COURSE STRUCTURE

for

B.TECH. DEGREE

in

COMPUTER SCIENCE & ENGINEERING

(Applicable from the academic session 2024-2025)

Dr. B. C. Roy Engineering College

An Autonomous Institution

Approved by: All India Council for Technical Education (AICTE)

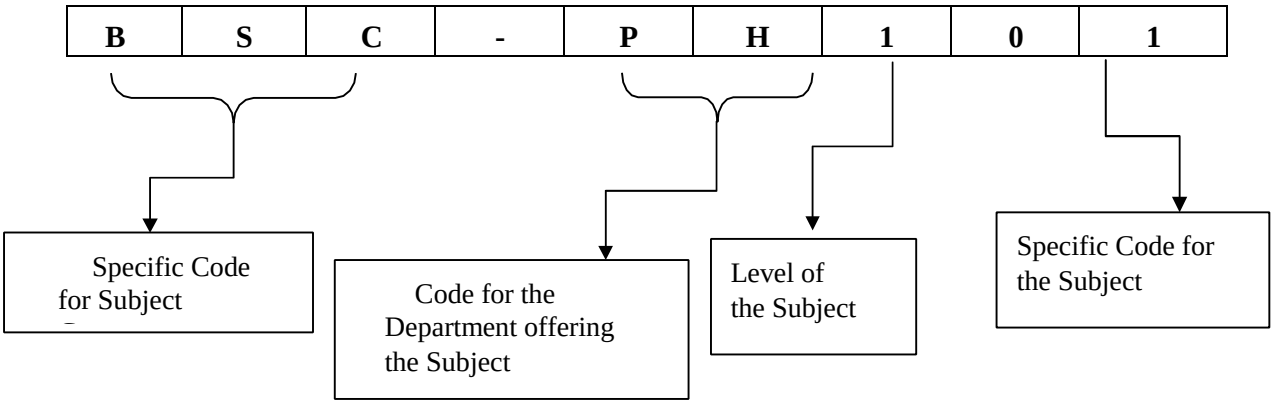
Affiliated to: Maulana Abul Kalam Azad University of Technology, West Bengal (Formerly Known as -WBUT)

Jemua Road, Durgapur, West Bengal, India, 713206

- The first year course structure (Page 3 and Page 4) is unanimously accepted and approved in the first BoS meeting held in the Department of a) Physics, b) Chemistry, c) Mathematics, d) English, e) Electrical Engineering, f) Electronics and Communication Engineering, g) Computer Science and Engineering, h) Mechanical Engineering.
- The BoS of CSE (Computer Science and Engineering) in its first meeting (held in the Department of CSE (Computer Science and Engineering) on 6th November 2024 has unanimously accepted and approved the four year course structure of CSE (Computer Science and Engineering).

Head
Dept. Computer Science & Eng
Dr. B. C. Roy Engineering College
Durgapur

Subject Numbering Scheme:



Semester Wise Break Up of Credit (New Autonomous Structure)

Sem1	Sem2	Sem3	Sem4	Sem5	Sem6	Sem7	Sem8	Total
20	22	24	24	22	21	19	10	162

S. No.	Category	Breakup of Credits (Actual) As per the Proposed Autonomous Structure
1.	Humanities and Social Sciences including Management courses	13
2.	Basic Science Courses	23
3.	Engineering Science courses including workshop, drawing, basics of electrical/ mechanical/ computer etc.	29
4.	Professional core course	57
5.	Professional Elective specialization/branch courses relevant to chosen	15
6.	Multidisciplinary Open Electives Courses	9
7.	Project work, seminar and internship in industry or appropriate work place/ academic and research institutions in India/abroad	16
8.	Mandatory Non Credit Courses – Audit Course	
Total Credits		**162**

B. Tech., 1st Yr (1st Semester)

Semester 1							
Sl No	**Paper Name**	**Paper Code**	**Marks**	**L**	**T**	**P**	**Credit**
Theory							
1	BSC-M101	Mathematics-I	100	3	0	0	3
2	BSC-CH101	Chemistry [Group-B]	100	3	0	0	3
3	ESC-EC101	Basic Electronics Engineering [Group-B]	100	3	0	0	3
4	ESC-ME101	Engineering Mechanics	100	3	0	0	3
5	ESC-CS101	Introduction to Computer Hardware and Software [Group-B]	100	3	0	0	3
		Total Theory	500	15	0	0	15
Practical							
6	BSC-CH191	Chemistry Lab [Group-B]	100	0	0	2	1
7	ESC-EC191	Basic Electronics Engineering Lab [Group-B]	100	0	0	2	1
8	ESC-CS191	Introduction to Computer Hardware and Software Lab [Group-B]	100	0	0	2	1
9	ESC-ME191	Engineering Graphics & Design [Group-B]	100	0	0	4	2
10	MC-ES101	Environmental Science [Group-B]	100	1	0	0	0
		Total Practical	500	1	0	10	5
		Total of 1st Semester	1000	16	0	10	20
Total Credits							**20**

B. Tech., 1st Yr (2nd Semester)

Semester 2							
Sl No	**Paper Name**	**Paper Code**	**Marks**	**L**	**T**	**P**	**Credit**
Theory							
1	BSC-M201	Mathematics-II	100	3	0	0	3
2	BSC-PH201	Physics [Group-B]	100	3	0	0	3
3	ESC-EE201	Basic Electrical Engineering [Group-B]	100	3	0	0	3
4	HS-MC201	English Language and Technical Communication [Group-B]	100	3	0	0	3
5	ESC-CS201	Programming for Problem Solving	100	3	0	0	3
		Total Theory	500	15	0	0	15
Practical							
6	BSC-PH291	Physics Lab [Group-B]	100	0	0	2	1
7	ESC-EE291	Basic Electrical Engineering Lab [Group-B]	100	0	0	2	1
8	HS-MC291	Language Lab [Group-B]	100	0	0	2	1
9	ESC-CS291	Programming for Problem Solving Lab	100	0	0	4	2
10	ESC-ME292	Workshop/Manufacturing Practices [Group-B]	100	0	0	4	2
11	MC-CI201	Constitution of India [Group-B]	100	1	0	0	0
		Total Practical	600	1	0	14	7
		Total of 2nd Semester	1100	16	0	14	22
12		NSS [Group-B]	100	0	0	0	0
Total Credits							**22**

B. Tech., 2nd Yr (1st Semester)

Semester 3							
Sl No	**Paper Name**	**Paper Code**	**Marks**	**L**	**T**	**P**	**Credit**
Theory							
1	PCC-CS301	Data Structure & Algorithms	100	3	0	0	3
2	PCC-CS302	Computer Organization & Architecture	100	3	0	0	3
3	BSC-M301	Mathematics III	100	3	0	0	3
4	BSC-B301	Biology	100	3	0	0	3
5	ESC-EC301	Analog & Digital Electronics	100	3	0	0	3
		Total Theory	500	15	0	0	15
Practical							
6	PCC-CS391	Data Structure & Algorithms Lab	100	0	0	4	2
7	PCC-CS392	Computer Organization & Architecture Lab	100	0	0	4	2
8	PCC-CS393	Python Programming Lab	100	0	1	4	3
9	ESC-EC391	Analog & Digital Electronics Lab	100	0	0	4	2
		Total Practical	400	0	1	16	9
		Total of 3rd Semester	900	15	1	16	24
Total Credits							**24**

B. Tech., 2nd Yr (2nd Semester)

Semester 4							
Sl No	**Paper Name**	**Paper Code**	**Marks**	**L**	**T**	**P**	**Credit**
Theory							
1	PCC-CS401	Design & Analysis of Algorithms	100	3	0	0	3
2	PCC-CS402	Object Oriented Programming	100	3	0	0	3
3	PCC-CS403	Database Management System	100	3	0	0	3
4	PCC-CS404	Formal Language & Automata Theory	100	3	0	0	3
5	BSC-M401	Discrete Mathematics & Graph Theory	100	3	0	0	3
6	HSMC-401	Soft Skill & Interpersonal Communication	100	3	0	0	3
		Total Theory	600	18	0	0	18
Practical							
7	PCC-CS491	Design & Analysis of Algorithms Lab	100	0	0	4	2
8	PCC-CS492	Object Oriented Programming Lab	100	0	0	4	2
9	PCC-CS493	Database Management System Lab	100	0	0	4	2
		Total Practical	300	0	0	12	6
		Total of 4th Semester	900	18	0	12	24
Total Credits							**24**

B. Tech., 3rd Yr (1st Semester)

Semester 5							
Sl No	**Paper Name**	**Paper Code**	**Marks**	**L**	**T**	**P**	**Credit**
Theory							
1	PCC-CS501	Operating System	100	3	0	0	3
2	PCC-CS502	Software Engineering	100	3	0	0	3
3	PCC-CS503	Compiler Design	100	3	0	0	3
4	PCC-CS504	Artificial Intelligence	100	3	0	0	3
5	PEC-CS501A/B/C/D	Core Elective I: Data Mining / Computer Graphics / Advanced Computer Architecture / Distributed Database Management System	100	3	0	0	3
6	OEC-CS501A/B/C/D	Open Elective I: Linear Algebra & Numerical Methods / Economics for Engineers / Multimedia System / Augmented & Virtual Reality	100	3	0	0	3
		Total Theory	600	18	0	0	18
Practical							
7	PCC-CS591	Operating System Lab	100	0	0	4	2
8	PCC-CS592	Software Engineering Lab	100	0	0	4	2
		Total Practical	200	0	0	8	4
		Total of 5th Semester	800	18	0	8	22
Total Credits							**22**

B. Tech., 3rd Yr (2nd Semester)

Semester 6							
Sl No	**Paper Name**	**Paper Code**	**Marks**	**L**	**T**	**P**	**Credit**
Theory							
1	PCC-CS601	Data Communication & Computer Network	100	3	0	0	3
2	PCC-CS602	Machine Learning	100	3	0	0	3
3	PEC-CS601A/B/C/D/E	Core Elective II: Internet of Things & Applications / Web & Internet Technology / Image Processing / Human Computer Interaction / Blockchain Technology	100	3	0	0	3
4	PEC-CS602A/B/C/D/E	Core Elective III: Data Science / Cryptography & Network Security / Soft Computing / Pattern Recognition / Parallel & Distributed Computing	100	3	0	0	3
5	OEC-CS601A/B/C/D/E	Open Elective II: Optimization Techniques & Operational Research / Entrepreneurship Development: Theory & Practice / Mobile Application Development / Ad-Hoc & Sensor Network / Robotics	100	3	0	0	3
		Total Theory	500	15	0	0	15
Practical							
6	PCC-CS691	Data Communication & Computer Network Lab	100	0	0	4	2
7	PCC-CS692	Machine Learning Lab	100	0	0	4	2
8	PROJ-CS681	Research Methodology (Project I)	100	0	0	4 (S*)	2
		Total Practical	300	0	0	8	6
		Total of 5th Semester	800	15	0	8	21
Total Credits							**21**

B. Tech., 4th Yr (1st Semester)

Semester 7							
Sl No	**Paper Name**	**Paper Code**	**Marks**	**L**	**T**	**P**	**Credit**
Theory							
1	HSMC-701	Human Resource Development & Organizational Behavior	100	3	0	0	3
2	PEC-CS701A/B/C/D	Core Elective IV: Cloud Computing / Neural Network & Deep Learning / Natural Language Processing / Mobile Computing	100	3	0	0	3
3	PEC-CS702A/B/C/D	Core Elective V: Data Analytics / Cyber Security / Quantum Computing / High Performance Computing	100	3	0	0	3
4	OEC-CS701A/B/C/D/E	Open Elective III: E-Commerce & ERP / Industrial Management / Game Theory & Applications / Bio-Informatics / Social Network Analysis	100	3	0	0	3
		Total Theory	400	12	0	0	12
5	PROJ-CS781	Project II	100	0	0	12 (S*)	6
6	SEMINAR-CS781	Industrial Training & Seminar	100	0	0	2 (S*)	1
Total Credits							**19**

B. Tech., 4th Yr (2nd Semester)

Semester 8							
Sl No	**Paper Name**	**Paper Code**	**Marks**	**L**	**T**	**P**	**Credit**
Theory							
1	HSMC-801	Project Management & Entrepreneurship	100	3	0	0	3
2	PROJ-CS881	Project III	100	0	0	12 (S*)	6
3	VIVA-CS881	Comprehensive Grand Viva	100	0	0	2 (S*)	1
		Total Theory	300	3	0	14	10
Total Credits							**10**

4 Years Total Credits = 162

S* = Sessional