

Dr. B.C. Roy Engineering College, Durgapur

(An Autonomous College)

(Affiliated to Maulana Abul Kalam Azad University of Technology, West Bengal)

Syllabus for B. Tech in Computer Science & Design

(Applicable from the academic session 2024-2025)

Semester - wise break-up of Credits:

Sem 1	Sem 2	Sem 3	Sem 4	Sem 5	Sem 6	Sem 7	Sem 8
23	22	26	24	21	24	21	09

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Semester I (1st year)							
Sl. No	Type of course	Code	Course Title	Hours per week			Credits
				L	T	P	
Theory							
1	BS	M-101	MATHEMATICS-I	3	0	0	3
2	BS	PH-101	PHYSICS	3	0	0	3
3	ES	EE-101	BASIC ELECTRICAL ENGINEERING	3	0	0	3
4	ES	ME-101	ENGINEERING MECHANICS	3	0	0	3
5	HM	ENG-101	ENGLISH LANGUAGE AND TECHNICAL COMMUNICATION	3	0	0	3
Practical							
7	BS	PH-191	PHYSICS LAB	0	0	2	1
8	ES	EE-191	BASIC ELECTRICAL ENGINEERING LAB	0	0	2	1
9	HM	ENG-191	LANGUAGE LAB	0	0	2	1
10	ES	ME-192	WORKSHOP PRACTICES	0	0	4	2
				Total credits			23

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Semester II (1st year)							
Sl. No	Type of course	Code	Course Title	Hours per week			Credits
				L	T	P	
Theory							
1	BS	CH-201	CHEMISTRY	3	0	0	3
2	BS	M-202	MATHEMATICS-II	3	0	0	3
3	ES	CS-201	INTRODUCTION TO COMPUTER HARDWARE AND SOFTWARE	3	0	0	3
4	ES	CS-202	PROGRAMMING FOR PROBLEM SOLVING	3	0	0	3
5	ES	EC-201	BASIC ELECTRONICS ENGINEERING	3	0	0	3
Practical							
6	BS	CH-291	CHEMISTRY LAB	0	0	2	1
7	ES	CS-291	INTRODUCTION TO COMPUTER HARDWARE AND SOFTWARE LAB	0	0	2	1
8	ES	CS-292	PROGRAMMING FOR PROBLEM SOLVING LAB	0	0	4	2
9	ES	EC-291	BASIC ELECTRONICS ENGINEERING LAB	0	0	2	1
10	ES	ME-291	ENGINEERING GRAPHICS	0	0	4	2
11	BS	ENV-281	ENVIRONMENTAL SCIENCE (S)	2	0	0	0
Total credits							22

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Semester III (Second year)							
Sl. No	Type of course	Code	Course Title	Hours per week			Credits
				L	T	P	
Theory							
1	ES	CSD-301	Digital System Design	3	1	0	3
2	PC	CSD-302	Data Structure & Algorithms	3	1	0	3
3	PC	CSD-303	Computer Organisation & Architecture	3	1	0	3
4	PC	CSD-304	Microprocessor & Microcontroller	3	1	0	3
5	PC	CSD-305	Creative Thinking Process and Design	3	1	0	3
6	BS	CSD-306	Mathematics-III (Differential Calculus)	3	0	0	3
Practical							
7	ES	CSD-391	Digital System Design Lab	0	0	4	2
8	PC	CSD-392	Data Structure & Algorithms Lab	0	0	4	2
9	PC	CSD-393	Computer Organisation & Architecture Lab	0	0	4	2
10	PC	CSD-394	IT Workshop with Python	0	0	4	2
			Total credits				26

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Semester IV (Second year)							
Sl. No	Type of course	Code	Course Title	Hours per week			Credits
				L	T	P	
Theory							
1	PC	CSD-401	Computer Graphics and Animation	3	1	0	3
2	PC	CSD-402	Design & Analysis of Algorithms	3	1	0	3
3	PC	CSD-403	Object Oriented Programming and Design	3	0	0	3
4	PC	CSD-404	Computer Networks	3	1	0	3
5	HM	CSD-405	Economics for Engineers (Humanities II)	3	0	0	3
6	BS	CSD-406	Biology	3	0	0	3
Practical							
7	PC	CSD-491	Computer Graphics and Animation Lab	0	0	4	2
8	PC	CSD-492	Design & Analysis of Algorithms Lab	0	0	4	2
9	PC	CSD-493	Object Oriented Programming and Design Lab	0	0	4	2
				Total credits			24

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Semester V (Third year)							
Sl. No	Type of course	Code	Course Title	Hours per week			Credits
				L	T	P	
1	PC	CSD-501	Augmented Reality, Virtual Reality & Mixed Reality	3	0	0	3
2	PC	CSD-502	Database Management Systems	3	1	0	3
3	PC	CSD-503	Operating System	3	1	0	3
4	HM	CSD-504	Introduction to Industrial Management (Humanities III)	3	0	0	3
5	PE	CSD-511 / CSD-512 / CSD-513	(Elective-I) Digital Image Processing/ Automata Theory / GPU Computing	3	1	0	3
Practical							
6	PC	CSD-591	Augmented Reality, Virtual Reality & Mixed Reality Lab		0	4	2
7	PC	CSD-592	Data Base Management System Lab		0	4	2
8	PC	CSD-593	Operating System Lab		0	4	2
Total credits							21

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Semester VI (Third year)							
Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				L	T	P	
1	PC	CSD-601	Software Engineering	3	1	0	3
2	PC	CSD-602	Artificial Intelligence and Machine Learning	3	0	0	3
3	PC	CSD-603	Internet of Things	3	0	0	3
4	PC	CSD-604	Aesthetics & Arts	3	0	0	3
5	PE	CSD-611 / CSD-612 / CSD-613	(Elective-II) Wearable Devices,, Interactions and Applications/ Human Computer Interaction/ Robotics	3	0	0	3
6	OE	CSD-621 / CSD-622 / CSD-623 / CSD-624	(Elective-I) Compiler Design/ Embedded System/ Computer Vision/ Wireless Sensor Networks	3	1	0	3
Practical							
6	PC	CSD-692	AI and ML Lab	0	0	4	2
7	PC	CSD-693	IOT Lab	0	0	4	2
8	PC	CSD-694	Data Visualization Workshop	0	0	4	2
Total credits							24

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Semester VII (Fourth year)							
Sl. No	Type of course	Code	Course Title	Hours per week			Credits
				L	T	P	
1	PE	CSD-711 / CSD-712 / CSD-713	(Elective-III) Deep Learning/ Prototyping Interactive System/ Multi-agent Intelligent Systems	3	1	0	3
2	PE	CSD-721 / CSD-722 / CSD-723	(Elective-IV) Blockchain Technology/ Design Processes and Perspectives /Cloud Computing	3	0	0	3
3	OE	CSD-731 / CSD-732 / CSD-733	(Open Elective-II) Big Data Analysis/3D Printing & Design /Introduction to Philosophical Thoughts	3	0	0	3
4	HM	CSD-701	Project Management Entrepreneurship	3	1	0	3
5	PJ	CSD-702	Research Methodology	2	0	0	2
6	PJ	CSD-781	Project-I (Minor)	0	0	12	6
7	GV	CSD-782	Grand Viva 1	0	0	0	1
			Total credits				21

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Semester VIII (Fourth year)							
[Summer Industry Internship]							
Sl. No	Type of course	Code	Course Title	Hours per week			Credits
				L	T	P	
1	PE	CSD-811 / CSD-812 / CSD-813 / CSD-814	(Elective-V) Inclusive Design, Universal Design & Accessibility/ Visual Design & Communication / Cyber Security, Law and Ethics/ Ethics in AI	3	1	0	3
2	PJ	CSD-881	Project-II (Major)	0	0	12	6
			Total credits				9