BRAINWARE UNIVERSITY
SCHOOL OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Bachelor of Technology in Computer Science & Engineering – Data Science - 2024

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	BAU00004	Yoga and Sports	2	0	0	0	0	0	0	AUC
TOTAL			**16**	**2**	**7**	**320**	**480**	**800**	**19.5**	

SEMESTER – II

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIE	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	BES07010	Data Structure and Algorithms	3	0	2	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	BAU00002	Environmental Sciences	2	0	0	0	0	0	0	AUC
TOTAL			**16**	**2**	**11**	**320**	**480**	**800**	**21.5**	

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	BES00007	Python Programming	3	1	0	40	60	100	4	ESC
3	BTD30101	Computer Organization and Architecture	3	1	0	40	60	100	4	PCC
4	BTD30102	Database Management Systems	3	1	0	40	60	100	4	PCC
5	BES09013	Python Programming Lab	0	0	2	40	60	100	1	ESC
6	BTD39103	Computer Organization and Architecture Lab	0	0	2	40	60	100	1	PCC
7	BTD39104	Database Management Systems Lab	0	0	2	40	60	100	1	PCC
8	BAU00001	Constitution of India	2	0	0	0	0	0	0	AUC
TOTAL			**14**	**3**	**6**	**280**	**420**	**700**	**18.0**	

SEMESTER – IV

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BHS00005	Design Thinking for Entrepreneurship and Startups	3	0	0	40	60	100	3	HSMC
2	BBS00008	Discrete Mathematics	3	0	0	40	60	100	3	BSC
3	BTD40105	Operating Systems	3	0	0	40	60	100	3	PCC
4	BTD40106	Design and Analysis of Algorithms	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 Systems Lab	0	0	3	40	60	100	1.5	PCC
8	BTD49110	Design and Analysis of Algorithms 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
TOTAL			**18**	**0**	**9**	**360**	**540**	**900**	**22.5**	

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	Data Analytics and Reporting	3	1	0	40	60	100	4	PCC
3	BTD50114	Compiler Design	3	1	0	40	60	100	4	PCC
4	BTD50115	Professional Ethics	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	Data Analytics and Reporting Lab	0	0	3	40	60	100	1.5	PCC
8	BTD59118	Compiler Design Lab	0	0	3	40	60	100	1.5	PCC
		TOTAL	13	3	10	320	480	800	21.0	

Total Hours: 25

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	Applied Statistical Analysis	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	Data Mining and Data Warehousing Lab	0	0	3	40	60	100	1.5	PCC
		TOTAL	14	2	7	280	420	700	19.5	

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	1	0	40	60	100	4	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 Tools and Techniques Lab	0	0	2	40	60	100	1	PCC
7	BTD78101	Industrial Training	0	0	0	40	60	100	2	PROJ
8	BTD78102	Project-I	0	0	0	40	60	100	4	PROJ
		TOTAL	14	2	4	320	480	800	24.0	

SEMESTER – VIII

Sl. No.	Course Code	Course Name	L	T	P	Evaluation Scheme		Total Marks	Credits	Course Type
						CIA	TEE			
1	BTD88103	Project-II	0	0	0	40	60	100	12	PROJ
2	BTD88104	Grand Viva Voce	0	0	0	40	60	100	4	PROJ
		TOTAL	0	0	0	80	120	200	16.0	

Total Credit: 162.0

Total Marks: 5700

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	PROFESSIONAL ELECTIVE COURSES [PEC]					
Course Code	**Course Name**	**Hours per week**			**Credits**	**Credit Hours**
		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

	OPEN ELECTIVE COURSES [OEC]					
Course Code	**Course Name**	**Hours per week**			**Credits**	**Credit Hours**
		L	**T**	**P**		
	OPEN ELECTIVE COURSES [OEC- I]					
BTD60301	A. Software Project Management	3	0	0	3	3
	B. Organisational Behaviour	3	0	0	3	3
	C. MOOCs	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. MOOCs	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. MOOCs	3	0	0	3	3