



**BRAINWARE UNIVERSITY**  
**SCHOOL OF ENGINEERING**  
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING-CYBER SECURITY & DATA SCIENCE**  
**Bachelor of Technology in Computer Science & Engineering – Cyber Security – 2025**

**Mandatory Induction Program (Duration: 3 weeks)**

- Physical activity
- Creative Arts
- Universal Human Values
- Literary
- Proficiency Modules
- Lectures by Eminent People
- Visits to local Areas
- Familiarization to Department/Branch & Innovations

**SEMESTER – I**

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BHS00001	English for Technical Communication	3	0	0	40	60	100	3	HSMC
2	BHS00004	Understanding Harmony and Ethical Human Conduct	2	0	0	40	60	100	2	HSMC
3	BBS00015	Semiconductor Physics	3	1	0	40	60	100	4	BSC
4	BBS00005	Calculus	3	0	0	40	60	100	3	BSC
5	BES00002	Basic Electrical and Electronics Engineering	3	1	0	40	60	100	4	ESC
6	BBS09022	Semiconductor Physics Lab	0	0	2	40	60	100	1	BSC
7	BES09008	Basic Electrical and Electronics Engineering Lab	0	0	2	40	60	100	1	ESC
8	BES09014	Engineering Graphics and Design Lab	0	0	3	40	60	100	1.5	ESC
9	BES00022	Foundations of Artificial Intelligence	1	0	0	20	30	50	1	ESC
10	BAU00004	Yoga and Sports*	2*	0	0	0	0	0	0	AUC*
<b>TOTAL</b>			<b>15+2*</b>	<b>2</b>	<b>7</b>	<b>340</b>	<b>510</b>	<b>850</b>	<b>20.5</b>	



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**SEMESTER – II**

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BHS07008	Effective Communication and Soft Skills	2	0	2	40	60	100	3	HSMC
2	BBS00010	Engineering Chemistry	3	1	0	40	60	100	4	BSC
3	BBS00002	Algebra and Vector Calculus	3	0	0	40	60	100	3	BSC
4	BES00006	Programming for Problem Solving	3	1	0	40	60	100	4	ESC
5	BES00018	Applied Digital Logic Design	3	1	0	40	60	100	4	ESC
6	BBS09020	Engineering Chemistry Lab	0	0	2	40	60	100	1	BSC
7	BES09012	Programming for Problem Solving Lab	0	0	2	40	60	100	1	ESC
8	BES09015	Workshop and Manufacturing Practices	0	0	3	40	60	100	1.5	ESC
9	BES09019	Practical Computing and AI Tools for Engineers	0	0	2	40	60	100	1	ESC
10	BAU00002	Environmental Sciences*	2*	0	0	0	0	0	0	AUC*
<b>TOTAL</b>			<b>14+2*</b>	<b>3</b>	<b>11</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>22.5</b>	



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**SEMESTER – III**

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1.	BBS00008	Discrete Mathematics	3	0	0	40	60	100	3	BSC
2.	BTY30101	Computer Organization and Architecture	3	0	0	40	60	100	3	PCC
3.	BTY30102	Database Management System	3	1	0	40	60	100	4	PCC
4.	BES00023	Applied Data Structure and Algorithm	3	1	0	40	60	100	4	ESC
5	BTY39104	Computer Organization and Architecture Lab	0	0	2	40	60	100	1	PCC
6.	BTY39105	Database Management System Lab	0	0	3	40	60	100	1.5	PCC
7.	BES09024	Applied Data Structure and Algorithm Lab	0	0	3	40	60	100	1.5	ESC
8.	BES09021	Python for Engineering Essentials Lab	0	0	2	40	60	100	1	ESC
9.	BTY38101	Mini Project-I	0	0	0	40	60	100	2	PROJ
10.	BAU00001	Constitution of India*	2*	0	0	0	0	0	0	AUC*
<b>TOTAL</b>			<b>12+2*</b>	<b>2</b>	<b>10</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>21</b>	
#MOOCs to earn additional credits for optional Honors/Minor Degree										



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**SEMESTER – IV**

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BHS00009	General Proficiency and Workplace Communication	2	0	0	40	60	100	2	HSMC
2	BBS00014	Probability and Statistics	3	0	0	40	60	100	3	BSC
3	BTY40105	Operating System	3	0	0	40	60	100	3	PCC
4	BTY40106	Design and Analysis of Algorithm	3	0	0	40	60	100	3	PCC
5	BTY40107	Object Oriented Programming	3	0	0	40	60	100	3	PCC
6	BTY40108	Web Technology	3	0	0	40	60	100	3	PCC
7	BTY49109	Operating System Lab	0	0	2	40	60	100	1	PCC
8	BTY49110	Web Technology Lab	0	0	3	40	60	100	1.5	PCC
9	BTY49111	Object Oriented Programming Lab	0	0	2	40	60	100	1	PCC
10	BTY48102	Mini Project-II	0	0	0	40	60	100	2	PROJ
<b>TOTAL</b>			<b>17</b>	<b>0</b>	<b>7</b>	<b>400</b>	<b>600</b>	<b>1000</b>	<b>22.5</b>	
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**SEMESTER – V**

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BHS00010	Design Thinking	1	0	0	20	30	50	1	HSMC
2	BTY50112	Network Fundamentals and Practical Applications	3	1	0	40	60	100	4	PCC
3	BTY50113	Vulnerability Analysis and Penetration Testing	3	0	0	40	60	100	3	PCC
4	BTY50114	Linux System Administration	3	0	0	40	60	100	3	PCC
5	BTY50201	Professional Elective Course – I	3	0	0	40	60	100	3	PEC
6	BTY59116	Network Fundamentals and Practical Applications Lab	0	0	3	40	60	100	1.5	PCC
7	BTY59117	Vulnerability Analysis and Penetration Testing Lab	0	0	3	40	60	100	1.5	PCC
8	BTY59118	Linux System Administration Lab	0	0	4	40	60	100	2	PCC
9	BTY58103	Mini Project-III	0	0	0	40	60	100	2	PROJ
<b>TOTAL</b>			<b>13</b>	<b>1</b>	<b>10</b>	<b>340</b>	<b>510</b>	<b>850</b>	<b>21.0</b>	
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**SEMESTER – VI**

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BTY60119	Web Application Penetration Testing	3	0	0	40	60	100	3	PCC
2	BTY60120	Security Operations Centre Management	3	0	0	40	60	100	3	PCC
3	BTY60121	Artificial Intelligence and Machine Learning	3	0	0	40	60	100	3	PCC
4	BTY69122	Scripting Languages Lab	0	0	2	40	60	100	1	PCC
5	BTY67202	Professional Elective Course – II	2	0	2	40	60	100	3	PEC
6	BTY60301	Open Elective Course – I	3	0	0	40	60	100	3	OEC
7	BTY69123	Web Application Penetration Testing Lab	0	0	3	40	60	100	1.5	PCC
8	BTY69124	Security Operations Centre Management Lab	0	0	3	40	60	100	1.5	PCC
9	BTY68104	Mini project-IV	0	0	0	40	60	100	2	PROJ
<b>TOTAL</b>			<b>14</b>	<b>0</b>	<b>10</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>21.0</b>	
#MOOCs to earn additional credits for optional Honors/Minor Degree										

**SEMESTER – VII**

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BTY70125	Network Penetration Testing	3	1	0	40	60	100	4	PCC
2	BTY70126	Active Directory Penetration Testing	3	1	0	40	60	100	4	PCC
3	BTY77203	Professional Elective Course - III	2	0	2	40	60	100	3	PEC
4	BTY70302	Open Elective Course – II	3	0	0	40	60	100	3	OEC
5	BTY70303	Open Elective Course – III	3	0	0	40	60	100	3	OEC
6	BTY79127	Network Penetration Testing Lab	0	0	2	40	60	100	1	PCC
7	BTY78105	Internship	0	0	0	40	60	100	2	PROJ
8	BTY78106	Minor Project	0	0	0	40	60	100	4	PROJ
<b>TOTAL</b>			<b>14</b>	<b>2</b>	<b>4</b>	<b>320</b>	<b>480</b>	<b>800</b>	<b>24.0</b>	
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**SEMESTER – VIII**

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BTY88107	Capstone Project	0	0	0	40	60	100	16	PROJ
2	BTY88108	Grand Viva – Voce	0	0	0	0	100	100	4	PROJ
<b>TOTAL</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>160</b>	<b>200</b>	<b>20</b>	

#MOOCs to earn additional credits for optional Honors/Minor Degree

**Total Credit: 172.5**

**Total Marks: 6400**

<b>PROFESSIONAL ELECTIVE COURSES [PEC]</b>								
Sl. No	Course Code	Course Name	Hours per week			Credits	Credit Hours	
			L	T	P			
<b>Cryptography</b>								
1	BTY50201	A. Steganography and Digital Watermarking	3	0	0	3	3	
2		B. Blockchain Technology	3	0	0	3	3	
3		C. Cryptography and Network Security	3	0	0	3	3	
4		D. MOOC*	3	0	0	3	3	
<b>Computer Forensics</b>								
1	BTY67202	A. Reverse Engineering	2	0	2	3	4	
2		B. Digital Forensic	2	0	2	3	4	
3		C. Malware Analysis	2	0	2	3	4	
<b>Threat Intelligence</b>								
1	BTY77203	A. Network Security Essentials	2	0	2	3	4	
2		B. Cloud Security	2	0	2	3	4	
3		C. Security Incident Handling	2	0	2	3	4	
<b>OPEN ELECTIVE COURSES [OEC]</b>								
Sl. No	Course Code	Course Name	Hours per week			Credits	Credit Hours	
			L	T	P			
<b>Software Engineering Management</b>								
1	BTY60301	A. Software Project Management	3	0	0	3	3	
2		B. Organisational Behaviour	3	0	0	3	3	
3		C. MOOC*	3	0	0	3	3	
<b>Technology Entrepreneurship and Legal Compliance</b>								
1	BTY70302	A. Entrepreneurship Basics	3	0	0	3	3	
2		B. Cyber Law and Ethics	3	0	0	3	3	
3		C. MOOC*	3	0	0	3	3	
<b>Engineering Economics and Financial Analysis</b>								



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1	BTY70303	A. Financial Management	3	0	0	3	3
2		B. Engineering Economics	3	0	0	3	3
3		C. MOOC*	3	0	0	3	3

*\*MOOC/Equivalent MOOC as approved by BoS (Evaluation as per Blended Learning and MOOC Policy)*

*#Additional 18-20 credits from MOOCs of SWAYAM platform are to be earned for the optional Honors/minor degree. Students are required to register for this after completion of their 1<sup>st</sup> year. Evaluation of MOOCs will be as per the guideline of the Blended Learning and MOOCs Policy.*