Commencement of the new program (academic year 2023-24)
B. Tech. in Mathematics and Computing
Program offered by Department of Mathematics jointly with Department of Data Science and Computer Applications MIT Manipal

Year	Sub. Code	THIRD SEMESTER Subject Name	L	T	P	C	Sub. Code	FOURTH SEMESTER Subject Name	L	T	P	C
II	MAT ****	Computational Linear Algebra	3	1	0	4	MAT ****	Algebraic Structures	2	1	0	3
	MAT ****	Probability and Stochastic Process	3	1	0	4	DSE ****	Design & Analysis of Algorithms	3	0	0	3
	DSE ****	Data Structures	3	0	0	3	MAT ****	Real Analysis	3	1	0	4
	MAT ****	Elementary Number Theory	2	1	0	3	MAT ****	Mathematical Logic	3	0	0	3
	DSE ****	Advanced Programming	3	0	0	3	MAT ****	Vector Analysis and Complex Variables	2	1	0	3
	MAT ****	Discrete Mathematics	2	1	0	3	DSE ****	Machine Learning	3	0	0	3
	DSE ****	Advanced Programming Lab	0	0	3	1	DSE ****	Design & Analysis of Algorithms Lab	0	0	3	1
	DSE ****	Data Structures Lab	0	0	3	1	DSE ****	Machine Learning Lab	0	0	3	1
			16	4	6	22			18	3	6	21
	Total Contact Hours (L + T + P)				26		**Total Contact Hours (L + T + P)**				27	

Year	Sub. Code	FIFTH SEMESTER Subject Name	L	T	P	C	Sub. Code	SIXTH SEMESTER Subject Name	L	T	P	C
III	MAT ****	Multivariate Analysis	3	0	0	3	******	Program Elective–1/Minor Specialization	3	0	0	3
	DSE ****	Database Management Systems	3	0	0	3	******	Program Elective–2/Minor Specialization	3	0	0	3
	HUM ****	Engineering Economics & Financial Management	3	0	0	3	MAT ****	Time Series Analysis	3	1	0	4
	MAT ****	Artificial Intelligence	3	0	0	3	******	Open Elective – 2	3	0	0	3
	DSE ****	Software Engineering	3	1	0	4	HUM ****	Essentials of Management	3	0	0	3
	****	Open Elective –1 Creativity, Problem Solving and Innovation (MLC)	3	0	0	3	MAT ****	Advanced Numerical Methods	2	1	0	3
	DSE ****	Software Engineering Lab	0	0	3	1	MAT ****	Scientific Computing Lab	0	0	6	2
	DSE ****	Database Management Systems Lab	0	0	3	1						
			18	1	6	21			18	1	6	21
	Total Contact Hours (L + T + P)				25		**Total Contact Hours (L + T + P)**				25	

Year	SEVENTH SEMESTER						EIGHTH SEMESTER					
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C
IV	******	Program Elective – 3 / Minor Specialization	3	0	0	3	******	Industrial Training				1
	******	Program Elective – 4 / Minor Specialization	3	0	0	3	******	Project Work				12
	******	Program Elective – 5	3	0	0	3	******	Project Work (B Tech – honours)* (V - VIII semester)				20*
	******	Program Elective – 6	3	0	0	3	******	B Tech – honours Theory – 1* (V semester)				4*
	******	Program Elective - 7	3	0	0	3	******	B Tech – honours Theory – 2* (VI semester)				4*
	******	Open Elective – 3	3	0	0	3	******	B Tech – honours Theory – 3* (VII semester)				4*
	******	Mini Project (Minor specialization)***				8***						
			18	0	0	18/26***						13/33*
	Total Contact Hours (L + T + P)			18			Total Contact Hours (L + T + P)					

*Applicable to eligible students who opted for and successfully completed the B Tech – honours requirements

***Applicable to students who opted for minor specialization

Program Electives:

MAT **** Linear Optimization	MAT **** Fuzzy Logic and Neural Networks
MAT **** Non-Linear Optimization	MAT **** Theory of Computation
MAT **** Combinatorics and Design of Experiments	MAT **** Topology of Metric Spaces
MAT **** Game Theory and Statistical Decisions	MAT **** Mathematics for Finance
MAT **** Applied Graph Theory	MAT **** Big Data Analytics
MAT **** Matrix Theory	MAT **** Reliability Theory
MAT **** Advanced Algorithms and Deep Learning	MAT **** Functional Programming
MAT **** Algebraic Coding Theory	MAT **** Geometric Topology
	MAT **** Computational Fluid Dynamics

Minor Specializations (Tracks):

Title of the Track	Offered by the Department	Courses	Offered to the Programs
Applied Mathematics	Mathematics	MAT **** Linear Optimization MAT **** Non-Linear Optimization MAT **** Combinatorics and Design of Experiments MAT **** Game Theory and Statistical Decisions	Math. & Computing, Mech., IP, Aero, Auto, Civil, Chem., Bio-Tech, Bio-Medical, EEE, ECE, ICE.
Advanced Mathematics	Mathematics	MAT **** Applied Graph Theory MAT **** Matrix Theory MAT **** Advanced Algorithms and Deep Learning MAT **** Algebraic Coding Theory	Math. & Computing, CSE, ICT, DSE, ECE, EEE

Note: Students of B.Tech. in Mathematics and Computing can opt for suitable minor specialization(s) (listed below) offered by the departments: CSE, DSE, and Humanities.

Title of the Track	Offered by the Department	Courses
Information Management and Analytics	Computer Science and Engineering	CSE **** Advanced Database Systems CSE **** Big Data Analytics CSE **** Data Warehouse and Data Mining CSE **** Information Retrieval
Business Management	Humanities and Management	HUM **** Financial Management HUM **** Human Resource Management HUM **** Marketing Management HUM **** Operations and Systems Management
Finance & Security Analytics	Data Science and Computer Applications	DSE **** Finance & Accounting DSE **** Risk Analytics DSE **** Financial Market Analytics DSE **** Business & Economic Analytics
Health Care Analytics	Data Science and Computer Applications	DSE **** Health Informatics DSE **** Bioinformatics DSE **** Medical Image Processing DSE **** Biostatistics