B. TECH IN ELECTRONICS AND COMMUNICATION ENGINEERING

Program Outcomes (POs):

The graduates will be able to

PO-1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO-2: Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

PO-3: Design/development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO-4: Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO-5: Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO-6: The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.

PO-7: Environment and Sustainability: Understand the impact of professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO-8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO-9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO-10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, making effective presentations, and giving and receiving clear instructions.

PO-11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO-12: Life-long Learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Educational Objectives (PEOs):

PEO1: To impart education producing proficient graduates suitable for employment in core and allied areas of Electronics and Communication Engineering.

PEO2: To equip graduates with necessary fundamental knowledge for higher education and research in core and multidisciplinary areas.

PEO3: To produce graduate engineers capable of innovative thinking in both individual and team setting, solving engineering problems to cater societal needs and environmental concerns.

Program Specific Outcomes (PSO):

PSO1 (Professional Competent): Graduate will be capable of applying the knowledge of Electronics and Communication Engineering principles including VLSI Technology, Communication Technology, Embedded Systems and Signal processing.

PSO2 (Technical Skills): Graduate will be capable of designing and implementing products using skilled knowledge on software and hardware tools.

CO-PO-PSO mapping of the courses offered by the department of

ECE for the B. Tech programme

Semester-I

Sl. No.	Course Type Code	Course Name	L	T	P	CR	CH
1.	CH103	Chemistry	3	0	1	4	5
2.	MS104	Mathematics-I	3	1	0	4	4
3.	EE103	Basic Electrical Engineering	3	0	0	3	3
4.	EE104	Basic Electrical Engineering Lab	0	0	1	1	2
5.	PH103	Physics-I	2	0	1	3	4
6	EF103	English	2	0	1	3	4
7.	SE100	Induction Program	-	-	-	-	8
		Total-	13	1	4	**18**	30

Semester-II

Sl. No.	Course Type Code	Course Name	L	T	P	CR	CH
1.	PH104	Physics-II	2	0	0	2	2
2.	MS105	Mathematics-II	3	1	0	4	4
3.	EC102	Basic Electronics	2	1	1	4	5
4.	ME103	Workshop Practice	0	0	2	2	4
5.	CO103	Introductory Computing	3	0	0	3	3
6.	CO104	Computing Lab	0	0	2	2	4
7.	ME102	Engineering Mechanics	3	1	0	4	4
8.	CE103	Engineering Graphics	1	0	2	3	5
		Total-	14	3	7	**24**	31

Semester-III

Sl. No.	Course Type Code	Course Name	L	T	P	CR	CH
1.	EC201	Electronics Devices	3	0	0	3	3
2.	EC202	Electronics Devices Lab	0	0	1	1	2
3.	EC203	Digital System Design	3	0	0	3	3
4.	EC204	Digital System Design Lab	0	0	1	1	2
5.	EC205	Signals and Systems	3	0	0	3	3
6.	EC206	Network Theory	3	0	0	3	3
7.	MS205	Mathematics-III	3	0	0	3	3
8.	BA201	Economics	3	0	0	3	3
9.	ES201	Environmental Science	1	0	1	0	3
		Total-	19	0	3	**20**	25

Semester-IV

Sl. No.	Course Type Code	Course Name	L	T	P	CR	CH
1.	EC207	Analog & Digital Communication	3	0	0	3	3
2.	EC208	Analog & Digital Communication Lab	0	0	1	1	2
3.	EC209	Analog Circuits	3	0	0	3	3
4.	EC210	Analog Circuits Lab	0	0	1	1	2
5.	EC211	Microcontroller and Microprocessor	3	0	0	3	3
6.	EC212	Microcontroller Lab	0	0	1	1	2
7	BT201	Biology	3	0	0	3	3
8.	CS201	Data Structure & Operating System	2	0	1	3	4
		Total	14	0	4	**18**	22

Semester-V

Sl. No.	Course Type Code	Course Name	L	T	P	C R	C H
1.	EC301	Electromagnetic Waves	3	0	0	3	3
2.	EC302	Electromagnetic Waves Lab	0	0	1	1	2
3.	EC303	Computer Architecture	3	0	0	3	3
4.	EC304	Probability Theory & Stochastic Process	3	0	0	3	3
5.	EC305	Digital Signal Processing	3	0	0	3	3
6.	EC306	Digital Signal Processing Lab	0	0	1	1	2
7.		ECE Elective-I(any one from the subjects below)	3	0	0	3	3
	EC307	• *Mobile communication& Networks*					
	EC308	• *Electrical machines and power protection*					
	EC309	• *Intelligent instrumentation*					
	EC310	• *CMOS design*					
	EC322	• *Fundamentals of Machine Learning and Deep Learning with Applications*					
8.		Open Elective-I	3	0	0	3	3
9.	LW301	Indian constitution (MC- Non Credit)	1	0	0	0	1
		Total	19	0	2	**20**	22

Semester-VI

Sl. No.	Course Type Code	Course Name	L	T	P	C R	CH
1.	EC311	Control System	3	0	0	3	3
2.	EC312	Computer Network	3	0	0	3	3
3.	EC313	Computer Network Lab	0	0	2	2	4
4.	EC314	Electronic Measurement Lab	0	0	1	1	2
5.	EC315	Mini Project	0	0	2	2	4
6.		ECE Elective-II(any one from the subjects below)	3	0	0	3	3
	EC316	• *Microwave techniques*					
	EC317	• *Speech and Audio processing*					
	EC318	• *Digital image and video processing*					
	EC319	• *VLSI Design*					
7.		Open Elective-II	3	0	0	3	3
8.	IC361	Accounting & Financial Management	3	0	0	3	3
		Total	15	0	5	**20**	25

Students will undergo a summer training of 4 weeks after 6th semester during summer vacation and submit the report and the certificate of completion in the department in the beginning of 7th semester.

Semester-VII

Sl. No.	Course Type Code	Course Name	L	T	P	C R	CH
1.		ECE Elective –III(any one from the subjects below)	3	0	0	3	3
	EC401	• Information Theory & Coding					
	EC402	• Embedded systems					
	EC403	• Satellite communication					
	EC404	• Digital systems and VHDL					
2.		ECE Elective-IV(any one from the subjects below)	3	0	0	3	3
	EC405	• Computer Vision					
	EC406	• Biomedical Signal Processing					
	EC407	• Antenna and propagation					
	EC408	• Digital control system					
3.		ECE Elective-V(any one from the subjects below)	3	0	0	3	3
	EC409	• Introduction to MEMS					
	EC410	• Biomedical electronics					
	EC411	• Fibre optic communication					
	EC412	• Nano-electronics					
4.		ECE Elective-VII(any one from the subjects below)	3	0	0	3	3
	EC413	• Fuzzy Logic and Neural network					
	EC414	• Bioneuro engineering					
	EC415	• Digital signal processor					
	EC416	• Electronics design automation					
5.		Open Elective -III	3	0	0	3	3
6.	EC417	Project- Stage I	0	0	6	6	12
7.	XXxxx	* HSS/Management Elective	3	0	0	3	3
8.	CT465	Essence of Indian Traditional Knowledge (MC- Non Credit)	1	0	0	0	1
		Total	19	0	6	**24**	31

Semester-VIII

Sl. No.	Course Code	Course Name	L	T	P	C R	C H
1.		ECE Elective-VI(any one from the subjects below)	3	0	0	3	3
	EC418	• Power electronics					
	EC419	• Mixed signal design					
	EC420	• High speed electronics					
2.		Open Elective-IV	3	0	0	3	3
3.	EC421	Project- Stage II	0	0	10	10	20
		Total	9	0	10	**16**	26