

**BRAINWARE UNIVERSITY**

398, Ramkrishnapur Road, Barasat, North 24 Parganas, Kolkata - 700 125

SCHOOL OF ENGINEERING**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING – CYBER SECURITY & DATA SCIENCE****Bachelor of Technology in Computer Science & Engineering -Data Science & Artificial Intelligence– 2026****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	

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
TOTAL			14+2*	3	11	360	540	900	22.5	
11	UGPC0001	Foundations of Professional Communication	0	0	0	100	0	100	0	GPC



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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	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	BTI30101	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	BTI38101	Mini Project I	0	0	0	40	60	100	2	PROJ
9	BAU00001	Constitution of India*	2	0	0	0	0	0	0	AUC
TOTAL			14+2*	3	5	320	480	800	21.5	

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

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	BTI40105	Operating System	3	0	0	40	60	100	3	PCC
4	BTI40106	Design and Analysis of Algorithm	3	0	0	40	60	100	3	PCC
5	BTI40107	Object Oriented Programming	3	0	0	40	60	100	3	PCC
6	BTI40108	Formal Language and Automata Theory	3	0	0	40	60	100	3	PCC
7	BTI49109	Operating System Lab	0	0	3	40	60	100	1.5	PCC
8	BTI49110	Design and Analysis of Algorithm Lab	0	0	3	40	60	100	1.5	PCC
9	BTI49111	Object Oriented Programming Lab	0	0	3	40	60	100	1.5	PCC
10	BTI48102	Mini Project II	0	0	0	40	60	100	2	PROJ
TOTAL			16	0	9	380	570	950	22.5	
11	UGPC0002	Workplace Communication and Professional Skills	0	0	0	100	0	100	0	GPC

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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	BTI50112	Computer Networks	3	1	0	40	60	100	4	PCC
2	BTI50113	Database Management System	3	1	0	40	60	100	4	PCC
3	BTI50114	Artificial Intelligence	3	1	0	40	60	100	4	PCC
4	BTI50115	Software Engineering	2	0	0	40	60	100	2	PCC
5	BTI57201	Professional Elective Course – I	2	0	2	40	60	100	3	PEC
6	BTI59116	Computer Networks Lab	0	0	2	40	60	100	1	PCC
7	BTI59117	Database Management System Lab	0	0	2	40	60	100	1	PCC
8	BTI59118	Artificial Intelligence Lab	0	0	2	40	60	100	1	PCC
9	BTI58103	Mini Project III	0	0	0	40	60	100	2	PROJ
TOTAL			13	3	8	360	540	900	22	
10	UGPC0003	Advanced Professional Communication and Employability Skills	0	0	0	100	0	100	0	GPC

#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	BTI60119	Machine Learning	3	1	0	40	60	100	4	PCC
2	BTI60120	Blockchain Technology	3	0	0	40	60	100	3	PCC
3	BTI60121	Web Technology	3	1	0	40	60	100	4	PCC
4	BTI67202	Professional Elective Course – II	2	0	2	40	60	100	3	PEC
5	BTI60301	Open Elective Course – I	3	0	0	40	60	100	3	OEC
6	BTI69122	Machine Learning Lab	0	0	2	40	60	100	1	PCC
7	BTI69123	Web Technology Lab	0	0	3	40	60	100	1.5	PCC
8	BTI68104	Mini Project IV	0	0	0	40	60	100	2	PROJ
TOTAL			14	2	7	320	480	800	21.5	

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SEMESTER – VII

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BTI70124	Deep Learning	3	0	0	40	60	100	3	PCC
2	BTI70125	Exploratory Data Analysis	3	1	0	40	60	100	4	PCC
3	BTI77203	Professional Elective Course - III	2	0	2	40	60	100	3	PEC
4	BTI70302	Open Elective Course – II	3	0	0	40	60	100	3	OEC
5	BTI70303	Open Elective Course – III	3	0	0	40	60	100	3	OEC
6	BTI79126	Deep Learning Lab	0	0	2	40	60	100	1	PCC
7	BTI78105	Internship	0	0	0	40	60	100	2	PROJ
8	BTI78106	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

SEMESTER – VIII

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BTI88107	Capstone Project	0	0	0	40	60	100	16	PROJ
2	BTI88108	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

PROFESSIONAL ELECTIVE COURSES [PEC]

Course Code	Course Name	Hours per week			Credits	Credit Hours
		L	T	P		
PROFESSIONAL ELECTIVE COURSES [PEC - I]						
BTI57201	A. Scientific Computing using Python	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]						
BTI67202	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]						
BTI77203	A. Data and Internet Security	2	0	2	3	4
	B. Information Extraction and Retrieval	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		
	OPEN ELECTIVE COURSES [OEC - I]					
BTI60301	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]					
BTI70302	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]					
BTI70303	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.