

M.Sc. Mathematics Course Structure

Semester-wise Pattern for Students Admitted to M.Sc. Mathematics Programme

Year	First Semester			U	Second Semester			U
I	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F110	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
			17				20	
II	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	MATH	F212	Optimization	3	MGTS	F211	Principles of Management	3
							Humanities Electives	3(min)
	MATH	F213	Discrete Mathematics	3	MATH	F241	Mathematical Methods	3
	MATH	F214	Elementary Real Analysis	3	MATH	F242	Operations Research	3
				MATH	F243	Graphs & Networks	3	
				MATH	F244	Measure & Integration	3	
			18(min)				18(min)	
Summer BITS F221 Practice School – I (for PS Option Only)								
III			Open/Humanities Electives	3 to 6			Open/Humanities Electives	0 to 3
	MATH	F311	Introduction to Topology	3	MATH	F341	Introduction to Functional Analysis	3
	MATH	F313	Numerical Analysis	3	MATH	F342	Differential Geometry	3
	MATH	F312	Ordinary Differential Equations	3	MATH	F343	Partial Differential Equations	3
			Discipline Electives	6			Discipline Electives	9
			18 to 21				18 to 21	
IV			Open Electives	8 to 14	BITS	F412	Practice School-II	20
							or	or
					BITS	F421T	Thesis	16
						or	or	
						Thesis (9) and Electives (6 to 9)	15 to 18	
			8 to 14				15 to 20	

Discipline Core - 42 Units (14 Courses)

Discipline Electives - 15 Units (5 Courses)

Note: This is operative pattern for the students who are admitted from August 2011 onwards as approved by the Senate-appointed committee, subject to change if the situation warrants.

M.Sc. Mathematics with dual degree Course Structure
(Similar structure exists for dual degree B. E. in respectively Chemical Engineering, Civil Engineering, Electrical Engineering and Electronics, Mechanical Engineering, Electronics and Instrumentation, Manufacturing, etc.)

Semester-wise pattern for composite Dual Degree Programmes
(M.Sc. Mathematics with B.E. Computer Science)

Year	First Semester	U	Second Semester	U
I	Same as First degree Programme		Same as First degree Programme	
II	MATH F211 Mathematics III	3	ECON F211 Principles of Economics	3
	MATH F212 Optimization	3	or	or
	MATH F213 Discrete Mathematics	3	MGTS F211 Principles of Management	3
	MATH F214 Elementary Real Analysis	3	MATH F241 Mathematical Methods	3
	MATH F215 Algebra I	3	MATH F242 Operations Research	3
	Humanities Electives	3	MATH F243 Graphs & Networks	3
			MATH F244 Measure & Integration	3
			Humanities Electives	5
		18		20
Summer BITS F221 Practice School – I (for PS Option Only)				
III	MATH F311 Introduction to Topology	3	MATH F341 Introduction to Functional Analysis	3
	MATH F313 Numerical Analysis	3	MATH F342 Differential Geometry	3
	MATH F312 Ordinary Differential Equations	3	MATH F343 Partial Differential Equations	3
	CS F215 Digital Design	4	CS F241 Microprocessors & Interfacing	4
	CS F214 Logic in Computer Science Object Oriented	3	CS F212 Database Systems	4
	CS F213 Object Oriented Programming	4	CS F211 Data Structures & Algorithms	4
		20		21
IV	CS F351 Theory of Computation	3	CS F363 Compiler Construction	3
	CS F301 Principles of Programming Languages	3	CS F364 Design and Analysis of Algorithms	3
	CS F342 Computer Architecture	4	CS F303 Computer Networks	4
	CS F372 Operating Systems	2	First Discipline Electives	6
	First Discipline Electives	3	Second Discipline Electives	6
			Second Discipline Electives	6
		21		22
V	First Discipline Electives	6	BITS F412 Practice School - II	20
	BITS F423T Thesis	9		

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List of Discipline Core Courses

S.No.	Course No.	Course Title	L	P	U
1	MATH F212	Optimization	3	0	3
2	MATH F213	Discrete Mathematics	3	0	3
3	MATH F214	Elementary Real Analysis	3	0	3
4	MATH F215	Algebra-I	3	0	3
5	MATH F241	Mathematical Methods	3	0	3
6	MATH F242	Operations Research	3	0	3
7	MATH F243	Graphs and Networks	3	0	3
8	MATH F244	Measure & Integration	3	0	3
9	MATH F311	Introduction to Topology	3	0	3
10	MATH F312	Ordinary Differential Equations	3	0	3
11	MATH F313	Numerical Analysis	3	0	3
12	MATH F341	Introduction to Functional Analysis	3	0	3
13	MATH F342	Differential Geometry	3	0	3
14	MATH F343	Partial Differential Equations	3	0	3

List of Discipline Elective Courses

S.No.	Course No.	Course Title	L	P	U
1	BITS F343	Fuzzy Logic and Applications	3	0	3
2	BITS F463	Cryptography	3	0	3
3	CS F364	Design and Analysis of Algorithms	3	0	3
4	MATH F231	Number Theory	3	0	3
5	MATH F314	Algebra-II	3	0	3
6	MATH F353	Statistical Inference and Applications	3	0	3
7	MATH F354	Complex Analysis	3	0	3
8	MATH F420	Mathematical Modeling	3	0	4
9	MATH F421	Combinatorial Mathematics	3	0	3
10	MATH F422	Numerical Methodology for Partial Differential Equations	3	1	4
11	MATH F431	Distribution Theory	3	0	3
12	MATH F441	Discrete Mathematical Structures	3	0	3
13	MATH F444	Numerical Solutions of Ordinary Differential Equations	3	0	3
14	MATH F445	Mathematical Fluid Dynamics	3	0	3
15	MATH F456	Cosmology	3	0	3
16	MATH F471	Nonlinear Optimization	3	0	3
17	MATH F481	Commutative Algebra	3	0	3