

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



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

## Credit Distribution for B. Tech Electronics Engineering 2025 Batch Onwards

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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
<b>Total Credits</b>	<b>440-490</b>	<b>461</b>

**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
	<b>Total Credits</b>				<b>56</b>
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
	<b>Total Credits</b>				<b>59</b>
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
	<b>Total Credits</b>				<b>58</b>

### 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
	<b>Total Credits</b>				<b>61</b>

### 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
	<b>Total Credits</b>				<b>60</b>

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
	<b>Total Credits</b>				<b>56</b>

<b>Departmental Elective (DE - 2)</b>		
ECE336	VLSI Data Conversion Circuits	Microelectronics/ Communication
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	

### Summer Term

<b>Course/Subject</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Cr</b>
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
	<b>Total Credits</b>				<b>56</b>

Departmental Elective (DE - 3)		
ECE431	Advanced Field Effect Devices	Microelectronics/ Communication
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	

Departmental Elective (DE - 4)		
ECE436	Introduction to Nano Electronics	Microelectronics/ Communication
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	

**Fourth Year Even Semester**

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