DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
TEZPUR UNIVERSITY
Offered Courses (Autumn 2022)

22 July, 2022

The following are the courses being offered by the Department of Computer Science & Engineering, in the Autumn Semester, 2022 for Ph.D., M.Tech (IT), M. Tech (CSE), MCA and B. Tech. programmes. In addition, the students shall have to take Open Elective courses and SWAYAM MOOCs courses as applicable. **Number of MOOCs course taken by each student should not exceed two**.

MCA Bridge Semester-I (Only for students not having CS/IT degree background)							
Course Code	**Course Title**	**Credit Structure**			**Credit**	**Course Type**	**Course Instructor**
		L	**T**	**P**			
CO103	Introductory Computing	2	1	0	3	Audit	S. Patra
CO104	Computing Lab	0	0	2	2	Audit	HB
CO202	Digital Logic Design	3	0	1	4	Audit	HB
CO209	Computing Workshop	0	0	2	2	Audit	FIF
MCA 1st Semester							
EF103	Communicative English	2	0	1	3	Audit	Eng. Dept.
CS405	Discrete Mathematics	2	1	0	3	Core	S. K. Sinha
CS412	Data Structures	3	1	0	4	Core	A. Karmakar
CS416	OO Programming and Data Structures Lab	0	1	2	3	Core	L. B. Singh
XXxxx	Elective-1	3	0	0	3	E	
XXxxx	Elective-2	3	0	0	3	E	
XXxxx	Elective-3				3	E	
		Total			19		
	Choose the Electives from the following list.						
CS421	Graph Theory	3	0	0	3	E	S. Saharia
CS502	System Software	2	0	1	3	E	D. Boro
CO218	Data Communication	3	0	0	3	E	D. K. saikia
CS522	Computer Graphics	3	0	1	4	E	R. Sarmah
CS424	Formal Language and Automata	3	0	0	3	E	S. Kalita
CO422	Numerical Methods	3	0	1	4	E	FIF
MCA 3rd Semester							
CS513	Software Engineering	3	0	0	3	Core	J. Talukdar
CS518	Software Engineering Lab	0	0	1	1	Core	J. Talukdar
CS519	Computer Networks	3	1	0	4	Core	N. Medhi
CS520	Networks Lab	0	0	1	1	Core	N. Medhi
CS510	Minor Project	0	0	5	5	Core	

-	Elective-6	3	0	0	3	E	
-	Elective-7	3	0	0	3	E	
-	Open Elective-2	3	0	0	3	OE	
		Total			23		
	Choose two Electives from the following list and MOOCs list. Number of MOOCs courses taken should not exceed 2.						
CS522	Computer Graphics	3	0	1	4	E	R. Sarmah
CS602	Image Processing	3	0	0	3	E	B. Borah
CO504	Natural Language Processing	3	0	0	3	E	U. Sharma
CO513	Fundamentals of Speech Processing	3	0	1	4	E	S. Nath
CS525	Artificial Intelligence	3	0	0	3	E	S. Kalita
CO519	Internet of Things	3	0	0	3	E	D. Boro
CS538	Computational Geometry	3	0	0	3	E	A. Karmakar
M. Tech. (IT) 1st Semester							
CS531	Object Oriented Programming & Design	3	1	1	5	Core	S. I. Singh
CS601	Design and Analysis of Algorithms	3	0	0	3	Core	A. Karmakar
CS634	Selected Topics in Computer Networks	3	0	1	4	Core	N. Medhi
CS543	Advanced Programming Lab I	0	1	2	3	Core	S. Kalita
XXxxx	Elective 1				3	E	
XXxxx	Open Elective 1				3	OE	
		Total			21		
	Choose one Elective from the following list.						
IT510	Advanced Operating Systems	3	0	1	4	E	S. K. Deka
CS541	Mathematical Foundation for Computer Science	3	1	0	4	E	S. Patra
CS542	Advanced Algorithms and Data Structures	2	1	0	3	E	A. Karmakar
CS538	Computational Geometry	3	0	0	3	E	A. Karmakar
M. Tech. (IT) 3rd Semester							
IT604	Term Project I	0	0	8	8	Core	
XXxxx	Elective 5	3	0	0	3	E	
XXxxx	Elective 6	3	0	0	3	E	
		Total			14		
	Choose two Electives from the following list and MOOCs list.						
IT509	Data Mining & Data Warehousing	3	0	1	4	E	B. Nath
CO504	Natural Language Processing	3	0	0	3	E	U. Sharma
CO513	Fundamentals of Speech Processing	3	0	1	4	E	S. Nath
CS610	Bioinformatics	3	0	0	3	E	S. S. Satapathy

CO519	Internet of Things	3	0	0	3	E	D. Boro
CS538	Computational Geometry	3	0	0	3	E	A. Karmakar
M. Tech. (CSE) 1st Semester							
CS541	Mathematical Foundation for Computer Science	3	1	0	4	Core	S. Patra
CS542	Advanced Algorithms and Data Structures	2	1	0	3	Core	A. Karmakar
CS543	Advanced Programming Lab I	0	1	2	3	Core	S. Kalita
IT510	Advanced Operating Systems	3	0	1	4	Core	S. K. Deka
CS634	Selected Topics in Computer Networks	3	0	1	4	Core	N. Medhi
		Total			18		
M.Tech. (CSE) 3rd Semester							
CS640	Term Project I	0	0	8	8	Core	
XXxxx	Elective III	3	0	0	3/4	E	
XXxxx	Elective IV	3	0	0	3/4	E	
XXxxx	Open Elective II	3	0	0	3	OE	
		Total			17-19		
	Choose two Electives from the following list and MOOCs list.						
IT509	Data Mining & Data Warehousing	3	0	1	4	E	B. Borah
CS504	Natural Language Processing	3	0	0	3	E	U. Sharma
CS621	Mobile Computing	4	0	0	4	E	N. Sarma
CS610	Bioinformatics	3	0	0	3	E	S. S. Satapathy
CO519	Internet of Things	3	0	0	3	E	D. Boro
B.Tech. 3rd Semester							
MS205	Mathematics - III	3	0	0	3	Core	Maths dep.
CO202	Digital Logic Design	3	0	1	4	Core	S. Nath
CO209	Computing Workshop	0	0	2	2	Core	T. Pradhan
CO210	Data Structures	3	1	0	4	Core	B. Nath
CO211	Data Structures using Object Oriented Programming Lab	0	1	2	3	Core	S. I. Singh
BA201	Economics	3	0	0	3	Core	HSS dept.
EC205	Signals and Systems	2	1	0	3	Core	ECE dept
ES201	Environmental Science	2	0	1	0	Audit	ES dept.
		Total			22		
B.Tech. 5th Semester							
CO303	Computer Graphics	3	0	1	4	Core	R. Sarmah
CO309	Operating Systems	3	0	0	3	Core	S. K. Deka
CO310	Operating Systems Lab	0	0	1	1	Core	T. Pradhan
CO311	Software Engineering	3	0	0	3	Core	S. S. Satapathy
CO312	Database Systems	3	0	0	3	Core	S. Saharia

CO313	Database Systems Lab	0	1	1	2	Core	RCB
LW301	Indian Constitution	1	0	0	0	Audit	
XXxxx	Elective-I (PEC01)	3	0	0	3	E	
XXxxx	Open Elective-I (OEC01)	3	0	0	3	E	
		Total			22		
	Choose two Elective-1 from the following list and MOOCs list.						
CO318	Cryptography	3	0	0	3	E	N. Sarma
CO434	Image Processing	3	0	0	3	E	B. Borah
B. Tech. 7th Semester							
CO401	Artificial Intelligence	3	0	0	3	Core	S. Kalita
CO402	Project II	0	0	0	4	Core	
CO404	Summer Internship /Industrial Training	0	0	0	0	Audit	
CT465	Essence of Traditional Indian Knowledge	1	0	0	0	Audit	
CO405	Comprehensive Written Exam	0	0	0	0	Audit	
XXxxx	HSS/Management Elective	3	0	0	3	E	
XXxxx	Elective III	3	0	1	4	E	
XXxxx	Elective IV	3	0	0	3	E	
XXxxx	Open Elective III	3	0	0	3	OE	
		Total			20		
	Choose HSS/Management Elective from the following list						
BM322	Social Responsibility and professional ethics of engineering	3	0	0	3	E	BA dept.
	Choose Elective III and Elective IV from the following lists and MOOCs list. Number of MOOCs courses taken should not exceed 2.						
	Elective (4 Credits)						
IT509	Data Mining and Data Warehousing	3	0	1	4	E	B. Nath
CO513	Fundamentals of Speech Processing	3	0	1	4	E	S. Nath
IT510	Advanced Operating Systems	3	0	1	4	**E**	S. K. Deka
CS538	Computational Geometry	3	0	0	3	E	A. Karmakar
	Elective (3 Credits)						
CO434	Image Processing	3	0	0	3	E	B. Borah
CO504	Natural Language Processing	3	0	0	3	E	U. Sharma
CS610	Bioinformatics	3	0	0	3	E	S. Satapathy
CO519	Internet of Things	3	0	0	3	E	D. Boro
CO435	Mobile Computing	3	0	0	3	E	N. sarma
Ph.D.							
CS701	Algorithms and Complexity	4	0	0	4	Core	A. Karmakar
CS704	Doctoral Research Methodology	4	0	0	4	Core	US/DKB

RP799	Research and Publication Ethics	1	0	1	2	Core	Dilip Dutta
XXxxx	Research area based Elective I				3/4	E	
XXxxx	Research area based Elective II				2/3/4	E	
XXxxx	Research area based Elective III				2/3/4	E	
		Total			16-18		
	Choose Electives from the following list and MOOCs list. Number of MOOCs courses taken should not exceed 2.						
CS610	Bioinformatics	3	0	0	3	E	S. Satapathy
Open Electives (for Non-CSE, i.e., students from other Departments)							
CS537	Natural Language Processing	3	0	0	3	OE	U. Sharma
CS536	Computer Applications and Information Management	2	0	1	3	OE	L. B. Singh
CS610	Bioinformatics	3	0	0	3	OE	S. Satapathy
Core Courses (for 3rd Semester Integrated M.Sc. students)							
CS535	Introduction to Scientific Computing	2	0	1	3	Core	RCB

MOOCs Courses

Course Id	Course Name & Instructor(s)	UG/PG	Duration (in Week)	Total Credit
CS650	Introduction to Machine Learning – IIT KGP, Prof. Sudeshna Sarkar	UG/PG	8	2
CS651	Artificial Intelligence Search Methods for Problem Solving, Prof. Deepak Khemani	UG	12	3
CS653	Introduction to Internet of Things, Prof. Sudip Misra	UG	12	3
CS654	Programming, Data Structures and Algorithms Using Python, Prof. Madhavan Mukund	UG	8	2
CS655	Scalable Data Science Prof. A. Dasgupta and Prof. S. Bhattacharya, IIT KGP	PG	8	2
CS657	Cloud Computing, Prof. SoumyaKanti Ghosh	UG	8	2
CS658	Social Networks, Prof. Sudarshan Iyengar, IIT Ropar	UG	12	3
CS660	Programming in Java, Prof. Debasis Samanta, IITKGP	UG	12	3
CS661	Data Science for Engineers, Prof. Ragunathan Rengasamy and Prof. Shankar Narasimhan	UG/PG	8	2
CS666	Embedded System Design with ARM, Prof. Indranil Sengupta and Kamalika Dutta	UG	8	2
CS669	Introduction to Industry 4.0 and Industrial Internet of Things, Prof. Sudip Misra, IIT KGP	PG	12	3
CS671	Reinforcement Learning Prof. Balaraman Ravindran, IIT Madras	UG/PG	12	3
CS673	Demystifying networking, Prof. Sridhar Iyer, IITB	UG/PG	4	1
CS674	Theory of Computation, Prof. Raghunath Tewari	UG	8	2
CS677	Introduction to Machine Learning Prof. Balaraman Ravindran, IIT Madras	UG/PG	12	3
CS682	Multi-Core Computer Architecture - Storage and Interconnects, Prof. John Jose, IITG	UG/PG	8	2

(B. Borah)