

### 13. COURSES OF STUDY AND SCHEME OF ASSESSMENT M.Sc APPLIED MATHEMATICS

(2020 REGULATIONS)  
(Minimum Number of Credits to be earned: 85)

Course Code	Course Title	Hours / Week			Credits	Prerequisites	Maximum Marks			CAT
		L	T	P			CA	FE	Total	
<b>SEMESTER 1</b>										
20SA11	Contemporary Algebra	4	0	0	4		50	50	100	PC
20SA12	Real Analysis	4	0	0	4		50	50	100	PC
20SA13	Differential Equations	3	0	0	3		50	50	100	PC
20SA14	Probability, Stochastic Processes and Statistics	3	2	0	4		50	50	100	PC
20SA 15	Discrete Mathematics	3	0	0	3		50	50	100	PC
20SA16	Problem solving and C Programming	3	0	0	3		50	50	100	PC
20SA17	Professional Communication	0	0	2	1		100	-	100	HS
20SA18	C- Programming Lab	0	0	4	2		100	-	100	PC
<b>Total 28 Hrs</b>		<b>20</b>	<b>2</b>	<b>6</b>	<b>24</b>		<b>500</b>	<b>300</b>	<b>800</b>	
<b>SEMESTER 2</b>										
20SA21	Topology and Functional Analysis	3	0	0	3	20SA11, 20SA12, 20SA15	50	50	100	PC
20SA22	Complex Analysis	3	0	0	3	20SA11	50	50	100	PC
20SA23	Object Oriented Programming	3	0	0	3	20SA16	50	50	100	PC
20SA24	Data Structures	4	0	0	4	20SA15	50	50	100	PC
20SA25	Data Base Management System	3	0	0	3	20SA15	50	50	100	PC
20SA__	Professional Elective- I	3	2	0	4		50	50	100	PE
20SA26	Object Computing Lab	0	0	4	2		100	-	100	PC
20SA27	Data Structures Lab	0	0	4	2		100	-	100	PC
20SA28	Data Base Management System Lab	0	0	2	1		100	-	100	PC
<b>Total 31 Hrs</b>		<b>19</b>	<b>2</b>	<b>10</b>	<b>25</b>		<b>600</b>	<b>300</b>	<b>900</b>	
<b>SEMESTER 3</b>										
20SA31	Applied Graph Theory	3	0	0	3	20SA15.	50	50	100	PC
20SA32	Optimization Techniques	3	0	0	3	20SA11.	50	50	100	PC
20SA33	Number Theory and Cryptography	3	0	0	3	20SA11	50	50	100	PC
20SA34	Machine Learning	3	2	0	4	20SA11,20SA14, 20SA15	50	50	100	PC
20SA__	Professional Elective-II	3	2	0	4		50	50	100	PC
20SA__	Professional Elective III	3	2	0	4		50	50	100	PE
20SA35	Scientific Computing Lab	0	0	2	1	20SA11, 20SA13	100	-	100	PC
20SA36	Mini- Project & Seminar	-	-	4	2		100	-	100	EEC
<b>Total 30Hrs</b>		<b>18</b>	<b>6</b>	<b>6</b>	<b>24</b>		<b>500</b>	<b>300</b>	<b>800</b>	
<b>SEMESTER 4</b>										
20SA40	Project Work	-	-	<b>24</b>	12		50	50	100	EEC
<b>Total 24 Hrs</b>		<b>-</b>	<b>-</b>	<b>24</b>	<b>12</b>		<b>50</b>	<b>50</b>	<b>100</b>	

PROFESSIONAL ELECTIVE THEORY COURSES (Three to be opted)										
Course Code	Course Title	Hours / Week			Credits	Prerequisites	Maximum Marks			CAT
		L	T	P			CA	FE	Total	
20SA61	Algebraic Topology	3	2	0	4	20SA11,20SA12, 20SA21	50	50	100	PE
20SA62	Artificial Intelligence	3	2	0	4	20SA14,20SA15, 20SA24	50	50	100	PE
20SA63	Big Data and Modern Database Systems	3	2	0	4	20SA24,20SA25	50	50	100	PE
20SA64	Calculus of Variations and Transforms	3	2	0	4	20SA12, 20SA13	50	50	100	PE
20SA65	Classical Mechanics	3	2	0	4	20SA12, 20SA13	50	50	100	PE
20SA66	Computational Finance	3	2	0	4	20SA14,20SA15	50	50	100	PE
20SA67	Data Mining	3	2	0	4	20SA14	50	50	100	PE
20SA68	Design and Analysis of Algorithms	3	2	0	4	20SA15, 20SA24	50	50	100	PE
20SA69	Digital Image Processing and Computer vision	3	2	0	4	20SA24, 20SA64	50	50	100	PE
20SA70	Epidemic Models	3	2	0	4	20SA13,20SA14	50	50	100	PE
20SA71	Game Theory	3	2	0	4	20SA14,20SA15	50	50	100	PE
20SA72	Geometry of Locally Finite Spaces	3	2	0	4	20SA11,20SA12, 20SA21	50	50	100	PE
20SA73	Information Retrieval and Web Search	3	2	0	4	20SA24 ,20SA25	50	50	100	PE
20SA74	Mathematical Modeling	3	2	0	4	20SA14,20SA15	50	50	100	PE
20SA75	Mobile Application and Development	3	2	0	4	20SA23	50	50	100	PE
20SA76	Operating Systems	3	2	0	4	20SA16,20SA24	50	50	100	PE
20SA77	Predictive Analytics	3	2	0	4	20SA14	50	50	100	PE
20SA78	Statistical Learning	3	2	0	4	20SA12,20SA14, 20SA21	50	50	100	PE
20SA79	Stochastic Differential Equations	3	2	0	4	20SA13,20SA14	50	50	100	PE
20SA80	Topological Data Analysis	3	2	0	4	20SA11, 20SA12, 20SA21	50	50	100	PE

**L- Lecture, T- Tutorial, P- Practical**

**CAT – Category; FC – Foundation Course; PC – Professional Core; PE - Professional Elective EEC – Employability Enhancement Course; HS – Humanities and Social Sciences**

**L-Lecture, T- Tutorial, P- Practical**