



मौलाना आज़ाद राष्ट्रीय प्रौद्योगिकी संस्थान, भोपाल-462003
MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY BHOPAL – 462003

B. Tech. and M. Tech. Dual Degree Scheme of Study
(Branch: Mathematics and Data Science)
Session 2025-26 Onwards

THIRD SEMESTER:

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
HS 2101	Fundamentals of Entrepreneurship	3	-	-	3
MC MD 2101	Discrete Mathematics	3	-	-	3
MC MD 2102	Modern Algebra	3	-	-	3
MC MD 2103	Probability & Statistics	3	-	-	3
MC MD 2104	Computer Organization & Architecture	3	-	-	3
MC MD 2105	Data Structures	3	-	2	4
MC MD 2106	Programming in C++	2	-	2	3
MC MD 2107	Professional Practices	-	2	-	2
	Minor-1	3	-	-	3*
Total Hours=26		20	2	4	24
Total Credits (Cumulative)					65
Additional Subject:-National Cadet Corps (NCC)					
NC 2151	National Cadet Corps III	1	5	1	7
Total Credits (Cumulative)					11

FOURTH SEMESTER:

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
MC MD 2201	Linear Algebra	3	-	-	3
MC MD 2202	Graph Theory and Algorithms	3	-	-	3
MC MD 2203	Statistical Data Analysis	3	-	-	3
MC MD 2204	Operating System	3	-	-	3
MC MD 2205	Analysis and Design of Algorithm	3	-	-	3
MC MD 2206	Programming in Python	3	-	2	4
MC MD 2207	Mathematical Analysis	3	-	-	3
MC MD 2208	Project Phase I	-	-	4	2
	Minor-2	3	-	-	3*
Total Hours=27		21	-	6	24
Total Credits (Cumulative)					89
Additional Subject: National Cadet Corps (NCC)					
NC 2251	National Cadet Corps IV	2	-	1	3
Total Credits (Cumulative)					14



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FIFTH SEMESTER:

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
MC MD 3101	Optimization Techniques	3	-	-	3
MC MD 3102	Numerical analysis	3	-	-	3
MC MD 3103	Multivariate Data Analysis	3	-	-	3
MC MD 3104	Data Base Management System	3	-	2	4
MC MD 3105	Machine Learning and Neural Networks	3	-	2	4
MC MD 3151-3157	Program Elective-1(A)	3	-	-	3
MC MD 3106	Project Phase II	-	-	4	2
MC MD 3107	Internship/Industrial Training	-	-	2	1
	Minor-3	3	-	-	3*
Total Hours=28		18	-	10	23
Total Credits (Cumulative)					112
Additional Subject:-National Cadet Corps (NCC)					
NC 3151	National Cadet Corps V	1	5	1	7
Total Credits (Cumulative)					21

SIXTH SEMESTER:

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
MC MD 3201	Advanced Optimization Techniques	3	-	-	3
MC MD 3202	Stochastic Process	3	-	-	3
MC MD 3203	Programming Through Java	3	-	-	3
MC MD 3204	Deep Learning	3	-	2	4
MC MD 3205	Data visualization and storytelling	3	-	-	3
MC MD 3206	Data Mining and Predictive Analysis	3	-	-	3
MC MD 3251-3259	Program Elective-2(A)	3	-	-	3
MC MD 3207	Programming Lab in Tableau	-	-	2	1
MC MD 3208	Project Phase III			4	2
	Minor-4	3	-	-	3*
Total Hours=29		21	-	8	25
Total Credits (Cumulative)					137
Additional Subject:-National Cadet Corps (NCC)					
NC 3251	National Cadet Corps VI	2	-	1	3
Total Credits (Cumulative)					24



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SEVENTH SEMESTER:

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
HS 4101	Engineering Economics and IPR	3	-	-	3
MC MD 4101	Generative Adversarial Network	3	-	-	3
MC MD 4151-4154	Programme Elective-3(A) or (NPTEL/SWAYAM Courses)	3	-	-	3
MC MD 4155-4159	Programme Elective-4(A) or (NPTEL/SWAYAM Courses)	3	-	-	3
	Open Elective-1(C)	3	-	-	3
MC MD 4102	Project Stage IV	-	-	4	2
MC MD 4103	Industrial/Field Training	-	-	2	1
	Minor-5	3	-	-	3*
Total Hours=21		15	-	6	18
Total Credits (Cumulative)					155

EIGHTH SEMESTER:

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
MC MD 4201	Major Project	-	-	16	8
MC MD 4202	Internship	-	-	2	1
MC MD 4203	General Proficiency	3	-	-	3
MC MD 4251-4253	Programme Elective-5(A) (NPTEL/SWAYAM Courses only)	3	-	-	3
MC MD 4254-4257	Programme Elective-6(A) (NPTEL/SWAYAM Courses only)	3	-	-	3
Total Hours=24		6	-	18	15
Total Credits (Cumulative)					170



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NINTH SEMESTER:

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
MC MD 5101	Numerical Linear Algebra	3	-	-	3
MC MD 5102	Big Data Analytics	3	-	-	3
MC MD 5152-5159	Program Elective-7(A)	3	-	-	3
MC MD 5261-5266	Program Elective-8(A)	3	-	-	3
MC MD 5103	Big Data Analytics Lab	-	-	2	1
MC MD 5104	Industrial Training/ Field Training				1
MC MD 5105	Dissertation Phase-I	-	-	20	10
Total Hours=34		12	0	22	24
Total Credits (Cumulative)					194

TENTH SEMESTER:

Course Code	Course Name	Scheme of Studies Periods per week			Credits
		L	T	P	
MC MD 5201	Dissertation Phase – II	-	-	40	20
Total Hours=40		-	-	40	20
Total Credits (Cumulative)					214



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**LIST OF PROGRAMME ELECTIVES (GROUP A)
For III year [1(A) & 2(A)]**

Elective 1 (A)

MC MD 3151	Real & Complex Analysis
MC MD 3152	Mathematical Modelling
MC MD 3153	Statistical Inference
MC MD 3154	Artificial Intelligence
MC MD 3155	Distributed Systems
MC MD 3156	Computer Networks
MC MD 3157	Theory of Computation

Elective 2(A)

MC MD 3251	Integral Transform and Integral Equations
MC MD 3252	Fluid Dynamics
MC MD 3253	Bayesian Statistics
MC MD 3254	Cryptography
MC MD 3255	Software Engineering
MC MD 3256	Web Technologies

For IV year [3(A), 4(A), 5(A) & 6(A)]

Elective 3(A) & 5(A)

MC MD 4151	Topology
MC MD 4152	Fractional Calculus
MC MD 4153	Measure Theory
MC MD 4154	Econometrics
MC MD 4251	Financial Mathematics
MC MD 4252	Coding Theory
MC MD 4253	Fuzzy Logic

Elective 4(A) & 6(A)

MC MD 4155	Block Chain
MC MD 4156	Architectural and Design Patterns
MC MD 4157	Image Processing
MC MD 4158	Mobile Computing
MC MD 4159	Compiler Design
MC MD 4254	Internet of Things
MC MD 4255	Cloud Computing
MC MD 4256	Information Retrieval
MC MD 4257	Quantum Computing



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For V year [7(A) & 8(A)]

Elective 7(A)

MC MD 5152	Functional Analysis
MC MD 5155	Wavelets: Theory and Applications
MC MD 5156	Calculus of Variations
MC MD 5157	Game Theory
MC MD 5158	Finite Element Methods
MC MD 5159	Stochastic Differential Equation

Elective 8(A)

MC MD 5261	Modeling Techniques in Predictive Data Analysis
MC MD 5262	Natural Language Processing
MC MD 5263	Multimedia & Virtual Reality
MC MD 5264	Enterprise Resource Planning
MC MD 5265	Computer Graphics
MC MD 5266	Next Generation Networks