



BRAINWARE UNIVERSITY
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
B. Tech. Computer Science & Engineering (Specialized in Data Science)
2021

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 Dept./Branch & Innovations

SEMESTER – I

Course Code	Course Name	L - T - P	Credits	Total Marks
BSCD101	Semi-Conductor Physics	3 - 1 - 0	4	100
BSCD102	Calculus & Linear Algebra	3 - 1 - 0	4	100
ESCD101	Basic Electrical Engineering	3 - 1 - 0	4	100
BSCD191	Physics Lab	0 - 0 - 4	2	100
ESCD191	Basic Electrical Engineering Lab	0 - 0 - 2	1	100
ESCD192	Engineering Graphics & Design Lab	0 - 0 - 4	2	100
Total			17	600

SEMESTER – II

Course Code	Course Name	L - T - P	Credits	Total Marks
BSCD201	Probability & Statistics	3 - 1 - 0	4	100
BSCD202	Chemistry-I	3 - 1 - 0	4	100
ESCD201	Programming for Problem solving	3 - 0 - 0	3	100
HSMCD201	English	2 - 0 - 0	2	100
BSCD292	Chemistry –I Lab	0 - 0 - 4	2	100
ESCD291	Programming for Problem solving Lab	0 - 0 - 4	2	100
ESCD292	Workshop / Manufacturing Practices	0 - 0 - 4	2	100
HSMCD291	English Lab	0 - 0 - 2	1	100
Total			20	800



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SEMESTER – III

Course Code	Course Name	Course Type	Hours per Week			Credits	Total Marks
			L	T	P		
BSCD301	Differential Equation and Complex Analysis	BS	4	0	0	4	100
ESCD301	Applied Digital Logic Design	ES	3	0	0	3	100
ESCD302	Data Structure & Algorithms	ES	3	0	0	3	100
ESCD303	Introduction to Python Programming	ES	3	0	0	3	100
PCC-CSD301	Computer Organization & Architecture	PC	3	0	0	3	100
ESCD391	Applied Digital Logic Design Lab	ES	0	0	3	1.5	100
ESCD392	Data Structure & Algorithms Lab	ES	0	0	3	1.5	100
ESCD393	Introduction to Python Programming Lab	ES	0	0	3	1.5	100
PCC-CSD391	Computer Organization & Architecture Lab	PC	0	0	3	1.5	100
Total						22	900
AU-3	Constitution of India	AU	1	0	0	0	0

Total hours:29

SEMESTER – IV

Course Code	Course Name	Course Type	Hours per Week			Credits	Total Marks
			L	T	P		
HSMCD401	Design Thinking for Entrepreneurship and Startups	HS	3	0	0	3	100
PCC-CSD401	Operating Systems	PC	3	0	0	3	100
PCC-CSD402	Design and Analysis of Algorithms	PC	3	0	0	3	100
PCC-CSD403	Object Oriented Programming	PC	3	0	0	3	100
PCC-CSD404	Formal Language & Automata Theory	PC	3	0	0	3	100
PCC-CSD405	Discrete Mathematics	PC	4	0	0	4	100
PCC-CSD491	Operating Systems Lab	PC	0	0	3	1.5	100
PCC-CSD492	Design and Analysis of Algorithms Lab	PC	0	0	3	1.5	100
PCC-CSD493	Object Oriented Programming Lab	PC	0	0	3	1.5	100
Total						23.5	900

Total hours:28



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SEMESTER – V

Course Code	Course Name	Course Type	Hours per Week			Credits	Total Marks
			L	T	P		
PCC-CSD501	Database Management Systems	PC	3	0	0	3	100
PCC-CSD502	Computer Networks	PC	3	0	0	3	100
PCC-CSD503	Data Analytics and Reporting	PC	3	0	0	3	100
PCC-CSD504	Compiler Design	PC	3	0	0	3	100
PEC-CSD501	Elective-I	PE	3	0	0	3	100
	A. Digital Image Processing						
	B. Artificial Intelligence						
	C. Cloud Computing						
PCC-CSD591	Database Management Systems Lab	PC	0	0	3	1.5	100
PCC-CSD592	Computer Networks Lab	PC	0	0	3	1.5	100
PCC-CSD593	Data Analytics and Reporting Lab	PC	0	0	3	1.5	100
PEC-CSD591	Elective-I	PE	0	0	3	1.5	100
	A. Digital Image Processing Lab						
	B. Artificial Intelligence Lab						
	C. Cloud Computing Lab						
Total						21	900

Total hours:27



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SEMESTER – VI

Course Code	Course Name	Course Type	Hours per Week			Credits	Total Marks
			L	T	P		
PCC-CSD601	Machine Learning for Real World Application	PC	3	0	0	3	100
PCC-CSD602	Data Mining and Data Warehousing	PC	3	0	0	3	100
PEC-CSD601	Elective-II A. Big Data and Analytics B. Data Handling and Visualization C. Business Intelligence and Analytics	PE	3	0	0	3	100
PEC-CSD602	Elective-III A. Intelligent Database System B. Data Modeling and Simulation C. Information Extraction and Retrieval	PE	3	0	0	3	100
OEC-CSD601	Open Elective-I A. Software Project Management B. Information Security Analysis and Audit C. Operational Research	OE	3	0	0	3	100
PCC-CSD691	Machine Learning for Real World Application Lab	PC	0	0	3	1.5	100
PCC-CSD692	Data Mining and Data Warehousing Lab	PC	0	0	3	1.5	100
PEC-CSD691	Elective-II A. Big Data and Analytics Lab B. Data Handling and Visualization Lab C. Business Intelligence and Analytics Lab	PE	0	0	3	1.5	100
PROJ-CSD681	Technical Seminar with Modern Tool Application	PROJ	-			2	100
Total						21.5	900

Total hours:24



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SEMESTER – VII

Course Code	Course Name	Course Type	Hours per Week			Credits	Total Marks
			L	T	P		
PCC-CSD701	Software Engineering	PC	3	0	0	3	100
PEC-CSD701	Elective-IV A. Deep Learning B. Semantic Analysis C. Optimization for Data Science	PE	3	0	0	3	100
PEC-CSD702	Elective- V A. Quantum Computing B. Introduction to Data Analytics and Visualization C. Data and Internet Security	PE	3	0	0	3	100
OEC-CSD701	Open Elective-II A. Robotics and its Applications B. Digital Signal Processing C. Information Security and Privacy	OE	3	0	0	3	100
OEC-CSD702	Open Elective-III A. Soft Skills and Interpersonal Communication B. Human Resource Development and Organizational Behavior C. Cyber Law and Ethics	OE	3	0	0	3	100
PCC-CSD791	Software Tools and Techniques Lab	PC	0	0	2	1	50
PROJ-CSD782	Industrial Training	PROJ	-			2	100
PROJ-CSD783	Project-I	PROJ	-			4	100
Total						22	750

Total hours:17



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SEMESTER – VIII

Course Code	Course Name	Course Type	Hours per Week			Credits	Total Marks
			L	T	P		
OEC-CSD801	Open Elective-IV A. Electronic Design Automation B. VLSI Design	OE	3	0	0	3	100
PROJ-CSD881	Grand Viva	PROJ	-			4	100
PROJ-CSD882	Project-II	PROJ	-			6	100
Total						13	300

Total hours:3