

Annexure-I

**Department of Computer Sciences & Engineering
School of Engineering
Tezpur University**

Curriculum Structure for MCA Programme with Bridge Courses (1 + 2 years duration) (2021)

Time Duration:

Minimum duration: 2 years (4 semesters)

: 3 Years with Bridge courses (6 semesters)

Maximum duration: 4 years (8 semesters)

: 5 years with Bridge courses (10 semesters)

Credit Requirements:

Minimum Credit requirement: 80

Bridge Courses: 0

Core Courses: 53

Electives: 21

Open Electives: 6

(All the core courses and Bridge courses must be locally offered by the University.)

Semester wise Course Distribution

Bridge Courses

(Only for students not having adequate CS/IT degree background)

Bridge Semester-I

		L T P
CO103 Introductory Computing	(Mandatory Non-credit)	CH: 2 1 0 CR: 0
CO104 Computing Lab	(Mandatory Non-credit)	CH: 0 0 4 CR: 0
CO202 Digital Logic Design	(Mandatory Non-credit)	CH: 3 0 2 CR: 0
CO209 Computing Workshop	(Mandatory Non-credit)	CH: 0 0 4 CR: 0
Total-		CH: 5 1 10 CR: 0

Bridge Semester-II

CO208 Object Oriented Programming	(Mandatory Non-credit)	CH: 3 0 2 CR: 0
CO214 Computer Architecture and Organization	(Mandatory Non-credit)	CH: 3 1 0 CR: 0
CO215 Computer Organization Lab	(Mandatory Non-credit)	CH: 0 0 2 CR: 0
CO218 Data Communication	(Mandatory Non-credit)	CH: 3 0 0 CR: 0
CS305 Internet Concepts and Web Technology	(Mandatory Non-credit)	CH: 2 1 0 CR: 0
Total-		CH: 11 2 4 CR: 0

Two-Year MCA Curriculum

Semester-I

EF103 Communicative English	(Mandatory Non-credit)	CH: 2 0 2 CR: 0
CS405 Discrete Mathematics	(Core)	CH: 2 1 0 CR: 3
CS412 Data Structures	(Core)	CH: 3 1 0 CR: 4
CS416 OO programming and data Structures Lab	(Core)	CH: 0 1 4 CR: 3
Elective-1	(Elective)	CH: 3 0 0 CR: 3
Elective-2	(Elective)	CH: 3 0 0 CR: 3
Elective-3	(Elective)	CH: 3 0 0 CR: 3
Total-		CH: 16 3 6 CR: 19

Semester-II

IC361 Accounting and Financial Management	(Core)	CH: 3 0 0 CR: 3
CS413 Database Management System	(Core)	CH: 3 0 0 CR: 3
CS414 Database Management System Lab	(Core)	CH: 0 0 4 CR: 2
CS417 Operating Systems	(Core)	CH: 2 1 0 CR: 3
CS418 Operating Systems Lab	(Core)	CH: 0 1 2 CR: 2
Elective-4	(Elective)	CH: 3 0 0 CR: 3
Elective-5	(Elective)	CH: 3 0 0 CR: 3
Open Elective-1	(Open Elective)	CH: 3 0 0 CR: 3
Total-		CH: 17 2 6 CR: 22

Semester-III

CS513 Software Engineering	(Core)	CH: 3 0 0 CR: 3
CS518 Software Engineering Lab	(Core)	CH: 0 0 2 CR: 1
CS519 Computer Networks	(Core)	CH: 3 1 0 CR: 4
CS520 Computer Networks Lab	(Core)	CH: 0 0 2 CR: 1
CS510 Minor Project	(Core)	CH: 0 0 10 CR: 5
Elective-6	(Elective)	CH: 3 0 0 CR: 3
Elective-7	(Elective)	CH: 3 0 0 CR: 3
Open Elective-2	(Open Elective)	CH: 3 0 0 CR: 3
Total-		CH: 15 1 14 CR: 23

Semester-IV

CS515 Major Project	(Core)	CH: 0 0 32 CR: 16
Total-		CH: 0 0 32 CR: 16

overall Total Credits: 80**Elective Courses:**

Course Code	Title	Credit Structure (L-T-P)	Total Credit
CS421	Graph Theory	3-0-0	3
CS422	Numerical Methods	3-0-1	4
CS424	Formal Language and Automata	3-0-0	3
CO423	Web Technology	3-0-1	4
CO504	Natural Language Processing	3-0-0	3
CO505	Advanced Database Management System	3-0-0	3
CO513	Fundamentals of Speech Processing	3-0-1	4
CO517	Virtual and Augmented Reality	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
IT517	Pattern Recognition	3-0-1	4
CS522	Computer Graphics	3-0-1	4
CS524	Theory of Computation	3-0-0	3
CS525	Artificial Intelligence	3-0-0	3
CS532	Compiler Design	3-0-1	4
CS541	Mathematical Foundation for Computer Science	3-1-0	4
CS530	Data Analytics and Visualization	3-0-1	4
CS538	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
CS621	Mobile Computing	4-0-0	4
CS638	Software Defined Networking & Network Function Virtualization	3-0-0	3

Elective courses from SWYAM MOOCs:

Course Code	Course Name	Duration (weeks)	Total Credit
CS650	Introduction to Machine Learning	8	2
CS651	Artificial Intelligence Search Methods for problem Solving	12	3
CS652	Privacy and Security in Online Social Media	8	2
CS653	Introduction to Internet of Things	12	3
CS654	Programming, data structures and algorithms using Python	8	2
CS655	Scalable Data Science	8	2
CS656	Introduction to R Software	8	2
CS657	Cloud Computing	8	2
CS658	Social Networks	12	3
CS659	An Introduction to Probability in Computing	4	1
CS660	Programming in Java	12	3
CS661	Data Science for Engineers	8	2
CS662	Machine Learning for Engineering and Science Applications	12	3
CS663	Randomized Algorithms	12	3
CS664	Parallel Algorithms	12	3
CS665	AI: Knowledge Representation and Reasoning	12	3
CS666	Embedded System Design with ARM	8	2
CS667	Introduction to Soft Computing	8	2
CS668	Blockchain Architecture and Use Cases	12	3
CS669	Introduction to Industry 4.0 and Industrial Internet of Things	12	3
CS670	Deep Learning	12	3
CS671	Reinforcement Learning	12	3
CS672	Ethical Hacking	12	3
CS673	Demystifying networking	4	1
CS674	Theory of Computation	8	2

CS675	Practical Machine Learning with Tensorflow	8	2
CS676	Human Computer Interactions	8	2
CS677	Introduction to Machine Learning	12	3
CS681	GPU Architectures and Programming	12	3
CS682	Multi-Core Computer Architecture - Storage and Interconnects	8	2
CS683	Data Analytics with Python	12	3
CS684	Cloud Computing and Distributed Systems	8	2
