



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

**SEMESTER – III**

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1.	BBS00014	Probability and Statistics	3	0	0	40	60	100	3	BSC
2.	BES00020	Python for Engineering Essentials	3	1	0	40	60	100	4	ESC
3.	BTD30101	Computer Organization and Architecture	3	1	0	40	60	100	4	PCC
4.	BES00023	Applied Data Structure and Algorithm	3	1	0	40	60	100	4	ESC
5.	BES09021	Python for Engineering Essentials Lab	0	0	2	40	60	100	1	ESC
6.	BES09024	Applied Data Structure and Algorithm Lab	0	0	3	40	60	100	1.5	ESC
7.	BHS00009	General Proficiency and Workplace Communication	2	0	0	40	60	100	2	HSMC
8.	BTD38101	Mini Project I	0	0	0	40	60	100	2	PROJ
9.	BAU00001	Constitution of India*	2*	0	0	0	0	0	0	AUC*
<b>TOTAL</b>			<b>14+2*</b>	<b>3</b>	<b>5</b>	<b>320</b>	<b>480</b>	<b>800</b>	<b>21.5</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	BHS00010	Design Thinking	1	0	0	20	30	50	1	HSMC
2	BBS00008	Discrete Mathematics	3	0	0	40	60	100	3	BSC
3	BTD40105	Operating System	3	0	0	40	60	100	3	PCC
4	BTD40106	Design and Analysis of Algorithm	3	0	0	40	60	100	3	PCC
5	BTD40107	Object Oriented Programming	3	0	0	40	60	100	3	PCC
6	BTD40108	Formal Language and Automata Theory	3	0	0	40	60	100	3	PCC
7	BTD49109	Operating System Lab	0	0	3	40	60	100	1.5	PCC
8	BTD49110	Design and Analysis of Algorithm Lab	0	0	3	40	60	100	1.5	PCC
9	BTD49111	Object Oriented Programming Lab	0	0	3	40	60	100	1.5	PCC
10	BTD48102	Mini Project II	0	0	0	40	60	100	2	PROJ
<b>TOTAL</b>			<b>16</b>	<b>0</b>	<b>9</b>	<b>380</b>	<b>570</b>	<b>950</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	BTD50112	Computer Networks	3	1	0	40	60	100	4	PCC
2	BTD50113	Database Management System	3	1	0	40	60	100	4	PCC
3	BTD50114	Compiler Design	3	1	0	40	60	100	4	PCC
4	BTD50115	Blockchain Technology	2	0	0	40	60	100	2	PCC
5	BTD57201	Professional Elective Course – I	2	0	2	40	60	100	3	PEC
6	BTD59116	Computer Networks Lab	0	0	2	40	60	100	1	PCC
7	BTD59117	Database Management System Lab	0	0	2	40	60	100	1	PCC
8	BTD59118	Data Analytics and Reporting Lab	0	0	2	40	60	100	1	PCC
9.	BTD58103	Mini Project III	0	0	0	40	60	100	2	PROJ
<b>TOTAL</b>			<b>13</b>	<b>3</b>	<b>8</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>22</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	BTD60119	Machine Learning	3	1	0	40	60	100	4	PCC
2	BTD60120	Data Mining and Data Warehousing	3	0	0	40	60	100	3	PCC
3	BTD60121	Web Technology	3	1	0	40	60	100	4	PCC
4	BTD67202	Professional Elective Course – II	2	0	2	40	60	100	3	PEC
5	BTD60301	Open Elective Course – I	3	0	0	40	60	100	3	OEC
6	BTD69122	Machine Learning Lab	0	0	2	40	60	100	1	PCC
7	BTD69123	Web Technology Lab	0	0	3	40	60	100	1.5	PCC
8	BTD68104	Mini Project IV	0	0	0	40	60	100	2	PROJ
<b>TOTAL</b>			<b>14</b>	<b>2</b>	<b>7</b>	<b>320</b>	<b>480</b>	<b>800</b>	<b>21.5</b>	
<i>#MOOCs to earn additional credits for optional Honors/Minor Degree</i>										

**SEMESTER – VII**

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BTD70124	Software Engineering	3	0	0	40	60	100	3	PCC
2	BTD70125	Exploratory Data Analysis	3	1	0	40	60	100	4	PCC
3	BTD77203	Professional Elective Course - III	2	0	2	40	60	100	3	PEC
4	BTD70302	Open Elective Course – II	3	0	0	40	60	100	3	OEC
5	BTD70303	Open Elective Course – III	3	0	0	40	60	100	3	OEC
6	BTD79126	Software Engineering Tools and Techniques Lab	0	0	2	40	60	100	1	PCC
7	BTD78105	Internship	0	0	0	40	60	100	2	PROJ
8	BTD78106	Minor Project	0	0	0	40	60	100	3	PROJ
<b>TOTAL</b>			<b>14</b>	<b>1</b>	<b>4</b>	<b>320</b>	<b>480</b>	<b>800</b>	<b>22</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	BTD88107	Capstone Project	0	0	0	40	60	100	16	PROJ
2	BTD88108	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: 6200**

**PROFESSIONAL ELECTIVE COURSES [PEC]**

Course Code	Course Name	Hours per week			Credits	Credit Hours
		L	T	P		
<b>PROFESSIONAL ELECTIVE COURSES [PEC - I]</b>						
BTD57201	A. Artificial Intelligence	2	0	2	3	4
	B. Image Processing	2	0	2	3	4
	C. Cloud Computing	2	0	2	3	4
<b>PROFESSIONAL ELECTIVE COURSES [PEC - II]</b>						
BTD67202	A. Big Data and Analytics	2	0	2	3	4
	B. Data Handling and Visualization	2	0	2	3	4
	C. Business Intelligence and Analytics	2	0	2	3	4
<b>PROFESSIONAL ELECTIVE COURSES [PEC - III]</b>						
BTD77203	A. Data and Internet Security	2	0	2	3	4
	B. Quantum Computing	2	0	2	3	4
	C. Optimization for Data Science	2	0	2	3	4



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OPEN ELECTIVE COURSES [OEC]						
Course Code	Course Name	Hours per week			Credits	Credit Hours
		L	T	P		
	<b>OPEN ELECTIVE COURSES [OEC - I]</b>					
BTD60301	A. Software Project Management	3	0	0	3	3
	B. Organisational Behaviour	3	0	0	3	3
	C. MOOC*	3	0	0	3	3
	<b>OPEN ELECTIVE COURSES [OEC - II]</b>					
BTD70302	A. Entrepreneurship Basics	3	0	0	3	3
	B. Cyber Law and Ethics	3	0	0	3	3
	C. MOOC*	3	0	0	3	3
	<b>OPEN ELECTIVE COURSES [OEC - III]</b>					
BTD70303	A. Financial Management	3	0	0	3	3
	B. Engineering Economics	3	0	0	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.*