

### 13. Courses of Study and Scheme of Assessment M E BIOMETRICS AND CYBER SECURITY

(2015 REGULATIONS)  
(Minimum No. of credits to be earned: 75)\*

Course Code	Course Title	Lectures/Week			Credits	Maximum Marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
<b>I SEMESTER</b>									
15NB01	Number Theory and Quantitative Techniques	2	2	-	3	50	50	100	FC
15NB02	Object Oriented Programming	2	2	-	3	50	50	100	FC
15NB03	Data Structures and Algorithms	3	-	-	3	50	50	100	PC
15NB04	Networking Technology	3	2	-	4	50	50	100	PC
15NB05	Biometric Technologies	3	-	-	3	50	50	100	PC
15NB51	Data Structures Laboratory	-	-	4	2	100	-	100	PC
15NB61	Industry Visit and Technical Seminar	-	-	2	1	100	-	100	EEC
	<b>Total 25 Hrs</b>	<b>13</b>	<b>6</b>	<b>6</b>	<b>19</b>	<b>450</b>	<b>250</b>	<b>700</b>	
<b>II SEMESTER</b>									
15NB06	Applied Cryptography	3	-	-	3	50	50	100	PC
15NB07	Biometric Image Processing	3	-	-	3	50	50	100	PC
15NB08	Cyber Security and Investigations	3	2	-	4	50	50	100	PC
15NB09	Digital Forensics	3	2	-	4	50	50	100	PC
15NB10	Pattern Recognition	3	-	-	3	50	50	100	PC
15NB__	Professional Elective -1	3	-	-	3	50	50	100	PE
15NB52	Biometric Image Processing Laboratory	-	-	4	2	100	-	100	PC
	<b>Total 26 Hrs</b>	<b>18</b>	<b>4</b>	<b>4</b>	<b>22</b>	<b>400</b>	<b>300</b>	<b>700</b>	
<b>III SEMESTER</b>									
15NB__	Professional Elective - 2	3	-	-	3	50	50	100	PE
15NB__	Professional Elective - 3	3	-	-	3	50	50	100	PE
15NB__	Professional Elective - 4	3	-	-	3	50	50	100	PE
15NB__	Professional Elective - 5	3	-	-	3	50	50	100	PE
15NB__	Professional Elective - 6	3	-	-	3	50	50	100	PE
15NB53	Security and Penetration Testing Laboratory	-	-	4	2	100	-	100	PC
15NB71	Project Work I	-	-	6	3	100	-	100	EEC
	<b>Total 25 Hrs</b>	<b>15</b>	<b>-</b>	<b>10</b>	<b>20</b>	<b>450</b>	<b>250</b>	<b>700</b>	
<b>IV SEMESTER</b>									
15NB72	Project Work II	-	-	28	14	50	50	100	EEC
<b>ELECTIVE THEORY COURSES (Six to be opted)</b>									
15NB21	Computer Vision	3	-	-	3	50	50	100	PE
15NB22	Data Mining	3	-	-	3	50	50	100	PE
15NB23	Information Ethics and Laws	3	-	-	3	50	50	100	PE
15NB24	Operating System and its Security	3	-	-	3	50	50	100	PE
15NB25	Speech Processing	3	-	-	3	50	50	100	PE
15NB26	Soft Computing	3	-	-	3	50	50	100	PE
15NB27	Information Theory and Coding	3	-	-	3	50	50	100	PE
15NB28	Security in Cloud Computing	3	-	-	3	50	50	100	PE
15NB29	Digital Watermarking and Steganography	3	-	-	3	50	50	100	PE
15NB30	Distributed Systems and Security	3	-	-	3	50	50	100	PE
15NB31	Database Design and its Security	3	-	-	3	50	50	100	PE
15NB32	Wireless Security	3	-	-	3	50	50	100	PE
15NB33	Security in Internet of Things	3	-	-	3	50	50	100	PE

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

**CAT – Category; FC – Foundation Course; PC – Professional Core; PE - Professional Elective  
EEC – Employability Enhancement Course**

### **SCIENCE ELECTIVES**

15ID01	Micro Electro Mechanical Systems (MEMS)
15ID02	Sensors for Engineering Applications
15ID03	Laser Processing of Materials
15ID04	Plasma Technology
15ID05	Nanosensor and its Applications
15ID06	Nano Magnetism and Spintronics
15ID07	Corrosion Science and Engineering
15ID08	Instrumental Methods of Chemical Analysis
15ID09	Polymer Science and Technology
15ID10	Nanomaterials and Nanotechnology
15ID11	Thin Film Technology

### **HUMANITIES AND LANGUAGES ONE CREDIT COURSES**

15OK01	Research Writing in Engineering Sciences
15OK02	Indian Ethos and Human Values
15OK03	Personality Development
15OK04	Financial Accounting and Cost Accounting