

COURSE STRUCTURE AND SYLLABUS FOR B.TECH DEGREE IN ELECTRONICS ENGINEERING (2025 Batch Onwards)



RAJIV GANDHI INSTITUTE OF PETROLEUM TECHNOLOGY JAIS, AMETHI
(RGIFT JAIS, AMETHI)

Credit Distribution for B. Tech Electronics Engineering 2025 Batch Onwards

Category	Range	Proposed
Humanities and Social Science (HU)	22	23
Science (IS)	70-90	80
Institute Engineering (IE)	40-70	65
Engineering Drawing, Workshop (EP)	18-24	18
Language & Management (LM)	18-24	20
Departmental Core (DC)	145-190	151
Departmental Elective (DE)	30-75	36
Open Elective (OE)	15-20	18
Project/Industrial Visit (DP)	20-50	50
Total Credits	440-490	461

Course Structure:
(B. Tech Electronics Engineering)
2025 Batch Onwards

First Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
PY111	Classical Physics (IS)	3	1	0	11
CY121	Inorganic & Physical Chemistry (IS)	3	1	0	11
MA111	Real Analysis & Calculus (IS)	3	1	0	11
ECE102	Fundamentals of Electronics Engineering (IE)	3	1	0	11
ECE101	Electronics Engineering Work Practices (EP)	1	0	2	5
ME131	Workshop Practices (EP)	0	0	3	3
ECE102L	Fundamentals of Electronics Engineering Lab (IE)	0	0	2	2
PY111L	Physics Lab (IS)	0	0	2/2	1
CY111L	Chemistry Lab (IS)	0	0	2/2	1
Total Credits					56
LM101	Basic English* (L)	1	2	0	7

*Basic English course to be taken by student on recommendation after Diagnostic Test

First Year Even Semester

Course Code	Course/Subject	L	T	P	Cr
PY121	Modern Physics (IS)	2	1	0	8
MA121	Differential Equations (IS)	3	1	0	11
CH161	Engineering Thermodynamics (IE)	3	1	0	11
CS101	Computer Programming (IE)	3	1	0	11
CS101L	Computer Programming Lab (IE)	0	0	2	2
ECE103	Solid State Electronic Devices (IE)	3	1	0	11
ME121	Engineering Graphics (EP)	0	0	3	3
PY121L	Physics Lab (IS)	0	0	2/2	1
CY121L	Chemistry Lab (IS)	0	0	2/2	1
Total Credits					59
HU102	Community Internship (HU)	1	1	0	5

Summer Term

Course/Subject	L	T	P	Cr
Industrial Training/Summer Project (DP)*	0	0	0	2

* 2-4 Weeks

Second Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
MA131	Linear Algebra & Complex Analysis (IS)	2	1	0	8
ECE221	Digital Circuits and Systems (DC)	3	1	0	11
ECE213	Electromagnetic Fields Theory (DC)	3	0	0	9
CH213	Device Fabrication (IE)	3	0	0	9
CS221	Introduction to Python and its Applications (IE)	2	0	2	8
ECE201	Network Analysis & Synthesis (DC)	3	1	0	11
ECE221L	Digital Logic Design Lab (DC)	0	0	2	2
	Total Credits				58

Second Year Even Semester

Course Code	Course/Subject	L	T	P	Cr
MA231	Statistical Methods and Data Analysis (IS)	2	1	0	8
ECE232	Analog Circuits and Systems (DC)	3	1	0	11
ECE231	Control Systems (DC)	3	1	0	11
ECE202	Fundamentals of Electrical Engineering (DC)	2	1	0	8
ECE211	Signals and Systems (DC)	3	1	0	11
PC101	Professional Communications (L)	2	1	0	8
ECE232L	Analog Circuits and Systems Lab (DC)	0	0	2	2
ECE223L	Workshop on FPGA Architecture & HDL Programming (DC)	0	0	2	2
	Total Credits				61

Summer Term

Course/Subject	L	T	P	Cr
Industrial Training/Summer Project (DP)*	0	0	0	3

* 4-6 Weeks

Third Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
ECE311	Communication Engineering - I (DC)	3	0	0	9
ECE312	Digital Signal Processing (DC)	3	0	0	9
ECE338	VLSI Design (DC)	3	0	0	9
ECE323	Instrumentation and Measurement (DC)	3	0	0	9
ECE326	Embedded Systems and IOT (DC)	3	0	0	9
	Department Elective – 1 (DE)	3	0	0	9
ECE311L	Communication Lab (DC)	0	0	2	2
ECE312L	Digital Signal Processing Lab (DC)	0	0	2	2
ECE323L	Instrumentation and Measurement Lab (DC)	0	0	2	2
	Total Credits				60

Departmental Elective (DE - 1)			
ECE332	Introduction to Time-Varying Electrical Networks	Microelectronics/ Communication	
ECE334	Memory Circuits and System		
ECE322	System Verilog for Design and Verification		
ECE333	Analog IC Design		
ECE314	Stochastic Process		
ECE328	Linear Integrated Circuits Design		

Third Year Even Semester

Course Code	Course/Subject	L	T	P	Cr
MA221	Numerical Methods (IS)	2	1	0	8
ECE316	Communication Engineering - II (DC)	3	1	0	11
	Department Elective – 2 (DE)	3	0	0	9
ECE323	Advanced Design and Simulation (EP)	1	0	2	5
ECE316L	Digital Communication Lab (DC)	0	0	2	2
	Open Elective – 1 (OE)	3	0	0	9
MT5405	Foundations of Management (M)	2	0	0	6
HU331	Organizational Psychology (HU)	2	0	0	6
	Total Credits				56

Departmental Elective (DE - 2)	
ECE336	VLSI Data Conversion Circuits
ECE337	CMOS RFIC Design
ECE324	Advanced Digital Design
ECE335	IC Fabrication
EEV333	Digital Control
ECE414	Advanced Digital Signal Processing
ECE319	Video and Image Processing
EEV301	Vehicular Communication System
MA323	Optimization Methods and Applications

Microelectronics/
Communication

Summer Term

Course/Subject	L	T	P	Cr
Industrial Training/Summer Project (DP)*	0	0	0	5

* 6-8 Weeks

Fourth Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
ECE411	Data Communication Networks (DC)	3	0	0	9
	Department Elective – 3 (DE)	3	0	0	9
	Department Elective – 4 (DE)	3	0	0	9
	Open Elective – 2 (OE)	3	0	0	9
	Leadership and People Management (M)	2	0	0	6
	Ethics and Corporate Governance (HU)	2	0	0	6
	Employability Skills and Industry Readiness (EP)	0	0	2	2
HU313	Sociology of Industry & Work Culture (HU)	2	0	0	6
	Total Credits				56

Departmental Elective (DE - 3)	
ECE431	Advanced Field Effect Devices
ECE433	Electronics System Design
ECE434	Semiconductor Optoelectronic Devices
ECE435	Flexible Electronics and Green Energy
ECE412	VLSI Digital Signal Processing
ECE403	Antennas and Propagation
ECE413	Wireless Communication
ECE318	Modern Coding Theory
ECE402	Industrial Automation
ECE414	Advanced Digital Signal Processing

Microelectronics/
Communication

Departmental Elective (DE - 4)	
ECE436	Introduction to Nano Electronics
ECE437	Advanced High Speed Devices & Circuits
ECE438	Micro-Electromechanical Systems (MEMS)
ECE401	Microwave Engineering
ECE415	Optical Communication
ECE416	Optical Networks
ECE417	Information Theory
ECE418	Satellite Communication

Microelectronics/
Communication

Fourth Year Even Semester

Course Code	Course/Subject	L	T	P	Cr	
ECE420	B.Tech. Project (Internal/External) (DP)	0	0	0	40	
	Total Credits					40