

**MEHTA FAMILY SCHOOL OF DATA SCIENCE AND ARTIFICIAL INTELLIGENCE
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE**

Program Code : **XXX M.Tech. (Data Science)**
 Department : **Mehta Family School of Data Science and Artificial Intelligence**
 Year : **I**
 Model : **2**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
Semester-I (Autumn)									
1.	DAC-501	Machine Learning	PCC	4	3	1	0	3	0
2.	DAC-511	Mathematics for Data Science	PCC	4	3	1	0	3	0
3.	DAC-513	Data Structures and Algorithms	PCC	4	3	1	0	3	0
4.	DAC-515	Programming for Data Science	PCC	3	0	0	6	0	0
5.		Social Science Course	SSC	2	-	-	-	-	-
		Total		17					
Semester-II (Spring)									
1.		Program Elective-I	PEC	4	-	-	-	-	-
2.		Program Elective-II	PEC	4	-	-	-	-	-
3.		Program Elective-III	PEC	4	-	-	-	-	-
4.		Program Elective-IV	PEC	4	-	-	-	-	-
5.		Science, Technology, and Advanced Research-tools	STAR	3	-	-	-	-	-
6.	DAC-700	Seminar	SEM	2	-	-	-	-	-
		Total		21					

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 Year : **II**
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Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
Semester-I (Autumn)									
1.	DAC-691	Internship Social Activity	ISA	3	-	-	-	-	-
2.	DAC-701A	Thesis Stage-I	THESIS	10	-	-	-	-	-
		Total		13					
Semester-II (Spring)									
1.	DAC-701B	Thesis Stage-II	THESIS	14	-	-	-	-	-
		Total		14					

Summary				
Semester	1	2	3	4
Semester-wise Total Credits	17	21	13	14
Total Credits	65			

M.Tech. (Data Science)

Program Elective Courses

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	DAL-571	Big Data Analytics	PEC	4	3	1	0	3	0
2.	DAL-502	Deep Learning	PEC	4	3	1	0	3	0
3.	DAL-510	Ethics in Data Science	PEC	4	3	1	0	3	0
4.	MAL-557	Evolutionary Algorithms	PEC	4	3	1	0	3	0
5.	DAL-511	Intrusion Detection Systems	PEC	4	3	1	0	3	0
6.	MAL-515	Advanced Operations Research	PEC	4	3	1	0	3	0
7.	DAL-512	Reinforcement Learning	PEC	4	3	1	0	3	0
8.	DAL-513	Spreadsheet Modeling and Simulation	PEC	4	3	1	0	3	0
9.	MAL-556	Soft Computing	PEC	4	3	1	0	3	0
10.	MAL-544	Statistical Inference	PEC	4	3	1	0	3	0
11.	DAL-514	Time Series Data Analysis	PEC	4	3	1	0	3	0
12.	DAL-515	Principles of Database Systems	PEC	4	3	0	2	3	0
13.	DAL-516	Blockchain Technology	PEC	4	3	1	0	3	0
14.	DAL-568	ML and AI Applications in Earth Sciences	PEC	4	3	1	0	3	0
15.	DAL-576	Data Science in Bioinformatics	PEC	4	3	1	0	3	0
16.	DAL-517	Digital Image Processing	PEC	4	3	1	0	3	0
17.	DAL-518	Graphs Algorithms in Data Science	PEC	4	3	1	0	3	0
18.	DAL-579	Leveraging Data Science for Finance	PEC	4	3	1	0	3	0
19.	DAL-523	Multi-Objective and Multi-Criteria Decision Making	PEC	4	3	1	0	3	0
20.	MAL-555	Parallel Computing	PEC	4	3	1	0	3	0
21.	DAL-520	Pattern Recognition	PEC	4	3	1	0	3	0
22.	DAL-521	Recommender Systems	PEC	4	3	0	2	3	0
23.	DAL-583	Data-driven Analytics for Smart Transportation Systems	PEC	4	3	1	0	3	0
24.	DAL-584	Product and Process Optimization	PEC	4	3	1	0	3	0

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Program Elective Courses

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
25.	DAL-585	Natural Language Processing	PEC	4	3	1	0	3	0
26.	DAL-586	Generative AI	PEC	4	3	1	0	3	0
27.	DAL-587	Internet of Things	PEC	4	3	1	0	3	0