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
TOTAL			15+2*	2	7	340	510	850	20.5	

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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	50	0	50	0	AUC
TOTAL			**14+2***	**3**	**11**	**360+ 50***	**540**	**900+50***	**22.5**	

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	50	0	50	0	AUC
TOTAL			**14+2***	**3**	**5**	**320+ 50***	**480**	**800+50***	**21.5**	

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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING- CYBER SECURITY & DATA SCIENCE
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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
		TOTAL	**16**	**0**	**9**	**380**	**570**	**950**	**22.5**	

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

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	BBD59117	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
		TOTAL	**13**	**3**	**8**	**360**	**540**	**900**	**22**	

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

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
TOTAL			**14**	**2**	**7**	**320**	**480**	**800**	**21.5**	

#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	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
TOTAL			**14**	**1**	**4**	**320**	**480**	**800**	**22**	

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

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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
		TOTAL	**0**	**0**	**0**	**40**	**160**	**200**	**20**	
#MOOCs to earn additional credits for optional Honors/Minor Degree										

Total Credit: 172.5

Total Marks: 6200

Course Code	Course Name	Hours per week			Credits	Credit Hours
PROFESSIONAL ELECTIVE COURSES [PEC]						
		L	T	P		
	PROFESSIONAL ELECTIVE COURSES [PEC - I]					
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
	PROFESSIONAL ELECTIVE COURSES [PEC - II]					
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
	PROFESSIONAL ELECTIVE COURSES [PEC - III]					
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

Course Code	Course Name	Hours per week			Credits	Credit Hours
		L	T	P		
	OPEN ELECTIVE COURSES [OEC]					
	OPEN ELECTIVE COURSES [OEC- I]					
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
	OPEN ELECTIVE COURSES [OEC - II]					
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
	OPEN ELECTIVE COURSES [OEC - III]					
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 1st year. Evaluation of MOOCs will be as per the guideline of the Blended Learning and MOOCs Policy.