DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
TEZPUR UNIVERSITY
Offered Courses (Autumn 2021)

The following are the courses being offered by the Department of Computer Science & Engineering, in the Autumn Semester, 2021 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**.

Course Code	Course Title	Credit Structure			Credit	Course Type	Course Instructor
MCA Bridge Semester-I **(Only for students not having CS/IT degree background)**							
		L	T	P			
CO103	Introductory Computing	2	1	0	0	M-NC	S. Patra
CO104	Computing Lab	0	0	2	0	M-NC	Guest Faculty4
CO202	Digital Logic Design	3	0	1	0	M-NC	Guest Faculty4
CO209	Computing Workshop	0	0	2	0	M-NC	Guest Faculty3
MCA 1st Semester							
EF103	Communicative English	2	0	1	0	M-NC	Eng. Dept.
CS405	Discrete Mathematics	2	1	0	3	Core	S. K. Sinha
CS412	Data Structures	3	1	0	4	Core	B. Nath
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	Guest Faculty3
MCA 3rd Semester							
CS516	Operating Systems	2	1	0	3	Core	D. K. saikia
CS517	Operating system Lab	0	1	1	2	Core	M. Devi
CS519	Computer Networks	3	1	0	4	Core	N. Medhi
CS520	Networks Lab	0	1	1	2	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	3	0	0	3	OE	
			Total		25		

	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

MCA 1st Semester (Old 3-year Programme)

CS404	Programming and Problem Solving (**Backlog course**)	3	1	1	5	Core	B. nath

MCA 5th Semester (3-year Programme)

CS514	Minor Project	0	0	8	8	Core	
	Elective	3	0	0	3	E	
	Elective	3	0	0	3	E	
	Elective	3	0	0	3	E	
	Elective/Open Elective (If three Open Electives not yet taken)	0	0	3	3	E/OE	
			Total		20		

	Choose 3 Electives from the following list and MOOCs list. Number of MOOCs courses taken should not exceed 2.						
CS602	Image Processing	3	0	0	3	E	B. Borah
IT509	Data Mining & Data Warehousing	3	0	1	4	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
CS538	Computational Geometry	3	0	0	3	E	A. Karmakar
CS621	Mobile Computing	3	0	0	3	E	N. sarma
CS525	Artificial Intelligence	3	0	0	3	E	S. Kalita
CO519	Internet of Things	3	0	0	3	E	D. Boro
CS610	Bioinformatics	3	0	0	3	E	S. S. satapathy

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	Guest Faculty3

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

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. Borah
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

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	Guest Faculty3
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	M. Devi
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	NC	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	M. Devi
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	NC	
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	NC	
CT465	Essence of Traditional Indian Knowledge	1	0	0	0	NC	
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. Borah
CO513	Fundamentals of Speech Processing	3	0	1	4	E	S. Nath
IT510	Advanced Operating Systems	3	0	1	4	Core	S. K. Deka
	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
CS538	Computational Geometry	3	0	0	3	E	A. Karmakar
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 (Not required if total credit already becomes 16)				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	NPTEL Course Id	Course Name & Instructor(s)	Duration (in Week)	Total Credit
CS650	noc21-cs85	Introduction to Machine Learning – IIT KGP, Prof. Sudeshna Sarkar	8	2
CS651	noc21-cs79	Artificial Intelligence Search Methods for Problem Solving, Prof. Deepak Khemani	12	3

CS653	noc21-cs63	Introduction to Internet of Things, Prof. Sudip Misra	12	3
CS654	noc21-cs67	Programming, Data Structures and Algorithms Using Python, Prof. Madhavan Mukund	8	2
CS655	noc21-cs59	Scalable Data Science Prof. A. Dasgupta and Prof. S. Bhattacharya, IIT KGP	8	2
CS656	noc21-ma75	Introduction To R Software, Prof. Shalabh, IITK	8	2
CS657	noc21-cs62	Cloud Computing, Prof. SoumyaKanti Ghosh	8	2
CS658	noc21-cs74	Social Networks, Prof. Sudarshan Iyengar, IIT Ropar	12	3
CS660	noc21-cs56	Programming in Java, Prof. Debasis Samanta, IITKGP	12	3
CS661	noc21-cs69	Data Science for Engineers, Prof. Ragunathan Rengasamy and Prof. Shankar Narasimhan	8	2
CS669	noc21-cs66	Introduction to Industry 4.0 and Industrial Internet of Things, Prof. Sudip Misra, IIT KGP	12	3
CS671	noc21-cs71	Reinforcement Learning Prof. Balaraman Ravindran, IIT Madras	12	3
CS673	noc21-cs94	Demystifying networking, Prof. Sridhar Iyer, IITB	4	1
CS674	noc21-cs83	Theory of Computation, Prof. Raghunath Tewari	8	2
CS677	noc21-cs70	Introduction to Machine Learning Prof. Balaraman Ravindran, IIT Madras	12	3
CS682	noc21-cs82	Multi-Core Computer Architecture - Storage and Interconnects	8	2

(B. Borah)
Head, CSE