

B.Tech. in Mathematics and Scientific Computing (175-186 credits)

SEMESTER - 1	Sl no.	Course Code	Subject	Credits	L-T-P
	1.	EE101	Fundamentals of Electrical and Electronics	4	3-0-2
	2.	ES101	Engineering Physics	4	3-0-2
	3.	ES102	Engineering Mathematics	4	3-1-0
	4.	EE102	Engineering Design Principles	3	2-0-2
	5.	CS101	Principles of Computer Programming	4	3-0-2
	6.	HS101	Freshman Skills	2	2-0-0
	7.	HS102	Sports and Physical Education	2	0-1-2
	Total			23 credits	

SEMESTER - 2	Sl no.	Course code	Subject	Credits	L-T-P
	1.	EE103	Digital Electronics	4	3-0-2
	2.	ES103	Probability and Statistics	4	3-1-0
	3.	CS102	Data Structures	4	3-0-2
	4.	EE104	Hardware Workshop	3	2-0-2
	5.	IT103	Object Oriented Programming	4	3-0-2
	6.	HS103	Ecology and Environment Sciences	2	2-0-0
	7.	CS104	Mobile Application Technologies	2	0-1-2
	Total			23 credits	

*Summer Project or MOOC (Optional) of 2 credits

EXIT AFTER YEAR – 1

Certificate in Engineering Sciences (46 credits)

SEMESTER - 3	Sl no.	Course code	Subject	Credits	L-T-P
	1.	HS201	Indian Culture, Ethics and Moral Values	2	2-0-0
	2.	ES201	Discrete Structures	4	3-1-0
	3.	ES202	Differential Equations and Integral Transformations	3	3-0-0
	4.	ES203	Real and Functional Analysis	3	3-0-0
	5.	CS203	Design and Analysis of Algorithms	4	3-0-2
	6.	CS204	Database Systems	4	3-0-2
	7.	ES204	Complex Analysis	3	3-0-0
	Total			23 credits	

SEMESTER - 4	Sl no.	Course code	Subject	Credits	L-T-P
	1.	MS619	Entrepreneurship and Innovation	2	2-0-0
	2.	CS207	Operating Systems	4	3-0-2
	3.	CS210	Software Engineering	4	3-0-2
	4.	ES207	Computer Networks	4	3-0-2
	5.	ES206	Multivariate Data Analysis	4	3-0-2
	6.	ES205	Advanced Numerical Methods	4	3-0-2
	Total			22 credits	
	MOOC Course (Optional)*			2/3	

*Summer Project-1

EXIT AFTER YEAR – 2

Diploma in Mathematics & Scientific Computing (91-94 credits)

SEMESTER - 5	Sl no.	Course code	Subject	Credits	L-T-P
	1.	ES301	Fuzzy Sets and Applications	3	3-0-0
	2.	ES302	Trustworthy Artificial Intelligence	4	3-0-2
	3.	ES303	Vector Calculus	3	3-0-0
	4.	CS302	Computer Graphics	3	3-0-0
	5.	ES304	Software Reliability	3	3-0-0
	6.	ES0XX	Department Elective-1	3/4	
	7.	MS603	Business Economics	3	3-0-0
				Total	22-23 credits

SEMESTER - 6	Sl no.	Course code	Subject	Credits	L-T-P
	1.	ES305	Quantum Computing	3	3-0-0
	2.	ES306	Optimization Techniques	4	3-1-0
	3.	ES307	Statistical Inference	4	3-1-0
	4.	ES308	AI and Machine Learning	3	3-0-0
	5.		Multidisciplinary/Open Elective-1/MOOC	3/4	
	6.		Department Elective -3	3/4	
	7.	EN301	Art of Engineering Research	3	3-0-0
				Total	23-25 credits
				MOOC, NPTEL Course (Optional)	
				2	

Colloquium of 2 credits in summer semester (MOOC, NPTEL etc. in lieu of colloquium)

EXIT AFTER YEAR – 3

B.Sc. in Mathematics & Scientific Computing (136-144 credits)

SEMESTER - 7	Sl no.	Course code	Subject	Credits	L-T-P
	1.	ES401	Modelling and Simulation	4	3-0-2
	2.	ES402	Data Mining and Data warehousing	4	3-0-2
	3.	ES403	Advanced Graph Theory	3	3-0-0
	4.	ES404	Modern Cryptography	4	3-0-2
	5.		Multidisciplinary/Open Elective-2/MOOC	3/4	
	6.	ES0XX	Department Elective-4	3/4	
	7.	ES498	Colloquium (Based on industrial training)/MOOC	3	0-0-6
				Total	24-26 credits

SEMESTER - 8	Sl no.	Course code	Subject	Credits	L-T-P
	1.	ES499	BTech Project/Internship	12	0-0-24
	2.		Multidisciplinary/Open Elective- 3/MOOC	3/4	
			Total	15-16 credits	

FINAL EXIT AFTER YEAR – 4

B.Tech. in Mathematics & Scientific Computing (175-186 credits)

Minor in Mathematics and Scientific Computing (Total 22 credits required)

Sl no.	Course code	Subject	Credit	L-T-P
1.	ES205	Advanced Numerical Methods	4	3-0-2
2.	ES203	Real and Functional Analysis	3	3-0-0
3.	ES204	Multivariate Data Analysis	4	3-0-2
4.	ES301	Fuzzy Sets and Applications	3	3-0-0
5.	ES401	Modelling and Simulation	4	3-0-2
6.	ES307	Statistical Inference	4	3-1-0
		Total credits	22	

Electives in Mathematics & Scientific Computing

Sl.	Code	Name of the course	Credit	L-T-P
1.	ES001	Parallel Computing	4	3-0-2
2.	ES002	Computational Biology	3	3-0-0
3.	ES003	Stochastic Processes and Applications	4	3-1-0
4.	ES004	Topology and Differential Geometry	4	3-1-0
5.	ES005	Data Economics	3	3-0-0
6.	ES006	Intuitionistic Fuzzy Sets and Applications	4	3-1-0
7.	ES007	Financial Mathematics	3	3-0-0
8.	ES008	Digital Image Processing	4	3-0-2
9.	ES009	Big Data Analytics	4	3-0-2
10.	ES010	Wavelet Analysis	3	3-0-0
11.	ES011	Introduction to Game Theory	3	3-0-0
12.	ES012	Computer Vision	4	3-0-2
13.	ES013	Business Statistics and Industrial Applications	4	3-1-0
14.	ES014	Robotics	4	3-0-2
15.	ES015	Dynamical System	3	3-0-0
16.	ES016	Computational Linear Algebra	4	3-1-0
17.	ES017	Computational Fluid dynamics	3	3-0-0
18.	ES018	Approximation and Estimation theory	3	3-0-0
19.	ES019	Microprocessor and Interfacing	4	3-0-2
20.	ES020	Software Defined Systems	3	3-0-0
21.	ES021	Cyber-Physical Systems	3	3-0-0
22.	ES022	Cloud Computing Technologies	3	3-0-0
23.	ES023	Immersive Technologies: AR & VR Applications	4	3-0-2