

COURSE STRUCTURE AND SYLLABUS
FOR
B.TECH DEGREE
IN
ELECTRONICS ENGINEERING
(2023 Batch Onwards)



विद्यारत्नम् महद्वनम्

RAJIV GANDHI INSTITUTE OF PETROLEUM TECHNOLOGY JAIS, AMETHI

(RGIPT JAIS, AMETHI)

Credit Distribution for B. Tech Electronics Engineering 2023 Batch Onwards

Category	Range	Proposed
Humanities and Social Science (HU)	22	22
Science (IS)	70-90	88
Institute Engineering (IE)	40-70	57
Engineering Drawing, Workshop (EP)	18-24	15
Language & Management (LM)	18-24	26
Departmental Core (DC)	145-190	189
Departmental Elective (DE)	30-75	36
Open Elective (OE)	15-20	18
Project/Industrial Visit (DP)	20-50	20
Total Credits	440-490	471

Course Structure:
(B. Tech Electronics Engineering)
2023 Batch Onwards

First Year Odd Semester - 1

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
BY101	Biology (IS)	2	1	0	8
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				59
LM101	Basic English* (L)	1	2	0	7
HU101	Universal Human values (HU)	1	1	0	5

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

First Year Even Semester - 2

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
ME121	Engineering Graphics (EP)	0	0	3	3
ECE101	Electronics Engineering Work Practices (EP)	1	0	2	5
PY121L	Physics Lab (IS)	0	0	2/2	1
CY121L	Chemistry Lab (IS)	0	0	2/2	1

	Total Credits				53
HU102	Community Internship (HU)	1	1	0	5

Second Year Odd Semester - 3

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
ECE201	Network Analysis & Synthesis (DC)	3	1	0	11
CH213	Material Engineering and Device Fabrication Practices (IE)	3	0	0	9
ECE211	Signals and Systems (DC)	3	1	0	11
ECE231	Solid State Electronic Devices (DC)	3	1	0	11
ECE221L	Digital Logic Design Lab (DC)	0	0	2	2
	Total Credits				63

Second Year Even Semester - 4

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
EEV231	Control Systems (DC)	3	0	0	9
ECE202	Fundamentals of Electrical Engineering (DC)	2	1	0	8
CS211	Data Structures and Algorithms (IE)	3	0	2	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
	Group Discussion (EP)	0	0	2	2
	Total Credits				61

Third Year Odd Semester - 5

Course Code	Course/Subject	L	T	P	Cr
ECE311	Principles of Communication Systems (DC)	3	1	0	11
ECE312	Digital Signal Processing (DC)	3	1	0	11
ECE313	Electromagnetic Fields and Transmission Lines (DC)	3	1	0	11
	Department Elective – 1 (DE)	3	0	0	9
ECE321	Microprocessor and Embedded Systems (DC)	3	0	0	9
ECE311L	Communication Lab (DC)	0	0	2	2
ECE321L	Microprocessor and Embedded Systems Lab (DC)	0	0	2	2
	Seminar (EP)	0	0	2	2
ECE418	B.Tech. Project (DP)	0	0	5	5
	Total Credits				62

Departmental Elective (DE - 1)

ECE332	Introduction to Time-Varying Electrical Networks	Microelectronics
ECE333	Analog IC Design	
ECE334	Memory Circuits and System	
ECE314	Stochastic Process (DC)	Communication
ECE315	Artificial Intelligence	
ECE322	System Verilog for Design and Verification	Digital Technique & Instrumentation (DTI)
ECE333	Analog IC Design	
ECE334	Memory Circuits and System	
ECE315	Artificial Intelligence	

Third Year Even Semester - 6

Course Code	Course/Subject	L	T	P	Cr
MA141	Numerical Methods (IS)	2	1	0	8
ECE316	Digital Communication (DC)	3	1	0	11
ECE335	IC Fabrication (DC)	3	0	0	9
ECE323	Instrumentation Engineering (DC)	3	0	0	9
	Department Elective – 2 (DE)	3	0	0	9
ECE323	Advanced Design and Simulation (DC)	1	0	2	5
ECE316L	Digital Communication & Signal Processing Lab (DC)	0	0	2	2
ECE323L	Instrumentation Engineering Lab (DC)	0	0	2	2
ECE419	B.Tech. Project (DP)	0	0	5	5
	Total Credits				60

Summer Internship	10
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Departmental Elective (DE - 2)		
ECE336	VLSI Data Conversion Circuits	Microelectronics
ECE337	CMOS RFIC Design	
ECE324	Advanced Digital Design	
ECE317	Machine Learning for IoT	
ECE317	Machine Learning for IoT	Communication
ECE318	Modern Coding Theory	
ECE319	Video and Image Processing	
EEV301	Vehicular Communication System	
MA323	Optimization Methods and Applications	Digital Technique & Instrumentation (DTI)
ECE324	Advanced Digital Design	
ECE317	Machine Learning for IoT	
MA323	Optimization Methods and Applications	

Fourth Year Odd Semester - 7

Course Code	Course/Subject	L	T	P	Cr
ECE411	Data Communication Networks (DC)	3	0	0	9
ECE401	Microwave Engineering (DC)	3	0	0	9
	Department Elective – 3 (DE)	3	0	0	9
	Open Elective – 1 (OE)	3	0	0	9
	Management Courses M – 1 (M)	3	0	0	9
	HSS – 1 (HU)	2	0	0	6
Total Credits					51

Departmental Elective (DE - 3)		
ECE431	Advanced Field Effect Devices	Microelectronics
ECE432	VLSI Design	
ECE433	Electronics System Design	
ECE434	Semiconductor Optoelectronic Devices	
ECE435	Flexible Electronics and Green Energy	
ECE412	VLSI Digital Signal Processing	Communication
ECE412	VLSI Digital Signal Processing	
ECE413	Wireless Communication	
ECE414	Advanced Digital Signal Processing	
ECE402	Industrial Automation	Digital Technique & Instrumentation (DTI)
ECE414	Advanced Digital Signal Processing	
ECE433	Electronics System Design	
ECE434	Flexible Electronics and Green Energy	

Fourth Year Even Semester - 8

Course Code	Course/Subject	L	T	P	Cr
ECE415	Optical Communication (DC)	3	0	0	9
	Department Elective – 4 (DE)	3	0	0	9
	Open Elective – 2 (OE)	3	0	0	9
	Management Courses M – 2 (M)	3	0	0	9
	HSS – 2 (HU)	2	0	0	6
	Total Credits				42

Departmental Elective (DE - 4)		
ECE436	Introduction to Nano Electronics	Microelectronics
ECE437	Advance High Speed Devices & Circuits	
ECE438	Micro-Electromechanical Systems (MEMS)	
ECE416	Optical Networks	Communication
ECE417	Information Theory	
ECE418	Satellite Communication	
ECE403	Antennas and Propagation	
ECE422	Switching Theory and Fault Tolerance	Digital Techniques & Instrumentation (DTI)
ECE438	Micro-Electromechanical Systems (MEMS)	