

COURSE STRUCTURE AS PER NEP 2020
FYUP & Integrated programs Batch 2022 and 2023

Semester-I

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Major	MTL MD101	Differential Calculus	4-0-0	4
Minor	XXX MI XXX	Choose one from the pool of Courses from allied schools	4-0-0	4
Multidisciplinary	XXX MU XXX		3-0-0	3
Ability Enhancement Course	XXX AE XXX		2-0-0	3
Skill Enhancement course	XXX SE XXX		2-0-0/ 1-0-2	2
Value added course-1	XXX VA XXX		2-0-0	2
Value added course-2	XXX VA XXX		2-0-0	2
		Total Credits	20-0-0/ 19-0-2	20

Minor

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Minor	MTL MI101	Elements of Discrete Mathematics	4-0-0	4

Multidisciplinary Courses from Mathematics for other Departments/Disciplines:

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Multidisciplinary	MTL MU101	Fundamentals of Calculus and applications	4-0-0	3

Semester-II

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Major	MTL MD102	Integral Calculus	4-0-0	4
Minor	XXX MI XXX	Choose one from the pool of Courses from allied schools	4-0-0	4
Multidisciplinary	XXX MU XXX		4-0-0	3
Ability Enhancement Course	XXX AE XXX		2-0-0	3
Skill Enhancement course	XXX SE XXX		2-0-0/ 1-0-2	2
Value added course-3	XXX VA XXX		2-0-0	2
Value added course-4	XXX VA XXX		2-0-0	2
		Total Credits	20-0-0/ 19-0-2	20

Minor

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Minor	MTL MI102	Analytical Geometry of 3-D and Trigonometry	4-0-0	4

Multidisciplinary Courses from Mathematics for other Departments/Disciplines:

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Multidisciplinary	MTL MU102	Probability & Statistics with Applications	3-0-0	3

Semester-III

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Major	MTL MD201	Fundamentals of Algebra	4-0-0	4
Major	MTL MD203	Real Analysis-I	4-0-0	4
Minor/ DSE-1	MTL MI201	Computer Programming	3-0-0	3
	MTM MI201	Computer Programming Lab	0-0-2	1
Multidisciplinary	XXX MU XXX		4-0-0	3
Ability Enhancement Course	XXX AE XXX		2-0-0	3
Skill Enhancement course	XXX SE XXX		2-0-0/ 1-0-2	2
		Total Credits	20-0-0/ 19-0-2	20

Minor/ DSE-1			
Course Code	Course Name	L-T-P **	Credits
MTL MI201	Computer Programming	3-0-0	3
MTM MI201	Computer Programming Lab	0-0-2	1
MTL MI203	Theory of Reliability	4-0-0	4

Multidisciplinary Courses from Mathematics for other Departments/Disciplines:

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Multidisciplinary	MTL MU201	Discrete Structures with Applications	3-0-0	3

Semester-IV

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Major	MTL MD202	Real Analysis-II	4-0-0	4
Major	MTL MD204	Probability and Statistics	3-0-0	3
	MTM MD204	Probability and Statistics Lab	0-0-2	1
Major	MTL MD206	Vector Calculus	4-0-0	4
Major	MTL MD208	Fundamentals of Complex Variables	4-0-0	4
Minor/ DSE-2				4
		Total Credits	19-0-2	20

	Minor/ DSE-2		
Course Code	Course Name	L-T-P **	Credits
MTL MI202	Set Theory	4-0-0	4
MTL MI204	Information Theory	4-0-0	4
MTL MI206	Biomathematics	4-0-0	4

Semester-V

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Major	MTL MD301	Multivariable Calculus	4-0-0	4
Major	MTL MD303	Linear Algebra	4-0-0	4
Major	MTL MD305	Metric spaces	4-0-0	4
Minor/ DSE-3				4
IAPC	MTI PR301	Summer Internship		2
Skill Enhancement course	XXX SE XXX		2-0-0/ 1-0-2	2
		Total Credits		20

	Minor/ DSE-3		
Course Code	Course Name	L-T-P **	Credits
MTL MI301	Integral Transforms	4-0-0	4
MTL MI303	Decision Theory	4-0-0	4
MTL MI305	Econometrics	4-0-0	4

Semester-VI

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Major	MTL MD302	Ordinary Differential Equations	4-0-0	4
Major	MTL MD304	Number Theory & Cryptography	4-0-0	4
Major	MTL MD306	Coding Theory	4-0-0	4
Major	MTL MD308	Graph Theory	4-0-0	4
Minor/ DSE-4			4-0-0	4
		Total Credits	20-0-0	20

	Minor/ DSE-4		
Course Code	Course Name	L-T-P **	Credits
MTL MI302	Linear Programming and Game Theory	4-0-0	4
MTL MI304	Financial Mathematics	4-0-0	4

Semester-VII

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Major	MTL MD401	Abstract Algebra	4-0-0	4
Major	MTL MD403	Advanced Real Analysis	4-0-0	4
Major	MTL MD405	Partial Differential Equations	4-0-0	4

Major	MTL MD407	Basic Research Methodology for Beginners	4-0-0	4
Minor/ DSE-5			4-0-0	4
		Total Credits	20-0-0	20

	Minor/ DSE-5		
Course Code	Course Name	L-T-P **	Credits
MTL MI401	Advanced Calculus and Special Functions	4-0-0	4
MTL MI403	Numerical Methods	4-0-0	4

Semester-VIII

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Major	MTL MD402	Complex Analysis	4-0-0	4
Major	MTL MD404	Advanced Linear Algebra	4-0-0	4
Major	MTL MD406	Differential and Integral Equations	4-0-0	4
Major	MTL MD408	Algebraic number theory	4-0-0	4
Minor/ DSE-6			4-0-0	4
		Total Credits	20-0-0	20

OR

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Major	MTL MD402	Complex Analysis	4-0-0	4
Minor/ DSE-6				
Research Project/Dissertation	MTD PR402		12-0-0	12
		Total Credits	20-0-0	20

	Minor/ DSE-6		
Course Code	Course Name	L-T-P **	Credits

MTL MI402	Numerical Solution of Ordinary and Partial Differential Equations	4-0-0	4
MTL MI404	Commutative Algebra	4-0-0	4

Semester-IX

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Major	MTL MD501	Topology	4-0-0	4
Major	MTL MD503	Calculus of Variations and Mechanics	4-0-0	4
Minor/ DSE-7				4
Minor/ DSE-8				4
Research Project/Dissertation	MTD PR501		12-0-0	12
		Total Credits	28-0-0	28

	Minor/ DSE-7		
Course Code	Course Name	L-T-P **	Credits
MTL MI501	Optimization Techniques	4-0-0	4
MTL MI503	Sample Survey	4-0-0	4

	Minor/ DSE-8		
Course Code	Course Name	L-T-P **	Credits
MTL MI505	Advanced topics in Algebra	4-0-0	4
MTL MI507	Stochastic Process	4-0-0	4

Semester-X

Broad Category of Course	Course Code	Course Title	L-T-P	Credits
Major	MTL MD502	Differential Geometry	4-0-0	4

Major	MTL MD504	Functional Analysis	4-0-0	4
Minor/ DSE-9				4
Minor/ DSE-10				4
Research Project/Dissertation	MTD PR502		12-0-0	12
		Total Credits	28-0-0	28

	Minor/ DSE-9		
Course Code	Course Name	L-T-P **	Credits
MTL MI502	Modern Applied Algebra	4-0-0	4
MTL MI504	Fluid Mechanics	4-0-0	4
MTL MI512	Advanced Functional Analysis	4-0-0	4
	Minor/ DSE-10		
Course Code	Course Name	L-T-P **	Credits
MTL MI506	Measure Theory	4-0-0	4
MTL MI510	Queuing Theory	4-0-0	4
MTL MI508	Advanced Topics in Topology	4-0-0	4

LIST OF MINOR/ DSE COURSES:

	Minor/ DSE-I		
Course Code	Course Name	L-T-P **	Credits
MTL MI101	Elements of Discrete Mathematics	4-0-0	4
MTL MI102	Analytical Geometry of 3-D and Trigonometry	4-0-0	4
MTL MI201	Computer Programming	3-0-0	3
MTM MI201	Computer Programming Lab	0-0-2	1
MTL MI203	Theory of Reliability	4-0-0	4
	Minor/ DSE-2		
MTL MI202	Set Theory	4-0-0	4
MTL MI204	Information Theory	4-0-0	4

MTL MI206	Biomathematics	4-0-0	4
	Minor/ DSE-3		
MTL MI301	Integral Transforms	4-0-0	4
MTL MI303	Decision Theory	4-0-0	4
MTL MI305	Econometrics	4-0-0	4
	Minor/ DSE-4		
MTL MI302	Linear Programming and Game Theory	4-0-0	4
MTL MI304	Financial Mathematics	4-0-0	4
	Minor/ DSE-5		
MTL MI401	Advanced Calculus and Special Functions	4-0-0	4
MTL MI403	Numerical Methods	4-0-0	4
	Minor/ DSE-6		
MTL MI402	Numerical Solution of Ordinary and Partial Differential Equations	4-0-0	4
MTL MI404	Commutative Algebra	4-0-0	4
	Minor/ DSE-7		
MTL MI501	Optimization Techniques	4-0-0	4
MTL MI503	Sample Survey	4-0-0	4
	Minor/ DSE-8		
MTL MI505	Advanced topics in Algebra	4-0-0	4
MTL MI507	Stochastic Processes	4-0-0	4
	Minor/ DSE-9		

MTL MI502	Modern Applied Algebra	4-0-0	4
MTL MI504	Fluid Mechanics	4-0-0	4
MTL MI512	Advanced Functional Analysis	4-0-0	4
	Minor/ DSE-10		
MTL MI506	Measure Theory	4-0-0	4
MTL MI510	Queuing Theory	4-0-0	4
MTL MI508	Advanced Topics in Topology	4-0-0	4

List of MU courses offered by SoM

Course Code	Course Title	L-T-P **	Credits
MTL MU101	Fundamentals of Calculus and Applications	4-0-0	4
MTL MU102	Probability & Statistics with Applications	4-0-0	4
MTL MU201	Discrete Structures with Applications	4-0-0	4