3-0-1 | 4 |
| IT504 | E-Commerce | 3-0-0 | 3 |
| IT509 | Data Mining & Data Warehousing | 3-0-1 | 4 |
| IT507 | Computer Security & Cryptography | 3-0-0 | 3 |
| MS509 | Probability & Statistics | 2-1-0 | 4 |
| CS522 | Computer Graphics | 3-0-1 | 4 |
| CS523 | Enterprise Resource Planning | 3-0-0 | 3 |
| CS524 | Theory of Computation | 3-0-0 | 3 |
| CS525 | Artificial Intelligence | 3-0-0 | 3 |
| CS541 | Mathematical Foundation for Computer Science | 3-1-0 | 4 |
| CS530 | Data Analytics and Visualization | 3-0-1 | 4 |
| CS531 | Object Oriented Programming & Design | 3-1-1 | 5 |
| CS533 | Computational Geometry | 3-0-0 | 3 |
| CS529 | Embedded Systems | 3-0-1 | 4 |
| CS601 | Design & Analysis of Algorithms | 3-0-0 | 3 |
| CS602 | Image Processing | 3-0-0 | 3 |
| CS606 | Computer Architecture and Parallel Processing | 3-0-0 | 3 |
| CS609 | Geographic Information Systems | 3-0-0 | 3 |
| CS610 | Bioinformatics | 3-0-0 | 3 |
| IT611 | Distributed Systems | 3-0-0 | 3 |
| CS616 | Machine Learning | 3-0-0 | 3 |
| CS621 | Mobile Computing | 4-0-0 | 4 |
| CS625 | Web Technology | 3-0-1 | 4 |