5-yr Integrated M Sc – Mathematics
Curriculum (2018)

Course Code	Course Title	L T P	Cr	ES	Course Code	Course Title	L T P	Cr	ES
SEMESTER 1					**SEMESTER 2**				
18ENG101	Communicative English	2 0 2	3	A	18ENG121	Professional Communication	1 0 2	2	A
	Language Paper I	1 0 2	2	B		Language Paper II	1 0 2	2	B
18MAT101	Calculus	3 1 0	4	G	18MAT122	Real Analysis	3 1 0	4	G
18MAT103	Discrete Structures	3 1 0	4	F	18MAT111	Groups and Rings	3 1 0	4	F
18CSA100	Problem Solving and Computer Programming	3 0 0	3	C	18CSA116	Advanced Computer Programming	3 0 0	3	D
18PHY101/ 18COM104	Physics / Introduction to Management and Finance	3 0 0	3	D	18CHY113/ 18COM116	Chemistry / Basics of Accountancy	3 0 0	3	C
18CSA180	Problem Solving and Computer Programming Lab.	0 0 2	1	L1	18CSA181	Advanced Computer Programming Lab.	0 0 2	1	L1
18PHY181/ 18CSA186	Physics / PC Software Lab.	0 0 2	1	L2	18CHY181/ 18COM181	Chemistry Lab. / Accounting Lab.	0 0 2	1	L2
18CUL101	Cultural Education I	2 0 0	2	E	18CUL111	Cultural Education II	2 0 0	2	E
	TOTAL		**23**			TOTAL		**22**	
SEMESTER 3					**SEMESTER 4**				
18MAT203	Rings, Vector Spaces and Fields	3 1 0	4	A	18MAT212	Linear Algebra	3 1 0	4	A
18MAT204	Real Analysis in Higher	3 1 0	4	B	18MAT202	Probability and Statistics	3 1 0	4	B
18MAT115	Vector Calculus	3 1 0	4	J	18MAT221	Numerical Methods	2 1 0	3	C
18MAT201	Differential Equations	3 1 0	4	H	18MAT214	Fourier Series and Integral Transforms	3 1 0	4	D
18MAT206	Statics	2 1 0	3	E	18MAT215	Dynamics	2 1 0	3	E
18ENV300	Environmental Science and Sustainability	3 0 0	3	D		Open Elective A*	3 0 0	3	J
18SSK201	Life Skills I	1 0 2	2	G	18MAT281	Numerical Methods Lab (MAT Lab)	0 0 2	1	L1
18AVP201	Amrita Values Programme I	1 0 0	1	F	18SSK211	Life Skills II	1 0 2	2	G
	TOTAL		**25**		18AVP211	Amrita Values Programme II	1 0 0	1	F
						TOTAL		**25**	
SEMESTER 5					**SEMESTER 6**				
18MAT306	Operations Research	3 1 0	4	A	18MAT311	Optimization Theory	3 1 0	4	A
18MAT307	Applied Statistics	3 1 0	4	B	18MAT312	Topology	3 1 0	4	B
18MAT302	Basic Graph Theory and Combinatorics	2 1 0	3	C	18MAT313	Special Functions	3 1 0	4	C
18MAT303	Complex Analysis	3 1 0	4	D	18MAT213	Formal Languages and Automata Theory	3 1 0	4	D
18MAT308	Number Theory	3 1 0	4	E	18MAT314	Calculus of Variations	3 1 0	4	E
18MAT381	Statistics Lab	0 0 2	1	L1	18MAT391	Seminar			P/F
18MAT390	Live-in-Lab.@ / Open Elective B*	3 0 0	3	J		TOTAL		**20**	
18SSK301	Life Skills III	1 0 2	2	G	18MAT399	Project (for Exit-option students)		6	P
						TOTAL		**26**	
	TOTAL		**25**			TOTAL (for Exit-option students)	**146**		
SEMESTER 7					**SEMESTER 8**				
18MAT502	Advanced Algebra	4 0 0	4	A	18MAT511	Advanced Complex Analysis	4 0 0	4	A
18MAT503	Advanced Real Analysis	4 0 0	4	B	18MAT512	Advanced Topology	4 0 0	4	A
18MAT504	Ordinary Differential Equations	4 0 0	4	C	18MAT513	Partial Differential Equations	4 0 0	4	B
18MAT505	Stochastic Process	4 0 0	4	C	18MAT514	Measure Theory	4 0 0	4	C
18MAT581	Mathematics Lab	0 0 2	1	L1	18MAT515	Numerical Analysis	3 0 0	3	E
	Elective I	3 0 0	3	E	18MAT582	Numerical Computations Lab	0 0 2	1	L1
	TOTAL		**20**			TOTAL		**20**	

SEMESTER 9						**SEMESTER 10**					
18MAT601	Advanced Graph Theory	4 0 0	4	A		18MAT611	Operator Theory	4 0 0	4	A	
18MAT602	Functional Analysis	4 0 0	4	B			Elective IV	3 0 0	3	E	
18MAT603	Basic Fluid Dynamics	4 0 0	4	C		18MAT696	Dissertation		10	P	
	Elective II	3 0 0	3	D							
	Elective III	3 0 0	3	E			TOTAL		**17**		
18MAT691	Seminar	0 0 2	1	F							
	TOTAL		**19**				**TOTAL**	**216**			

ELECTIVES (any one Stream)

	ALGEBRA STREAM					**ANALYSIS STREAM**				
18MAT631	Algebraic Geometry	3 0 0	3	D/E	18MAT641	Fixed Point Theory	3 0 0	3	D/E	
18MAT633	Algebraic Topology	3 0 0	3	D/E	18MAT642	Fractals	3 0 0	3	D/E	
18MAT634	Coding Theory	3 0 0	3	D/E	18MAT643	Harmonic Analysis	3 0 0	3	D/E	
18MAT635	Commutative Algebra	3 0 0	3	D/E	18MAT644	Nonlinear Partial Differential Equations	3 0 0	3	D/E	
18MAT636	Lie Algebra	3 0 0	3	D/E	18MAT645	Wavelet Analysis	3 0 0	3	D/E	
18MAT637	Theory of Manifolds	3 0 0	3	D/E	18MAT646	Mathematical Physics	3 0 0	3	D/E	
18MAT638	Linear Algebra and its Applications	3 0 0	3	D/E						

		STATISTICS STREAM						**FLUID MECHANICS STREAM**				
	18MAT651	Queuing Theory and Inventory Control Theory	3 0 0	3	D/E		18MAT661	Advance Boundary Layer Theory	3 0 0	3	D/E	
	18MAT653	Statistical Pattern Classifications	3 0 0	3	D/E		18MAT662	Computational Fluid Dynamics	3 0 0	3	D/E	
	18MAT654	Statistical Quality Control and Six Sigma Quality Analysis	3 0 0	3	D/E		18MAT663	Finite Element Methods	3 0 0	3	D/E	
	18MAT655	Theory of Sampling and Design of Experiments	3 0 0	3	D/E		18MAT664	Magneto-Hydro Dynamics	3 0 0	3	D/E	
	18MAT656	Time Series Analysis	3 0 0	3	D/E		18MAT665	Mathematical Foundations of Incompressible Fluid Flow	3 0 0	3	D/E	
	18MAT657	Statistical Techniques For Data Analytics	3 0 0	3	D/E							
		COMPUTER STREAM										
	18MAT671	Data Structures & Algorithms	3 0 0	3	D/E							
	18MAT672	Algorithms For Advanced Computing	3 0 0	3	D/E							
	18MAT673	Computer Aided Design of VLSI Circuits	3 0 0	3	D/E							
	18MAT674	Cryptography	3 0 0	3	D/E							
	18MAT675	Fuzzy Sets and its Applications	3 0 0	3	D/E							
	18MAT676	Introduction to Soft Computing	3 0 0	3	D/E							
	18MAT677	Object-Oriented Programming and Python	3 0 0	3	D/E							
LANGUAGES												
		Paper I						**Paper II**				
	18HIN101	Hindi I	1 0 2	2	B		18HIN111	Hindi II	1 0 2	2	B	
	18KAN101	Kannada I	1 0 2	2	B		18KAN111	Kannada II	1 0 2	2	B	
	18MAL101	Malayalam I	1 0 2	2	B		18MAL111	Malayalam II	1 0 2	2	B	
	18SAN101	Sanskrit I	1 0 2	2	B		18SAN111	Sanskrit II	1 0 2	2	B	

* **Two Open Elective** courses are to be taken by each student, one each at the **4th and the 5th** semesters, from the list of Open electives offered by the School.

@ Students undertaking and registering for a Live-in-Lab project, can be exempted from registering for an Open Elective course in the fifth semester.