Birla Institute of Technology, Mesra, Ranchi

Course Structure for B.Tech. (Electronics and Communication Engineering)
Based on NEP-2020, CBCS and OBE, Effective from 2024-2025

Sr. No.	Semester of Study (Recommended)	Category of Course	Course Code	Subjects	Mode of Delivery & Credits *L-Lecture; T-Tutorial; P-Practical*			Total Credits
					L (Periods/Week)	T (Periods/Week)	P (Periods/Week)	
	FIRST			**THEORY**				
I.1		FS	MA24101	Mathematics - I	3	1	0	4
I.2			CH24101	Chemistry	3	1	0	4
1.3		GE	EC24101	Basic Electronics	2	1	0	3
I.4			ME24101	Basics of Mechanical Engineering	2	1	0	3
I.5		FS	CE24101	Environmental Sciences	2	0	0	2
				LABORATORIES				
I.6		FS	CH24102	Chemistry Lab	0	0	2	1
I.7		GE	EC24102	Basic Electronics Lab	0	0	2	1
I.8			ME24102	Engineering Graphics	0	0	4	2
I.9			PE24102	Workshop Practice	0	0	2	1
I.10		MC	MC24 101/ 102 /103/ 104/105	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA) /Entrepreneurship	0	0	2	1
				TOTAL (Theory + Labs)				**22**
	SECOND			**THEORY**				
II.1		FS	MA24103	Mathematics - II	3	1	0	4
II.2			PH24101	Physics	3	1	0	4
II.3			BE24101	Biological Sciences for Engineers	2	0	0	2
II.4		GE	CS24101	Programming for Problem Solving	3	1	0	4
II.5			EE24101	Basics of Electrical Engineering	2	1	0	3
				LABORATORIES				
II.6		FS	PH24102	Physics Lab	0	0	2	1
II.7		GE	CS24102	Programming for problem Solving Lab.	0	0	2	1
II.8			EE24102	Electrical Engineering Lab.	0	0	2	1
II.9		HSS	HS24131	Communication Skill - I	0	0	3	1.5
II.10		MC	MC24 106 /107/108/10 9/110	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA) /Entrepreneurship	0	0	2	1
				TOTAL (Theory + Labs)				**22.5**
				GRAND TOTAL FOR FIRST YEAR				**44.5**
	THIRD			**THEORY**				
III.1		PC	EC24201	Electronic Devices	3	1	0	4

III.2			EC24203	Digital System Design	3	0	0	3
III.3			EC24205	Network Theory	3	1	0	4
III.4			EC24207	Signals and Systems	3	0	0	3
III.5			EC24209	Probability and Random Processes	3	0	0	3
III.6		HSS	MT24131	UHV-II: Understanding Harmony	3	0	0	3
				LABORATORIES				
III.7		PC	EC24202	Electronic Devices Lab	0	0	2	1
III.8		PC	EC24204	Digital System Design Lab	0	0	2	1
III.9		MC	MC24 201/202/ 203/204 / 205	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA) / Entrepreneurship	0	0	2	1
				TOTAL (Theory + Labs)				**23**
	FOURTH			THEORY				
IV.1		PC	EC24251	Analog Circuits	3	1	0	4
IV.2			EC24253	Analog Communication	3	1	0	4
IV.3			EC24255	Computer Architecture	3	0	0	3
IV.4			EC24257	VLSI Design	3	1	0	4
IV.5		PE	XX24XXX / MO24201	Open Elective - I / MOOC - I	3	0	0	3
IV.6			HS24211	Indian Knowledge System	2	0	0	0
				LABORATORIES				
IV.7		PC	EC24252	Analog Circuits Lab	0	0	2	1
IV.8		PC	EC24258	VLSI Design Lab	0	0	2	1
IV.9		MC	MC24 206/ 207/208 / 209/ 210	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA) / Entrepreneurship	0	0	2	1
				TOTAL (Theory + Labs)				**21**
				GRAND TOTAL FOR SECOND YEAR				**44**
	FIFTH			THEORY				
V.1		PC	EC24301	Electromagnetic Fields and Waves	3	1	0	4
V.2		PC	EC24303	Digital Communication	3	0	0	3
V.3		PC	EC24305	Microprocessors	3	0	0	3
V.4		PC	EC24307	Data Communication and Computer Networking	3	1	0	4
V.5		PE	EC24XXX	Program Elective-I (PE-I)	3	0	0	3
V.6		OE	XX24XXX /MO24301	Open Elective - II / MOOC - II	3	0	0	3
				LABORATORIES				
V.7		PC	EC24304	Communication System Lab	0	0	2	1
V.8		PC	EC24306	Microprocessors Lab	0	0	2	1
V.9		PC	EC24300	Project - I				2
				TOTAL (Theory + Labs)				**24**
	SIXTH			THEORY				
VI.1		PC	EC24351	Digital Signal Processing	3	1	0	4
VI.2		PC	EC24353	Control Systems	3	1	0	4
VI.3		PC	EC24355	Embedded Systems	3	0	0	3
VI.4		PE	EC24XXX	Program Elective-II (PE-II)	3	0	0	3
VI.5		OE	XX24XXX / MO24303	Open Elective - III / MOOC - III	3	0	0	3

VI.6	HSS	MT24204	Constitution of India	2	0	0	0
			LABORATORIES				
VI.7	PC	EC24352	Digital Signal Processing Lab	0	0	2	1
VI.8	PC	EC24356	Embedded Systems Lab	0	0	2	1
VI.9	PE	EC243XXX	Program Elective-II Lab	0	0	2	1
VI.10	PC	EC24350	Project - II				2
VI.11	HSS	HS24133	Communication Skill - II	0	0	3	1.5
			TOTAL (Theory + Labs)				23.5
			GRAND TOTAL FOR THIRD YEAR				47.5
	SEVENTH		THEORY				
VII.1	PC	EC24401	Microwave Theory and Techniques	3	1	0	4
VII.2	PE	EC24XXX	Program Elective-III (PE-III)	3	0	0	3
VII.3	PE	EC24XXX	Program Elective-IV (PE-IV)	3	0	0	3
VII.4	PE	EC24XXX	Program Elective-V (PE-V)	3	0	0	3
VII.5	OE	XX24XXX / MO24401	Open Elective - IV / MOOC - IV	3	0	0	3
			LABORATORIES				
VII.6	PC	EC24402	Microwave Lab	0	0	2	1
VII.7	MC	MC24400	Summer Training (Minimum Four Weeks / 160 Hrs)				4
VII.8	PC	EC24400	Project - III				3
			TOTAL (Theory + Labs)				24
VIII.1	EIGHTH	PC	EC24450/ EC24490	Project-IV / Industry Internship			6
VIII.2		EC24498	Comprehensive Viva				2
			TOTAL (Theory + Labs)				8
			GRAND TOTAL FOR FOURTH YEAR				32
			GRAND TOTAL FOR B.TECH.				168