

Tentative Master of Technology (M.Tech.) Data and Computational Sciences Program Curriculum

Cat.	Course Number	Course Title	L-T-P	Credits	Cat.	Course Number	Course Title	L-T-P	Credits
Semester 1					Semester 2				
C	MAxxx	Introduction to Data Science	1-0-0-0	1	C	MAxxx	Numerical Methods for PDE	1-0-0-0	1
C	CSxxx	Machine Learning 1	3-0-0-0	3	C	CSxxx	Machine Learning 2	3-0-0-0	3
C	MAxxx	Statistics 1	1-0-0-0	1	C	CSxxx	Software and Data Architecture	1-0-0-0	1
C	MAxxx	Statistics 2	2-0-0-0	2	C	MAxxx	Introduction to Cryptography	1-0-0-0	1
C	MAxxx	Matrix Computations	1-0-0-0	1	E	CSxxx	Computer Network and Security	1-0-0-0	1
C	MAxxx	Optimization	1-0-0-0	1	C	CSxxx	Data structures and practices	0-1-2-0	2
C	MAxxx	Modelling and Simulation	1-0-0-0	1	E	xxxxx	PE2	3-0-0-0	3
E	xxxxx	PE1	3-0-0-0	3	E	xxxxx	PE3	3-0-0-0	3
C	MAxxx	Data Analytics Lab	0-0-2-0	1					
C		Professional Ethics	0-0-0-0	0	C		Understanding of IP	0-0-0-0	0
Total				14	Total				15
Semester 3					Semester 4				
E	xxxxx	PE4	3-0-0-0	3	E	xxxxx	OE2	3-0-0-0	3
E	xxxxx	PE5	3-0-0-0	3					
E	xxxxx	OE1	3-0-0-0	3					
P	MA6xx	Project	0-0-0-5	5	P	MA6xx	Project	0-0-0-11	11
Total				14	Total				14
Grand total									57

Credit Distribution				
S.No.	Category	Course Category Title	Total Courses	Total Credits
1	C	Compulsory	5	17
2	C	Labs	2	03
3	PE	Program Electives	5	15
4	OE	Open Electives	2	6
5	P	Project	1	16
<i>Total</i>				57

List of Program Electives:

S.No.	Course Title	S.No.	Course Title
1	Visualization	15	Computational linguistics
2	Machine learning for big data	16	Computational economics
3	Human-machine interface	17	Digital Humanities
4	AR/VR	18	Cultural informatics
5	Security	19	Finance engineering
6	Computational electro magnetism	20	Computational finance
7	Computational optics	21	Computational Game Theory
8	Quantum Information System	22	Graph Theory and Complex Networks
9	Quantum Cryptography	23	Dynamical Systems
10	Quantum Computing	24	Reliability Theory
11	Bioinformatics	25	Stochastic Processes
12	Computational biology	26	Digital Image Analysis
13	Computational chemistry	27	Natural Language Processing and Text analytics
14	Computational material science	28	Robotics