Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat
Department of Mathematics
Five Years Integrated M.Sc. Mathematics

Full Curriculum in Accordance with NEP (2023-2024 onwards)

Sr. No.	Subject	Code		Scheme L-T-P	Credits (Min.)	Notional hours of Learning (Approx.)
	First Semester (1st year of MSc)					
1	Foundation Course in Mathematics-I	MA101		3-1-0	4	70
2	Calculus-I	MA103		3-1-0	4	70
3	Computer Programming using C/C++	MA131		3-0-2	4	85
4	English and Professional Communication	HS110		3-1-0	4	70
5	Fundamentals of Physics	PH113		3-0-2	4	85
				Total	**20**	**380**
6	Vocational Training / Professional Experience (Optional) (mandatory for exit)	MAV01 / MAP01		0-0-10	5	200 (20 x 10)
	Second Semester (1st year of MSc)					
1	Foundation Course in Mathematics-II	MA102		3-1-0	4	70
2	Calculus-II	MA104		3-1-0	4	70
3	Python Programming	MA132		3-0-2	4	85
4	Fundamentals of Physics-II	PH106		3-0-2	4	85
5	Chemistry	CY112		3-0-2	4	85
6	Indian Value System and Social Consciousness	HS120		2-0-0	2	35
				Total	**22**	**430**
7	Vocational Training / Professional Experience (Optional) (mandatory for exit)	MAV02 / MAP02		0-0-10	5	200 (20 x 10)
	Third Semester (2nd year of MSc)					
1	Element of Analysis	MA201		3-1-0	4	70
2	Analytical Geometry	MA203		3-1-0	4	70
3	Discrete Mathematical Structure	MA205		3-1-0	4	70
4	Data Structure	MA231		3-0-2	4	85
5	English and Professional Communication - II	HS201		3-1-0	4	70
				Total	**20**	**365**
6	Mathematical Software-I Vocational Training / Professional Experience (Optional) (mandatory for exit)	MAV03 / MAP03		0-0-10	5	200 (20 x 10)
	Fourth Semester (2nd year of MSc)					
1	Numerical Analysis	MA202		3-1-0	4	70
2	Linear Algebra	MA204		3-1-0	4	70
3	Elementary Number theory	MA232		3-1-0	4	70
4	Computational Life Science	MA233		3-1-0	4	70
5	Computer Networks	CS208		3-0-2	4	85

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			Total	**20**	**365**
6	Mathematical Software-II Vocational Training / Professional Experience (Optional) (mandatory for exit)	MAV04 / MAP04	0-0-10	5	200 (20 x 10)
	Fifth Semester (3rd year of MSc)				
1	Ordinary Differential Equations	MA301	3-1-0	4	70
2	Mechanics	MA303	3-1-0	4	70
3	Probability and Statistics-I	MA331	3-1-0	4	70
4	Analysis of Algorithms	MA332	3-1-0	4	70
5	Elective	MA3AA	3-X-X	3/4	55/70/85
			Total	**19-20**	**335-365**
6	Mini Project-I Preliminary Part-I Vocational Training / Professional Experience (Optional) (mandatory for exit)	MAV05 / MAP05	0-0-10	5	200 (20 x 10)
	Sixth Semester (3rd year of MSc)				
1	Complex Analysis	MA302	3-1-0	4	70
2	Continuum Mechanics	MA304	3-1-0	4	70
3	Metric Space	MA333	3-1-0	4	70
4	Fundamentals of Artificial Intelligence	CS300	3-0-2	4	85
5	Elective	MA3BB	3-X-X	3/4	55/70/85
			Total	**19-20**	**350-380**
6	Mini Project-I Preliminary Part-II Vocational Training / Professional Experience (Optional) (mandatory for exit)	MAV06 / MAP06	0-0-10	5	200 (20 x 10)
	Seventh Semester (4th year of MSc)				
1	Topology	MA401	3-1-0	4	70
2	Abstract Algebra	MA403	3-1-0	4	70
3	Fluid Dynamics	MA405	3-1-0	4	70
4	Optimization Techniques	MA431	3-1-0	4	70
5	Elective	MA4AA	3-X-X	3/4	55/70/85
			Total	**19-20**	**335-365**
6	Mini Project-II Preliminary Part-I Vocational Training / Professional Experience (Optional) (mandatory for exit)	MAV07 / MAP07	0-0-10	5	200 (20 X 10)
	Eighth Semester (4th year of MSc)				
1	Functional Analysis	MA402	3-1-0	4	70
2	Higher Transcendental Functions	MA404	3-1-0	4	70
3	Partial Differential Equations	MA406	3-1-0	4	70
4	Calculus of Variations & Integral Equations	MA432	3-1-0	4	70
5	Elective	MA4CC	3-X-X	3/4	55/70/85
			Total	**19-20**	**335-365**

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6	Mini Project-II Preliminary Part-II Vocational Training / Professional Experience (Optional) (mandatory for exit)	MAV08 / MAP08	0-0-10	5	200 (20 X 10)
	Ninth Semester (5th year of MSc)				
1	Measure Theory and Integration	MA501	3-1-0	4	70
2	Advanced Mathematical Modelling and Simulation	MA503	3-0-2	4	85
3	Probability and Statistics-II	MA531	3-1-0	4	70
4	Communication and Technical Writing Skill	HS501	3-1-0	4	70
5	Elective	MA5AA	3-X-X	3/4	55/70/85
			Total	**19-20**	**350-380**
	Tenth Semester (5th year of MSc)				
1	Dissertation	MAP10	0-0-40	20	800 (40 x 20)
			Total	**20**	**800**

Sr. No.	**Optional Core**	**Code**	**Scheme L-T-P**
1	Computer Programming using C/C++	MA131	3-0-2
2	Python Programming	MA132	3-0-2
3	Data Structure	MA231	3-0-2
4	Elementary Number theory	MA232	3-1-0
5	Computational Life Science	MA233	3-1-0
6	Probability and Statistics-I	MA331	3-1-0
7	Analysis of Algorithms	MA332	3-1-0
8	Metric Space	MA333	3-1-0
9	Optimization Techniques	MA431	3-1-0
10	Calculus of Variations & Integral Equations	MA432	3-1-0
11	Probability and Statistics-II	MA531	3-1-0

Sr. No.	**Elective**	**Code**	**Scheme L-T-P**
1	Advance Mathematical Methods-I	MA351	3-1-0
2	Stochastic Differential Equations	MA352	3-1-0
3	Mathematical Modelling	MA353	3-1-0
4	Integral and Wavelet Transform	MA354	3-1-0
5	Mathematical Finance	MA355	3-1-0
6	Fuzzy Set theory	MA356	3-1-0
7	Block Chain Technology	CS360	3-0-2

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8	Sobolev Space	MA451	3-1-0
9	Advance Mathematical Methods-II	MA452	3-1-0
10	Natural Language Processing	CS461	3-0-2
11	Data Analytics	MA453	3-0-2
12	Multi Objective Optimization	MA454	3-1-0
13	Evolutionary Algorithms	MA455	3-1-0
14	Advance Operations Research	MA551	3-1-0
15	Fluid Dynamics in Porous Media	MA552	3-1-0
16	Advanced Numerical Analysis	MA553	3-1-0
17	Linear Operator and Approximation Theory	MA554	3-1-0

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