

COURSE STRUCTURE
for
B. TECH DEGREE
in
ELECTRONICS AND COMMUNICATION ENGINEERING

(Applicable from the Academic Session 2024-25)



Dr. B. C. Roy Engineering College, Durgapur
(An Autonomous Institute)

Approved by: All India Council for Technical Education

*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 syllabus is unanimously accepted and approved in the first BOS meeting held in the Department of
a) Physics, b) Chemistry, c) English, d) Electrical Engineering, e) Mechanical Engineering.

The BOS of Electronics and Communication Engineering in its second meeting (held on 08-04- 2025) has
unanimously accepted and approved the four-year course curriculum for B. Tech (ECE).

Dr. Mrinmoy Chakraborty

Dr. Mrinmoy Chakraborty
Chairman, BOS (ECE)

Program Code: 003

Program: B. Tech in Electronics and Communication Engineering

Semester - wise Breakup:

Category	1st Sem	2nd Sem	3rd Sem	4th Sem	5th Sem	6th Sem	7th Sem	8th Sem	Total Credit (Category Wise)
Major	0	2	7	7	8	5	5	1	75
Minor	6	4	1	1	0	0	0	0	29
Multidisciplinary	0	0	0	0	0	1	1	0	6
AEC	1	2	2	1	2	1	0	0	26
SEC	2	2	1	1	0	1	0	0	10
VAC	0	0	0	0	0	1	1	0	6
Project/Internship	0	0	0	1	1	1	1	1	12
Total Credit (Semester Wise)	20	23	23	24	24	23	19	8	164

AEC: Ability Enhancement Courses

SEC: Skill Enhancement Courses

VAC: Value Added Courses

Program Code: 003
Program: B. Tech in Electronics and Communication Engineering Year (Semester): 1st Year (1st Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	SC	Multidisciplinary	M-101	Mathematics	3	0	0	3	3
2	SC	Multidisciplinary	PH-101	Physics	3	0	0	3	3
3	HUM	Ability Enhancement Courses	EE-101	Basic Electrical Engineering	3	0	0	3	3
4	ENGG	Major	ME-101	Engineering Mechanics	3	0	0	3	3
5	SC	Multidisciplinary	ENG-101	English Language and Technical Communication	3	0	0	3	3
TOTAL Theory								15	15
B. Practical / Sessional									
1	SC	Skill Enhancement Courses	PH-191	Physics Laboratory	0	0	2	2	1
2	HUM	Ability Enhancement Courses	EE-191	Basic Electrical Engineering Laboratory	0	0	2	2	1
3	ENGG	Major	ENG-191	Language Laboratory	0	0	2	2	1
4	ENGG	Skill Enhancement Courses	ME-192	Workshop Practices	0	0	4	4	2
5	EC	Value Added Courses	-	NSS	0	0	0	0	0
TOTAL Practical / Sessional								10	5
Total of Semester								25	20

Program Code: 003

Program: B. Tech in Electronics and Communication Engineering Year (Semester): 1st Year (2nd Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	SC	Multidisciplinary	M-202	Mathematics-II	3	0	0	3	3
2	ENGG	Minor	CH-201	Chemistry	3	0	0	3	3
3	ENGG	Minor	EC-201	Basic Electronics Engineering	3	0	0	3	3
4	SC	Multidisciplinary	CS-201	Introduction to Computer Hardware and Software	3	0	0	3	3
5	ENGG	Minor	CS-202	Programming for Problem Solving	3	0	0	3	3
TOTAL Theory					15	0	0	15	15
B. Practical									
1	SC	Skill Enhancement Courses	CH-291	Chemistry Laboratory	0	0	2	2	1
2	ENGG	Minor	EC-291	Basic Electronics Engineering Laboratory	0	0	2	2	1
3	ENGG	Minor	ME-291	Engineering Graphics	0	0	2	2	2
4	ENGG	Skill Enhancement Courses	CS-291	Introduction to Computer Hardware and Software Laboratory	0	0	4	4	2
5	ENGG	Minor	CS-292	Programming for Problem Solving Laboratory	0	0	4	4	2
6	SC	Value Added Courses	BS-120	Environmental Science	1	0	0	1	0
TOTAL Practical / Sessional								15	7
Total of Semester								30	23

Program Code: 003

Program: B. Tech in Electronics and Communication Engineering Year (Semester): 2nd Year (3rd Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours / Week				Credits
					L	T	P	Total	
A. Theory									
1	PC	Major	EC-301	Semiconductor devices	3	0	0	3	3
2	PC	Major	EC-302	Digital electronics	3	0	0	3	3
3	PC	Major	EC-303	Signals and systems	3	0	0	3	3
4	PC	Major	EC-304	Network analysis and synthesis	3	0	0	3	3
5	ES	Ability Enhancement	EC-305	Data structure & algorithm	3	0	0	3	3
6	BS	Minor	EC-306	Probability and statistics	3	0	0	3	3
TOTAL Theory								18	18
B. Practical / Sessional									
1	PC	Major	EC-391	Semiconductor devices lab	0	0	2	2	1
2	PC	Major	EC-392	Digital electronics lab	0	0	2	2	1
3	ES	Ability Enhancement	EC-395	Data structure & algorithm lab	0	0	2	2	1
4	PC	Major	EC-393	Signal and system lab	0	0	2	2	1
5	HM	Skill Enhancement	EC-394	Soft skill development lab	0	0	2	2	1
TOTAL Practical / Sessional								10	5
Total of Semester								28	23

Program Code: 003

Program: B. Tech in Electronics and Communication Engineering Year (Semester): 2nd Year (4th Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	PC	Major	EC-401	Analog Electronic circuits	3	0	0	3	3
2	PC	Major	EC-402	Analog Communication	3	0	0	3	3
3	PC	Major	EC-403	Electromagnetic Waves and Transmission Lines	3	0	0	3	3
4	PC	Major	EC-404	Digital System Design	3	0	0	3	3
5	ES	Ability Enhancement	EC-405	Numerical Methods	3	0	0	3	3
6	BS	Minor	EC-406	Biology for Engineers	3	0	0	3	3
TOTAL Theory								18	18
B. Practical / Sessional									
1	PC	Major	EC-491	Analog Electronic circuits lab	0	0	2	2	1
2	PC	Major	EC-492	Analog communication lab	0	0	2	2	1
3	ES	Major	EC-493	Electromagnetic waves and transmission line lab	0	0	2	2	1
4	PC	Major	EC-494	Digital system design lab	0	0	2	2	1
5	ES	Skill Enhancement	EC-495	Python programming and numerical methods lab	0	0	2	2	1
6	PC	Skill Enhancement	EC-481	Internship-I	0	0	2	2	1
TOTAL Practical / Sessional								12	6
Total of Semester								30	24

Program Code: 003

Program: B. Tech in Electronics and Communication Engineering Year (Semester): 3rd Year (5th Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	PC	Major	EC-501	Digital Signal Processing	3	0	0	3	3
2	PC	Major	EC-502	Digital Communication	3	0	0	3	3
3	PC	Major	EC-503	Microprocessors & Microcontrollers	3	0	0	3	3
4	PC	Major	EC-504	CMOS VLSI Design	3	0	0	3	3
5	PC	Major	EC-505	Object Oriented Programming	3	0	0	3	3
6	ES	Ability Enhancement	EC-506	Computer Organization & Architecture	3	0	0	3	3
Total Theory								18	18
B. Practical / Sessional									
1	PC	Major	EC-591	Digital Signal Processing Lab	0	0	2	2	1
2	PC	Major	EC-592	Digital Communication Lab.	0	0	2	2	1
3	PC	Major	EC-593	Microprocessors & Microcontrollers Lab	0	0	2	2	1
4	PC	Major	EC-594	CMOS VLSI Design Lab	0	0	2	2	1
5	ES	Ability Enhancement	EC-595	Object Oriented Programming Lab	0	0	2	2	1
6	PC	Skill Enhancement	EC-581	Internship-II	0	0	2	2	1
TOTAL Practical / Sessional						0	0	12	6
Total of Semester								30	24

Program Code: 003

Program: B. Tech in Electronics and Communication Engineering Year (Semester): 3rd Year (6th Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	PC	Major	EC-601	Communication Networks	3	0	0	3	3
2	PC	Major	EC-602	Control System	3	0	0	3	3
3	PE	Major	EC-604 to EC-607	Program Elective I	3	0	0	3	3
4	OE	Multi Disciplinary	EC-608 to EC-611	Open Elective I	3	0	0	3	3
5	HM	Value Added	EC-612	Economics For Engineers	3	0	0	3	3
6	ES	Ability Enhancement	EC-603	Database Management System	3	0	0	3	3
Total Theory								18	18
B. Practical / Sessional									
1	PC	Major	EC-691	Communication Networks Lab.	0	0	2	2	1
2	PC	Major	EC-692	Control System Lab	0	0	2	2	1
3	ES	Minor	EC-693	Database Management System Lab	0	0	2	2	1
4	PC	Major	EC-681	Project I	0	0	4	4	2
TOTAL Practical / Sessional								10	5
Total of Semester								28	23

Program Code: 003
Program: B. Tech in Electronics and Communication Engineering Year (Semester): 4th Year (7th Semester)

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Theory									
1	PC	Major	EC-701	Wireless Communication	3	0	0	3	3
2	PE	Major	EC-702 to EC-705	Program Elective II	3	0	0	3	3
3	PE	Major	EC-706 to EC-709	Program Elective III	3	0	0	3	3
4	OE	Multi Disciplinary	EC-710 to EC-714	Open Elective II	3	0	0	3	3
5	HM	Value Added	EC-715	Principles of Management	3	0	0	3	3
Total Theory								15	15
B. Practical / Sessional									
1	PC	Major	EC-791	Wireless Communication Lab	0	0	2	2	1
2	PC	Major	EC-781	Industrial Training	0	0	2	2	1
3	PC	Major	EC-782	Project II	0	0	4	4	2
TOTAL Practical / Sessional					0	0	0	4	4
Total of Semester								19	19

* Students have to complete Internship/Vocational Training to earn Credit point subjected to appearance in the Seminar and submission of Certificate(s).

Sl. No.	Broad Category	Course Category	Course Code	Course Name	Contact Hours/Week				Credits
					L	T	P	Total	
A. Sessional									
1	PC	Major	EC-881	Project III	0	0	12	12	6
2	PC	Major	EC-882	Grand viva	0	0	0	2	2
Total of Semester					0	0	0	14	8

* Students have to complete Internship/Vocational Training to earn Credit point subjected to appearance in the Seminar and submission of Certificate(s).

List of Program Electives

Sl No.	Course Code	Course Title	Hours/week			Credits	Semester
			L	T	P		
1	EC-604	Nano Electronics	3	0	0	3	VI
	EC-605	Low Power VLSI Design	3	0	0	3	
2	EC-606	Power Electronics	3	0	0	3	
3	EC-607	Information Theory & Coding	3	0	0	3	
4	EC-702	Microwave Theory And Techniques	3	0	0	3	VII
5	EC-703	Satellite Communication	3	0	0	3	
6	EC-704	Antennas And Radar Engineering	3	0	0	3	
7	EC-705	Analog IC Design	3	0	0	3	
8	EC-706	Adaptive Signal Processing	3	0	0	3	
9	EC-707	Embedded System	3	0	0	3	
10	EC-708	Neural Network And Fuzzy Logic Control	3	0	0	3	
11	EC-709	VLSI Physical Design	3	0	0	3	

List of Open Elective

Sl No.	Course Code	Course Title	Hours/week			Credits	Semester
			L	T	P		
1	EC-608	Fundamental Of Cryptography					
1	EC-609	Applications Of Artificial Intelligence In Electronics And Communications	3	0	0	3	VI
2	EC-610	Cyber Law & Intellectual Property Rights	3	0	0	3	
3	EC-611	Electronic Measurements And Measuring Instruments	3	0	0	3	
4	EC-710	Web Technology	3	0	0	3	
5	EC-711	Optimization Technique	3	0	0	3	VII
6	EC-712	Entrepreneurship	3	0	0	3	
7	EC-713	Cyber Physical System	3	0	0	3	