13. Courses of Study and Scheme of Assessment

ME BIOMETRICS AND CYBER SECURITY **(2021 REGULATIONS)**

(Minimum No. of credits to be earned: 71*)

Course Code	Course Title	Hours / Week			Credits	Maximum Marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
I SEMESTER									
21NB01	Mathematics for Cyber Security	3	1	0	4	50	50	100	PC
21NB02	Advanced Data Structures and Algorithm Analysis	2	2	0	4	50	50	100	PC
21NB03	Cyber Security Forensics and Investigations	3	0	0	3	50	50	100	PC
21NB04	Biometric Image Processing	3	0	0	3	50	50	100	PC
21NB05	Applied Cryptography	2	2	0	4	50	50	100	PC
21NB06	Research Methodology and IPR	2	0	0	2	50	50	100	RMC
21NB72	Audit Course – I	2	0	0	Grade	100	0	100	MC
21NB51	Cyber Security Forensics and Investigations Laboratory	0	0	4	2	50	50	100	PC
21NB52	Biometric Image Processing Laboratory	0	0	4	2	50	50	100	PC
Total 30hrs		**17**	**5**	**8**	**24**	**500**	**400**	**900**	
II SEMESTER									
21NB07	Malware Analysis	3	1	0	4	50	50	100	PC
21NB08	Secure Coding and Security Engineering	3	1	0	4	50	50	100	PC
21NB__	Professional Elective – I	3	0	0	3	50	50	100	PE
21NB__	Professional Elective – II	3	0	0	3	50	50	100	PE
21NB__	Professional Elective – III	3	0	0	3	50	50	100	PE
21NB82	Audit Course – II	2	0	0	Grade	100	0	100	MC
21NB61	Vulnerability Assessment and Penetration Testing Laboratory	0	0	4	2	50	50	100	PC
21NB62	Secure Coding and Security Engineering Laboratory	0	0	4	2	50	50	100	PC
21NB63	Industrial visit and Technical Seminar	0	0	4	2	50	50	100	EEC
Total 31hrs		**17**	**2**	**12**	**23**	**500**	**400**	**900**	
III SEMESTER									
21NB__	Professional Elective – IV	3	0	0	3	50	50	100	PE
21_____	Open Elective	3	0	0	3	50	50	100	OE
21NB71	Project Work - I	0	0	12	6	50	50	100	EEC
Total 18hrs		**6**	**0**	**12**	**12**	**150**	**150**	**300**	
IV SEMESTER									
21NB81	Project Work - II	0	0	24	12	50	50	100	EEC
Total 24hrs		**0**	**0**	**24**	**12**	**50**	**50**	**100**	
PROFESSIONAL ELECTIVE THEORY COURSES (Four to be opted)									
21NB21	Information System Security Management	3	0	0	3	50	50	100	PE
21NB22	Information Ethics and Cyber Laws	3	0	0	3	50	50	100	PE
21NB23	Block Chain and Crypto Currencies	3	0	0	3	50	50	100	PE
21NB24	Cyber Warfare	3	0	0	3	50	50	100	PE

21NB25	Mobile Security and Device Forensics	3	0	0	3	50	50	100	PE
21NB26	Data Analytics for Cyber Security	3	0	0	3	50	50	100	PE
21NB27	Advanced Persistent Threat	3	0	0	3	50	50	100	PE
21NB28	Pattern Recognition	3	0	0	3	50	50	100	PE
21NB29	Design and Analysis of Security Protocols	3	0	0	3	50	50	100	PE
21NB30	Cyber Security Governance, Risk Management and Compliance.	3	0	0	3	50	50	100	PE
21NB31	Human Computer Interaction	3	0	0	3	50	50	100	PE
21NB32	Network Security	3	0	0	3	50	50	100	PE
21NB33	Operating System Hardening	3	0	0	3	50	50	100	PE
21NB34	Cyber Security for IoT and Edge Computing	3	0	0	3	50	50	100	PE
21NB35	Cloud Security	3	0	0	3	50	50	100	PE
21NB36	Cyber Physical Systems	3	0	0	3	50	50	100	PE
21NB37	Data Visualization	3	0	0	3	50	50	100	PE
21NB38	Software Crash Analysis and Disaster Recovery	3	0	0	3	50	50	100	PE
21NB39	Data Privacy and Protection	3	0	0	3	50	50	100	PE
21NB40	E-Commerce Security	3	0	0	3	50	50	100	PE
21NB41	Applied Machine Learning	3	0	0	3	50	50	100	PE
21NB42	5G Communication Networks	3	0	0	3	50	50	100	PE
21NB43	Neural Networks and Deep Learning	3	0	0	3	50	50	100	PE
OPEN ELECTIVE THEORY COURSE									
21NB91	Computational Finance	3	0	0	3	50	50	100	OE
21NB92	Green Information Technology	3	0	0	3	50	50	100	OE

***** Indicated is the minimum number of credits to be earned by a student.

CAT – Category; PC – Professional Core; PE - Professional Elective; RMC - Research Methodology and IPR; EEC – Employability Enhancement Course; MC - Mandatory Course; Grade – Completed / Not Completed; OE – Open Elective.