

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

**Curriculum Structure for MCA
Programme with Bridge Courses
(2 years duration)**

Time Duration:

Minimum duration: 2 years (4 semesters)

Maximum duration: 4 years (8 semesters)

Credit Requirements:

Minimum Credit requirement: 82

Bridge Courses: 0

Core Courses: 58

Electives: 18

Open Electives: 6

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

Semester wise Course Distribution (Two-Year MCA Curriculum)

Semester-I			
CS411 Selected Topics in Computing	*(Mandatory) (Non-credit)	CH:400	CR: 0
CS405 Discrete Mathematics	(Core)	CH:210	CR: 3
CS409 Computer Organization & Architecture	(Core)	CH:312	CR: 5
CS412 Data Structures	(Core)	CH:310	CR: 4
CS416 OO programming and data Structures Lab	(Core)	CH:014	CR: 3
Elective-1	(Elective)	CH:300	CR: 3
Elective-2	(Elective)	CH:300	CR: 3
	Total Credits	CH:18-4-6	CR: 21
<i>* CS411 is mandatory for students from non-CS/IT background and optional for students from CS/IT background</i>			
Semester-II			
IC361 Accounting and Financial Management	(Core)	CH:300	CR: 3
CS413 Database Management System	(Core)	CH:300	CR: 3
CS414 Database Management System Lab	(Core)	CH:004	CR: 2
CS417 Operating Systems	(Core)	CH:210	CR: 3
CS418 Operating Systems Lab	(Core)	CH:012	CR: 2
Elective-3	(Elective)	CH:300	CR: 3
Elective-4	(Elective)	CH:300	CR: 3
Open Elective-1	(Open Elective)	CH:300	CR: 3
	Total Credits	CH:17-2-6	CR: 22
Semester-III			
EF103 Communicative English	#(Mandatory) Non-credit	CH:202	CR: 0
CS513 Software Engineering	(Core)	CH:300	CR: 3
CS518 Software Engineering Lab	(Core)	CH:002	CR: 1
CS519 Computer Networks	(Core)	CH:310	CR: 4
CS520 Computer Networks Lab	(Core)	CH:002	CR: 1
CS510 Minor Project	(Core)	CH:0010	CR:5
Elective-5	(Elective)	CH:300	CR: 3
Open Elective-2	(Open Elective)	CH:300	CR: 3
	Total Credits	CH:14-1-16	CR: 20
<i># EF103 is compulsory for all</i>			
Semester-IV			
CS515 Major Project	(Core)	CH:0032	CR: 16
Elective-6	*(Elective)	CH:300	CR: 3
	Total Credits	CH: 3-0-32	CR: 19
		Overall Total	CR:82
<i>* Elective-6 will be taken from MOOCS</i>			

Elective Courses:

Course Code	Title	Credit Structure	Total
		(L-T-P)	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	3-0-0	3
CS638	Software Defined Networking & Network Function Virtualization	3-0-0	3

Elective courses from SWYAM MOOCs:

Course Code	Course Name	Duration	Total
		(weeks)	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	Humane Computer Interactions	8	2
CS677	Introduction to Machine Learning	12	3
CS681	GPU Architecture & 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