B.Tech Mathematics and Computing Curriculum (2019)

Sem 1	Code	Credits	Sem 2	Code	Credits
Calculus I	MA 1110	1	Vector Calculus	MA 1130	1
Calculus II	MA 1220	1	Elementary Linear Algebra	MA 1140	1
Series of Functions	MA 1230	1	Differential Equations	MA 1150	1
Math Foundation	MA 1500	1	Discrete Structure-II	CS 1340	2
Introduction to Number Systems	MA 1510	1	Introduction to Data Structures	CS 1353	3
Discrete Structure-I	CS 1310	2	Basic Control Theory	EE 1210	1
Digital Fabrication	ID 1054	2	Digital Signal Processing	ID1370	1
Independent Project	ID 1035	1	Embedded Programming	ID 1360	1
Introduction to Programming	ID 1303	2	Free Elective	FE*	1
Applied Digital Logic Design	ID1330	1	Science Elective	PH/CY	2
Science Elective	PH/CY	1	Electives	LA/LC	1
Electives	LA/LC	1		**Total**	**15**
	Total	**15**			

Sem 3	Code	Credits	Sem 4	Code	Credits
Introduction to Probability*	MA 2110	1	Complex Variables	MA 2130	1
Transform Techniques	MA 2120	1	Introduction to Statistics**	MA 2140	1
Introduction to Metric Spaces	MA2150	1	Dept Elective - 4A	MA****	2
Linear Algebra	MA 4020	3	Dept Elective - 4B	MA****	1
Dept Electives - 3A	MA****	2	Introduction to Complexity Theory	CS 2420	1
Data Structures	CS 2233	3	Convex Optimization	MA2050	3
Computer Architecture	CS2323	2	Algorithms	CS 2443	3
Principles of Programming Languages I	CS 2400	1	Theory of Computation	CS 2410	2
Operating Systems I	CS 3510	1	Information Sciences	EE 2340	1
Random Processes	EE 2310	1	AI	ID 1050	1
Electives	LA/LC	1	Science Elective	PH/CY	1
	Total	**17**		**Total**	**17**

*A student can either choose Introduction to Probability MA 2110 (1 credit) and Dept Electives -3A (2 or 1+1 credit) or the Probability Theory MA4040 (3 credits) course.

**A student can either choose Introduction to Statistics MA 2140 (1 credit) and Dept Electives - 4A (2 or 1+1 credit) or the Applied Statistics MA4240 (3 credits) course.

Sem 5	Code	Credits	Sem 6	Code	Credits
Analysis of Functions of Single Variables	MA 4010	3	Multivariable Calculus	MA 4090	3
DBMS-I	CS 3550	1	Dept Electives-III	MA****	8
Computer Networks I	CS 3530	1	Free Elective	FE****	3
Free Elective	FE****	2	Professional Ethics	LA/LC	1
Numerical Analysis	MA 5060	3		**Total**	**15**
Algebra I - Groups and Rings	MA4070	3			
Dept Electives-II	MA****	3	Credited Research Project - I	MA3615	3
	Total	**16**			

Credited Research Projects: The Department of Mathematics offers the students of B.Tech (MnC) the following option:

(i) To undertake an accredited research project worth up to a maximum of 6 credits in lieu of equal course credits.

(ii) This can be undertaken during the 6th to 8th semesters and up to a maximum of 3 credits in any of the semesters.

Sem 7	Code	Credits		Sem 8	Code	Credits
Functional Analysis	MA 5020	3		Dept Electives-V	MA****	9
Dept Electives-IV	MA****	6		Elective	LA/LC	3
Free Elective	FE****	3		Free Elective	FE****	3
Elective	LA/LC	3			**Total**	**15**
	Total	**15**				
Credited Research Project - II	MA4715	3		Credited Research Project - III	MA4815	3
					Total	**125**