

B.Tech. 4 Year (8 Semesters) Regular Programme in
ELECTRONICS & COMMUNICATION ENGINEERING
DEPARTMENT OF ECE
COURSE STRUCTURE

(Applicable for the Batches admitted from the Academic Year 2022-23)

I YEAR

I SEMESTER

S.No.	Group	Subject Code	Subject	L	T	P	Credits
1)	BS	121AB	Applied Physics	3	0	0	3
2)	BS	121AA	Applied Chemistry	3	0	0	3
3)	BS	121AG	Linear Algebra and Multivariable Calculus	3	1	0	4
4)	ES	121AH	Programming for Problem Solving	3	0	0	3
5)	HS	121AF	English for Skill Enhancement	2	0	0	2
6)	BS	12102	Applied Physics Lab	0	0	3	1.5
7)	BS	12101	Applied Chemistry Lab	0	0	2	1
8)	ES	12108	Programming Lab	0	0	3	1.5
9)	HS	12105	English Language and Communication Skills Lab	0	0	2	1
10)	MC	12107	Gender Sensitization	0	0	2	-
TOTAL				14	1	12	20

I YEAR

II SEMESTER

S.No	Group	Subject Code	Subject	L	T	P	Credits
1)	BS	122AK	Numerical Techniques and Transform Calculus	3	1	0	4
2)	ES	122AJ	Data Structures	3	0	0	3
3)	ES	122AC	Basic Electrical Engineering	3	0	0	3
4)	ES	122AE	Engineering Graphics	1	0	3	2.5
5)	ES	12204	Engineering Workshop	1	0	3	2.5
6)	ES	12209	Data Structures Lab	0	0	3	1.5
7)	ES	12203	Basic Electrical Engineering Lab	0	0	3	1.5
8)	ES	122AD	Design Thinking	2	0	0	2
9)	MC	12206	Environmental Science and Technology	2	0	0	-
TOTAL				15	1	12	20

B.Tech. 4 Year (8 Semesters) Regular Programme in
ELECTRONICS & COMMUNICATION ENGINEERING
DEPARTMENT OF ECE
COURSE STRUCTURE

(Applicable for the Batches admitted from the Academic Year 2022-23)

II YEAR

I SEMESTER

S.No.	Group	Subject Code	Subject	L	T	P	Credits
1)	BS	123AX	Special Functions and Complex Variable Theory	3	0	0	3
2)	ES	123AV	Python Programming	2	0	0	2
3)	PC	123AR	Electronic Devices and Circuits	3	1	0	4
4)	PC	123AW	Signals and Systems	3	1	0	4
5)	PC	123AT	Network Theory and Analysis	3	0	0	3
6)	ES	12311	Basic Simulation Lab	0	0	3	1.5
7)	ES	12317	Python Programming Lab	0	0	2	1
8)	PC	12315	Electronic Devices and Circuits Lab	0	0	3	1.5
9)	MC	12312	Constitution of India	2	0	0	-
TOTAL				16	2	8	20

II YEAR

II SEMESTER

S.No.	Group	Subject Code	Subject	L	T	P	Credits
1)	BS	124BN	Probability Theory and Stochastic Processes	3	0	0	3
2)	PC	124BJ	Electromagnetic Theory and Transmission Lines	3	0	0	3
3)	PC	124AZ	Analog Circuits	3	0	0	3
4)	PC	124BE	Digital Electronics and Logic Design	3	0	0	3
5)	PC	124BC	Control Systems Engineering	3	0	0	3
6)	PC	12418	Analog Circuits Lab	0	0	3	1.5
7)	PC	12419	Digital Electronics and Logic Design Lab	0	0	3	1.5
8)	PW	12424	Mini Project -1 (Real Time Project)	0	0	4	2
9)	MC	12422	Human Values and Professional Ethics	2	0	0	-
TOTAL				17	0	10	20

B.Tech. 4 Year (8 Semesters) Regular Programme in
ELECTRONICS & COMMUNICATION ENGINEERING
DEPARTMENT OF ECE
COURSE STRUCTURE

(Applicable for the Batches admitted from the Academic Year 2022-23)

III YEAR

I SEMESTER

S. No.	Group	Subject Code	Subject	L	T	P	Credits
1)	PC	125BU	Analog and Digital Communications	3	1	0	4
2)	PC	125BV	Antennas and Wave Propagation	3	0	0	3
3)	PC	125CY	Microprocessors and Microcontrollers	3	1	0	4
4)	PE1		Professional Elective - 1 (Offline/Online)	3	0	0	3
		125CB	Computer Architecture and Organization				
		125CK	Electronic Measuring Instruments and Sensors				
		125BY	Bio-Medical Electronics				
		125CW	Data Science				
5)	PE2		Professional Elective – 2 (Offline/Online)	3	0	0	3
		125CH	Programming with Verilog HDL				
		125BK	Object Oriented Programming Through Java				
		125ED	Internet of Things				
		125BA	Artificial Intelligence				
6)	PC	12529	Analog and Digital Communications Lab	0	0	2	1
7)	PC	12535	Microprocessors and Microcontrollers Lab	0	0	2	1
8)	HS	12528	Advanced Communication Skills Lab	0	0	2	1
TOTAL				15	2	6	20

III YEAR

II SEMESTER

S.No.	Group	Subject Code	Subject	L	T	P	Credits
1)	HS	126EG	Managerial Economics and Financial Analysis	3	0	0	3
2)	PC	126DV	Digital Signal Processing	3	0	0	3
3)	PC	126ES	VLSI Design	3	1	0	4
4)	PE3		Professional Elective - 3 (Offline/Online)	3	0	0	3
		126DT	Data Communications and Computer Networks				
		126EB	Information Theory and Coding				
		126CF	Design for Testability				
		126DK	Green Communications				
5)	OE1		Open Elective - 1 (Offline/Online)	3	0	0	3
6)	PC	12640	Digital Signal Processing Lab	0	0	2	1
7)	PC	12647	VLSI Design Lab	0	0	2	1
8)	PW	12644	Mini Project – 2 (Industry Oriented Mini Project/ Industry Internship : during Summer between 2 nd and 3 rd years)	0	0	4	2
TOTAL				15	1	8	20

B.Tech. 4 Year (8 Semesters) Regular Programme in
ELECTRONICS & COMMUNICATION ENGINEERING
DEPARTMENT OF ECE
COURSE STRUCTURE

(Applicable for the Batches admitted from the Academic Year 2022-23)

IV YEAR

I SEMESTER

S.No.	Group	Subject Code	Subject	L	T	P	Credits
1)	HS	127FN	Fundamentals of Management	3	0	0	3
2)	PC	127GH	Wireless Communications and Networks	3	0	0	3
3)	PE4		Professional Elective - 4	3	0	0	3
		127FR	Microwave Engineering and Optical Communications				
		127FH	Embedded System Design				
		127CX	Machine Learning				
4)	PE5		Professional Elective - 5(Offline/Online)	3	0	0	3
		127FD	Digital Image and Video Processing				
		127GD	Voice Over Internet Protocol				
		127GK	Wireless Sensor Networks				
		127FQ	Low Power VLSI Design				
5)	OE2		Open Elective - 2 (Offline/Online)	3	0	0	3
6)	PC	12768	Wireless Communications and Networks Lab	0	0	2	1
7)	PC		Lab (Linked to PE4)	0	0	2	1
		12759	Microwave and Optical Communications Lab				
		12756	Embedded System Design Lab				
		12734	Machine Learning Lab				
8)	PW1	12763	PROJECT WORK (Phase – I)	0	0	6	3
TOTAL				15	0	10	20

IV YEAR

II SEMESTER

S.No.	Group	Subject Code	Subject	L	T	P	Credits
1)	HS	128GW	Entrepreneurship and Project Management (Offline/Online)	2	0	0	2
2)	PE6		Professional Elective - 6 (Offline/Online)	3	0	0	3
		128HF	Radar Systems				
		128HA	5G Communication Technologies				
		128GY	Static Timing Analysis				
		128HH	Satellite Communications and Navigation Systems				
3)	OE3		Open Elective - 3 (Offline/Online)	3	0	0	3
4)	PW	12870	Technical Seminar (Presentation with Report before 1 st Mid Exams)	1	0	2	2
5)	PW2	12869	PROJECT WORK (Phase – II)	0	0	20	10
TOTAL				9	0	22	20

**List of Open Elective Offered By Various Departments For B.Tech. Programme
(Applicable for the Batches admitted from the Academic year 2022-23 onwards)**

S. No.	Name of the Department Offering Open Electives	Open Elective-1 (B. Tech. III Year II Semester)	Open Elective-2 (B. Tech. IV Year I Semester)	Open Elective-3 (B.Tech. IV Year II Semester)
1	CSE/ IT/ CST	<ul style="list-style-type: none"> • Fundamentals of Data Structures • Fundamentals of Database Management Systems • Operating Systems • Software Engineering 	<ul style="list-style-type: none"> • Internet of Things • Cyber Security 	<ul style="list-style-type: none"> • Cloud Computing • Block chain Technologies
2	CSM	<ul style="list-style-type: none"> • Fundamentals of Artificial Intelligence 	<ul style="list-style-type: none"> • Machine Learning Basics 	<ul style="list-style-type: none"> • Introduction to Natural Language Processing
3	CSD	<ul style="list-style-type: none"> • Fundamentals of Data Science • R Programming 	<ul style="list-style-type: none"> • Data Visualization using Python 	<ul style="list-style-type: none"> • Data Mining
4	ECE	<ul style="list-style-type: none"> • Biomedical Electronics and Applications • Principles of Communication Technologies • Verilog HDL 	<ul style="list-style-type: none"> • Sensors and Actuators • Elements of Satellite Communications 	<ul style="list-style-type: none"> • Wearable Devices and its Applications • Systems Engineering
5	ETM	<ul style="list-style-type: none"> • Principles of Communications 	<ul style="list-style-type: none"> • Telecommunication Switching Systems 	
6	EEE	<ul style="list-style-type: none"> • Engineering Materials 	<ul style="list-style-type: none"> • Renewable Energy Sources 	<ul style="list-style-type: none"> • Waste Management Techniques and Power Generation
7	Mech. Engg.	<ul style="list-style-type: none"> • Operations Research 	<ul style="list-style-type: none"> • Research Methodology 	
8	H&M	<ul style="list-style-type: none"> • Introduction to Data Analytics • Intellectual Property Rights 	<ul style="list-style-type: none"> • Industrial Management • Behavioral Skills and Professional Communication 	<ul style="list-style-type: none"> • Marketing Management
9	BS	<ul style="list-style-type: none"> • Disaster Management 		<ul style="list-style-type: none"> • Environmental Impact Assessment

**B.Tech. 4 Year (8 semesters) Regular Programme in ELECTRONICS &
COMMUNICATION ENGINEERING**

COURSE STRUCTURE

(Applicable for the Batch admitted from the Academic Year 2018-19 onwards)

I YEAR

I SEMESTER

S.No.	Group	Sub Code	Subject	L	T	P	Credits
1.	BS	BS111AC	Physics	3	1	-	4
2.	BS	BS111AB	Linear Algebra and Multivariable Calculus	3	1	-	4
3.	ES	ES111AF	Programming for Problem Solving	3	-	-	3
4.	ES	ES111AE	Engineering Graphics	1	-	3	2.5
5.	ES	ES11104	Engineering Workshop	1	-	3	2.5
6.	BS	BS11102	Physics Lab	-	-	3	1.5
7.	ES	ES11105	Programming Lab	-	-	3	1.5
8.	MC	MC11106	Games and Sports	2	-	-	-
			TOTAL	13	2	12	19

I YEAR

II SEMESTER

S.No	Group	Sub Code	Subject	L	T	P	Credits
1.	BS	BS112AA	Chemistry	3	1	-	4
2.	BS	BS112AG	Numerical Techniques and Transform Calculus	3	1	-	4
3.	HS	HS112AJ	English	2	-	-	2
4.	ES	ES112AD	Basic Electrical Engineering	3	1	-	4
5.	BS	BS11207	Chemistry Lab	-	-	2	1
6.	HS	HS11212	English Professional and Communication Skills Lab	-	-	2	1
7.	ES	ES11209	Basic Electrical Engineering Lab	-	-	3	1.5
8.	ES	ES11210	Computational Mathematics Lab	-	-	3	1.5
9.	MC	MC11213	National Service Scheme (NSS)	2	-	-	-
			TOTAL	13	3	10	19

Games & Sports /NSS Participation Certificate is Mandatory for each semester

**B.Tech. 4 Year (8 semesters) Regular Programme in ELECTRONICS &
COMMUNICATION ENGINEERING**

COURSE STRUCTURE

(Applicable for the Batch admitted from the Academic Year 2018-19 onwards)

II YEAR

I SEMESTER

S.No.	Group	Sub Code	Subject	L	T	P	Credits
1.	BS	BS113AK	Mathematical Analysis	3	-	-	3
2.	ES	ES113AQ	Network Theory	3	-	-	3
3.	PC	PC113AW	Electronic Devices and Circuits	3	1	-	4
4.	PC	PC113AY	Signals and Systems	3	-	-	3
5.	PC	PC113AT	Digital System Design	3	-	-	3
6.	PC	PC11322	Electronic Circuits Lab	-	-	3	1.5
7.	ES	ES11314	Basic Simulation Lab	-	-	3	1.5
8.	PC	PC11320	Digital System Design Lab	-	-	3	1.5
9.	MC	MC11317	Gender Sensitization	2	-	-	-
			TOTAL	17	1	9	20.5

II YEAR

II SEMESTER

S.No.	Group	Sub Code	Subject	L	T	P	Credits
1.	BS	BS114BA	Probability Theory and Stochastic Processes	3	-	-	3
2.	ES	ES114BC	Material Science	3	-	-	3
3.	PC	PC114BF	Analog Circuits	3	-	-	3
4.	PC	PC114BG	Analog and Digital Communications	3	1	-	4
5.	PC	PC114BM	Microprocessors and Microcontrollers	3	-	-	3
6.	PC	PC11426	Analog Circuits Lab	-	-	3	1.5
7.	PC	PC11425	Analog and Digital Communications Lab	-	-	3	1.5
8.	PC	PC11432	Microprocessors and Microcontrollers lab	-	-	3	1.5
9.	MC	MC114BE	Environmental Sciences	2	-	-	-
			TOTAL	17	1	9	20.5

B.Tech. 4 Year (8 semesters) Regular Programme in ELECTRONICS & COMMUNICATION ENGINEERING

COURSE STRUCTURE

(Applicable for the Batch admitted from the Academic Year 2018-19 onwards)

III YEAR

I SEMESTER

S.No.	Group	Sub Code	Subject	L	T	P	Credits
1.	PC	PC115CM	VLSI Design	3	-	-	3
2.	PC	PC115BY	Digital Signal Processing	3	1	-	4
3.	PC	PC115CD	EM Theory and Transmission Lines	3	-	-	3
4.	PE-1		Professional Elective-1	3	-	-	3
		PE115BS	Computer Organization				
		PE115CC	Electronic Measurements and Instrumentation				
		PE115CF	Information Theory and Coding				
5.	PC	PC11538	Digital Signal Processing Lab	-	-	3	1.5
6.	PC	PC11539	e-CAD and VLSI Lab	-	-	3	1.5
7.	HS	HS11542	Employability and Soft Skills Lab	-	-	2	1
8.	OE	OE115XX	Open Elective – 1	3	-	-	3
			TOTAL	15	1	8	20

III YEAR

II SEMESTER

S.No.	Group	Sub Code	Subject	L	T	P	Credits
1.	HS	HS116DE	Managerial Economics and Financial Analysis	3	-	-	3
2.	PC	PC116DJ	Principles of Computer Networks	3	-	-	3
3.	PC	PC116DC	Linear Control Systems				
4.	PE-2		Professional Elective-2	3	-	-	3
		PE116CQ	Antennas and Wave Propagation				
		PE116DK	Speech and Audio Signal Processing				
		PE116CS	Bio-Medical Electronics				
5.	OE	OE116XX	Open Elective – 2	3	-	-	3
6.	PC	PC11644	Computer Networks Lab	-	-	3	1.5
7.	PC	PC11645	Electronic Design Lab	-	-	3	1.5
8.	PW	PW11652	Seminar	2	-	-	2
			TOTAL	17	-	6	20

B.Tech. 4 Year (8 semesters) Regular Programme in ELECTRONICS & COMMUNICATION ENGINEERING

COURSE STRUCTURE

(Applicable for the Batch admitted from the Academic Year 2018-19 onwards)

IV YEAR

I SEMESTER

S.No.	Group	Sub Code	Subject	L	T	P	Credits
1.	HS	HS117EC	Fundamentals of Management	3	-	-	3
2.	PC	PC117EJ	Microwave Engineering	3	-	-	3
3.	PE-3		Professional Elective-3	3	-	-	3
		PE 117DS	Digital Image & Video Processing				
		PE117EH	Low Power VLSI Design				
	PE117GH	Principles of Wireless Communications					
4.	PE-4		Professional Elective-4	3	-	-	3
		PE 117DN	Artificial Intelligence				
		PE117EA	Fiber Optic Communications				
	PE117DX	Embedded System Design					
5.	OE	OE117XX	Open Elective – 3	3	-	-	3
6.	PC	PC11757	Microwave Engineering Lab	-	-	2	1
7.	PW	PW11758	Mini Project*	-	-	-	2
8.	PW	PW11761	Project Phase – I	1	-	4	3
			TOTAL	16	-	6	21

***Note: Summer between III & IV Year: Mini Project**

IV YEAR

II SEMESTER

S.No.	Group	Sub Code	Subject	L	T	P	Credits
1.	HS	HS118FK	Entrepreneurship and Project Management	3	-	-	3
2.	PE-5		Professional Elective-5	3	-	-	3
		PE 118FL	Global Navigation Satellite Systems				
		PE118EY	Adaptive Signal Processing				
	PE118FW	Radar Systems					
3.	PE-6		Professional Elective-6	3	-	-	3
		PE118FS	Internet of Things				
		PE118EZ	Adhoc Wireless Networks				
	PE118FE	Artificial Neural Networks					
4.	OE	OE118XX	Open Elective – 4	3	-	-	3
5.	PW	PW11863	Project Phase– II	2	-	12	8
			TOTAL	14	-	12	20

LIST OF OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS FOR B.TECH.

S.No	Name of the Department Offering Open Electives	Open Elective-1 (B. Tech III Year I Semester)	Open Elective-2 (B. Tech III Year II Semester)	Open Elective-3 (B.Tech IV Year I Semester)	Open Elective-4 (B.Tech IV Year II Semester)
1	CSE/IT	<ul style="list-style-type: none"> ➤ Fundamentals of Data Structures (OE115KA) ➤ Java Programming (OE115KB) 	<ul style="list-style-type: none"> ➤ Operating Systems (OE116KJ) ➤ DataBase Management Systems (OE116KK) 	<ul style="list-style-type: none"> ➤ Cyber Security (OE117KR) ➤ Python Programming (OE117KS) ➤ Android Programming (OE117KT) 	<ul style="list-style-type: none"> ➤ Principles of Artificial Intelligence (OE118KX) ➤ Cloud Computing (OE118KY)
2	ECE/ETM	<ul style="list-style-type: none"> ➤ Basic Electronics (OE115KC) 	<ul style="list-style-type: none"> ➤ Principles of Electronic Communications (OE116KL) 	<ul style="list-style-type: none"> ➤ Telecommunication Switching Systems (OE117KU) 	<ul style="list-style-type: none"> ➤ Cellular and Mobile Communications (OE118KZ)
3	EEE	<ul style="list-style-type: none"> ➤ Electrical Materials (OE115KD) 	<ul style="list-style-type: none"> ➤ Renewable Energy Sources (OE116KM) 	<ul style="list-style-type: none"> ➤ Waste Management Techniques and Power Generation (OE117KV) 	<ul style="list-style-type: none"> ➤ Robotics (OE118MA)
4	Mechanical	<ul style="list-style-type: none"> ➤ Operations Research (OE115KE) 	<ul style="list-style-type: none"> ➤ Operations Research (OE116KE) ➤ Research Methodology (OE116KN) 		
5	H&M	<ul style="list-style-type: none"> ➤ Introduction to Data Analytics (OE115KF) ➤ Intellectual Property Rights (OE115KG) 	<ul style="list-style-type: none"> ➤ Behavioral Skills And Professional Communication (OE116KP) ➤ Intellectual Property Rights (OE116KG) 	<ul style="list-style-type: none"> ➤ Industrial Management (OE117KW) 	<ul style="list-style-type: none"> ➤ Marketing Management (OE118MB)
6	BS	<ul style="list-style-type: none"> ➤ Disaster Management (OE115KH) 			<ul style="list-style-type: none"> ➤ Environmental Impact Assessment (OE118MC)

**M.Tech. 2 Year (4 Semesters) Regular Programme in
DIGITAL ELECTRONICS AND COMMUNICATION ENGINEERING(DECE)**
Department of Electronics & Communication Engineering
COURSE STRUCTURE

(Applicable for the Batches admitted from the Academic year 2022-23)

I Year				I Semester			
S.No.	Group	Subject Code	Subject	L	T	P	Credits
1)	PC	521BA	Digital System Design with FPGA	3	0	0	3
2)	PC	521BB	Advanced Wireless Communications	3	0	0	3
3)	PSE1		Program Specific Elective - 1	3	0	0	3
		521BC	CMOS Digital VLSI Design				
		521BD	Advanced Computer Architecture				
		521BE	Real Time Operating Systems				
4)	PSE2		Program Specific Elective - 2	3	0	0	3
		521BF	Advanced Digital Signal Processing				
		521BG	Mobile Computing				
		521BH	Coding Theory and Techniques				
5)	PC	52115	Digital System Design Lab	0	0	3	1.5
6)	PC	52116	Advanced Wireless Communications Lab	0	0	3	1.5
7)	PW	521BJ	Research Methodology and IPR	2	0	0	2
8)	PW	52117	Seminar - 1	0	0	2	1
9)	AC1	52118	Audit Course - 1	2	0	0	-
			TOTAL CREDITS				18

I Year				II Semester			
S.No.	Group	Subject Code	Subject	L	T	P	Credits
1)	PC	522BK	ARM Microcontrollers and Programmable Digital Signal Processors	3	0	0	3
2)	PC	522BL	Advanced Communication Networks	3	0	0	3
3)	PSE3		Program Specific Elective – 3	3	0	0	3
		522BM	Computer Vision				
		522BN	Low power CMOS VLSI Design				
		522BP	Design of Fault Tolerant Systems				
4)	PSE4		Program Specific Elective - 4	3	0	0	3
		522BQ	Communication and Networking Technologies for IoT				
		522BR	Principles of Artificial Intelligence and Machine Learning				
		522BS	Adhoc and Wireless Sensor Networks				
5)	PC	52219	ARM Microcontrollers and Programmable Digital Signal Processors Lab	0	0	3	1.5
6)	PC	52220	Advanced Communication Networks Lab	0	0	3	1.5
7)	PW	52221	Mini Project	0	0	4	2
8)	PW	52222	Seminar - 2	0	0	2	1
9)	AC2	52223	Audit Course - 2	2	0	0	-
			TOTAL CREDITS				18

**M.Tech. 2 Year (4 Semesters) Regular Programme in
DIGITAL ELECTRONICS AND COMMUNICATION ENGINEERING(DECE)**
Department of Electronics & Communication Engineering
COURSE STRUCTURE

II Year

I Semester

S.No.	Group	Subject Code	Subject	L	T	P	Credits
1)	PSE5		Program Specific Elective – 5	3	0	0	3
		523BT	MIMO Systems				
		523BU	System on Chip Architecture				
		523BV	Embedded Networking				
2)	OE		Open Elective	3	0	0	3
3)	PW	52324	Project / Dissertation (Phase – I)	0	0	20	10
			TOTAL CREDITS				16

II Year

II Semester

S.No.	Group	Subject Code	Subject	L	T	P	Credits
1)	PW	52425	Project / Dissertation (Phase – II)	0	0	32	16
			TOTAL CREDITS				16