COURSE STRUCTURE
FOR
B.TECH DEGREE
IN
ELECTRONICS ENGINEERING
(2020 Batch)

विद्यारत्नम् महद्धनम्

RAJIV GANDHI INSTITUTE OF PETROLEUM TECHNOLOGY JAIS, AMETHI

(RGIPT JAIS, AMETHI)

Course Structure
(B. Tech Electronics Engineering)
2020 Batch

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
CS101	Computer Programing (IE)	3	1	2	13
ECE101	Electronics Engineering Work Practices (EP)	1	0	2	5
ME131	Workshop Practices (EP)	0	0	3	3
PY111L	Physics Lab (IS)	0	0	2/2	1
CY111L	Chemistry Lab (IS)	0	0	2/2	1
	Total Credits				**56**
LM101	Basic English* (HU)	1	2	0	7
HU101	Universal Human values (HU)	1	1	0	5

*Basic English course to be taken by student on the 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
ECE102	Fundamentals of Electronics Engineering (IE)	3	1	0	11
CH161	Engineering Thermodynamics (IE)	3	1	0	11
ME121	Engineering Graphics (EP)	0	0	3	3
BY101	Biology (IS)	2	1	0	8
PY121L	Physics Lab (IS)	0	0	2/2	1
CY121L	Chemistry Lab (IS)	0	0	2/2	1

Course Code	Course/Subject	L	T	P	Cr
ECE102L	Fundamentals of Electronics Engineering Lab (IE)	0	0	2	2
	Total Credits				**56**
HU102	Community Internship (HU)	0	0	5	5

Second Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
MA131	Linear Algebra & Complex Analysis (IS)	2	1	0	8
ECE201	Fundamentals of Electrical Engineering (DC)	3	0	0	9
MS211	Materials Science (IE)	3	0	0	9
ECE202	Network Analysis & Synthesis (DC)	3	1	0	11
ECE231	Solid State Electronic Devices (DC)	3	0	2	11
CS211	Data Structure and Algorithm (IE)	3	0	2	11
	Total Credits				**59**

Second Year Even Semester

Course Code	Course/Subject	L	T	P	Cr
PE202	Fundamental of Mechanical Engineering (IE)	3	1	0	11
ECE211	Signals and Systems (DC)	3	0	0	9
MA231	Statistical Methods and Data Analysis (IS)	2	1	0	8
MA221	Numerical Methods (IS)	2	1	0	8
ECE232	Analog Circuits and Systems (DC)	3	1	2	13
ECE221	Digital Circuits and Systems (DC)	3	1	2	13
	Total Credits				**62**

Course Code	Course/Subject	L	T	P	Cr
ECE311	Analog Communication Systems (DC)	3	0	2	11
ECE331	Microelectronics (DC)	3	0	0	9
ECE341	Electromagnetic Fields and Transmission Lines (DC)	3	0	0	9
	Department Elective – 1 (DE)	3	0	0	9
ECE321	Microprocessor Engineering (DC)	3	0	2	11
ECE418	B.Tech. Project (DP)	0	0	10	10
	Total Credits				**59**

Departmental Elective (DE – 1)	
ECE314	Telecommunication Networks
ECE 414	Stochastic Process
ECE324	Embedded Systems Design
ECE332	Optoelectronic Devices

Third Year Even Semester

Course Code	Course/Subject	L	T	P	Cr
ECE315	Digital Signal Processing (DC)	3	0	0	9
ECE316	Digital Communication (DC)	3	0	0	9
ECE316L	Digital Communication & Signal Processing Lab (DC)	0	0	2	2
	Department Elective – 2 (DE)	3	0	0	9
ECE322	Control Systems (DC)	3	0	0	9
ECE323	Instrumentation Engineering (DC)	3	0	2	11
ECE419	B.Tech. Project (DP)	0	0	10	10
	Total Credits				**59**

Summer Term

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

Departmental Elective (DE – 2)	
ECE325	Advanced Digital Design
ECE326	Artificial Intelligence
ECE327	Internet of things
ECE333	VLSI Technology

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
	Open Elective – 1 (OE)	3	0	0	9
	Management Courses M – 1 (M)	3	0	0	9
	HSS – 1 (HU)	2	0	0	6
ECE420	B.Tech. Project (DP)	0	0	10	10
	Total Credits				**52**

Departmental Elective (DE - 3)		
ECE432	Advanced Field Effect Devices	Microelectronics
ECE432	VLSI Design	
ECE433	Electronics System Design	
ECE434	Semiconductor Optoelectronic Devices	
ECE435	Green Energy and Flexible Electronics	
ECE412	VLSI Digital Signal Processing	
ECE413	Wireless Communication	Communication
ECE412	VLSI Digital Signal Processing	
ECE414	Advanced Digital Signal Processing	
ECE401	Microwave Engineering	
EEV401	Vehicular Communication System	
ECE414	Advanced Digital Signal Processing	Digital Technique & Instrumentation (DTI)
EEV331	Modern Control Systems	
ECE433	Electronics System Design	
ECE435	Green Energy and Flexible Electronics	
	Any course from electives of M.Tech in "Electric Vehicle Technology" at EIB	E-Vehicle

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)	
ECE421	Design Thinking	
ECE416	Optical Networks	Communication
ECE417	Information Theory	
ECE418	Satellite Communication	
ECE402	Antennas and Propagation	
ECE421	Design Thinking	
ECE421	Design Thinking	Digital Techniques & Instrumentation (DTI)
ECE422	Switching Theory and Fault Tolerance	
ECE438	Micro-Electromechanical Systems (MEMS)	
	Any course from electives of M.Tech in "Electric Vehicle Technology" at EIB	E-Vehicle

COURSE STRUCTURE
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ELECTRONICS ENGINEERING
(2021 Batch)

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RAJIV GANDHI INSTITUTE OF PETROLEUM TECHNOLOGY JAIS, AMETHI

(RGIPT JAIS, AMETHI)

Course Structure
(B. Tech Electronics Engineering)
2021 Batch

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
CS101	Computer Programing (IE)	3	1	2	13
ECE101	Electronics Engineering Work Practices (EP)	1	0	2	5
ME131	Workshop Practices (EP)	0	0	3	3
PY111L	Physics Lab (IS)	0	0	2/2	1
CY111L	Chemistry Lab (IS)	0	0	2/2	1
	Total Credits				**56**
LM101	Basic English* (HU)	1	2	0	7
HU101	Universal Human values (HU)	1	1	0	5

*Basic English course to be taken by student on the 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
ECE102	Fundamentals of Electronics Engineering (IE)	3	1	0	11
CH161	Engineering Thermodynamics (IE)	3	1	0	11
ME121	Engineering Graphics (EP)	0	0	3	3
BY101	Biology (IS)	2	1	0	8
PY121L	Physics Lab (IS)	0	0	2/2	1
CY121L	Chemistry Lab (IS)	0	0	2/2	1

Course Code	Course/Subject	L	T	P	Cr
ECE102L	Fundamentals of Electronics Engineering Lab (IE)	0	0	2	2
	Total Credits				**56**
HU102	Community Internship (HU)	0	0	5	5

Second Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
MA131	Linear Algebra & Complex Analysis (IS)	2	1	0	8
ECE201	Fundamentals of Electrical Engineering (DC)	3	0	0	9
MS211	Materials Science (IE)	3	0	0	9
ECE202	Network Analysis & Synthesis (DC)	3	1	0	11
ECE231	Solid State Electronic Devices (DC)	3	0	2	11
CS211	Data Structure and Algorithm (IE)	3	0	2	11
	Total Credits				**59**

Second Year Even Semester

Course Code	Course/Subject	L	T	P	Cr
ECE211	Signals and Systems (DC)	3	0	0	9
MA231	Statistical Methods and Data Analysis (IS)	2	1	0	8
MA221	Numerical Methods (IS)	2	1	0	8
ECE232	Analog Circuits and Systems (DC)	3	1	0	11
ECE232L	Analog Circuits and Systems Lab (DC)	0	0	2	2
ECE221	Digital Circuits and Systems (DC)	3	1	0	11
ECE221L	Digital Circuits and Systems Lab (DC)	0	0	2	2

	Professional Communications (L)	2	1	0	8
	Group Discussion (DP)	0	0	2	2
	Total Credits				**61**

Third Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
ECE311	Analog Communication Systems (DC)	3	0	0	9
ECE311L	Analog Communication Systems Lab (DC)	0	0	2	2
ECE331	IC Fabrication (DC)	3	0	0	9
ECE341	Electromagnetic Fields and Transmission Lines (DC)	3	0	0	9
	Department Elective – 1 (DE)	3	0	0	9
ECE321	Microprocessor and Embedded Systems (DC)	3	0	0	9
ECE321L	Microprocessor and Embedded Systems Lab (DC)	0	0	2	2
	Seminar (DP)	0	0	2	2
ECE418	B.Tech. Project (DP)	0	0	10	10
	Total Credits				**61**

Departmental Elective (DE - 1)		
ECE332	Fundamentals of System on Chip (SoC) Design	Microelectronics
ECE333	Advanced Analog IC Design	
ECE334	Memory Circuits and System	
ECE313	Stochastic Process	Communication
ECE314	Artificial Intelligence	
ECE322	Embedded Linux	Digital Technique & Instrumentation (DTI)
ECE333	Advanced Analog IC Design	
ECE334	Memory Circuits and System	
ECE314	Artificial Intelligence	
EEV351	Fundamentals of E-Vehicles	E-Vehicle
EEV-EL1	Any course from Third Year, Odd Semester EEV	

Third Year Even Semester

Course Code	Course/Subject	L	T	P	Cr
ECE315	Digital Signal Processing (DC)	3	0	0	9
ECE316	Digital Communication (DC)	3	0	0	9
ECE316L	Digital Communication & Signal Processing Lab (DC)	0	0	2	2
	Department Elective – 2 (DE)	3	0	0	9
ECE323	Control Systems (DC)	3	0	0	9
ECE324	Instrumentation Engineering (DC)	3	0	2	11
ECE419	B.Tech. Project (DP)	0	0	10	10
	Total Credits				**59**

Summer Term

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

Departmental Elective (DE - 2)		
ECE335	Advanced System on Chip (SoC) Design	
ECE336	CMOS RFIC Design	Microelectronics
ECE325	Advanced Digital IC Design	
ECE317	Internet of Things (IoT)	
ECE317	Internet of Things (IoT)	Communication
ECE318	Modern Coding Theory	
ECE325	Advanced Digital IC Design	Digital Technique & Instrumentation (DTI)
ECE317	Internet of Things (IoT)	
ECE326	Electrical and Electronics Measurements	
EEV-EL2	Any course from Third Year, Even Semester EEV	E-Vehicle

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
	Open Elective – 1 (OE)	3	0	0	9
	Management Courses M – 1 (M)	3	0	0	9
	HSS – 1 (HU)	2	0	0	6
ECE420	B.Tech. Project (DP)	0	0	10	10
	Total Credits				**52**

	Departmental Elective (DE - 3)	
ECE432	Advanced Field Effect Devices	Microelectronics
ECE432	VLSI Design	
ECE433	Electronics System Design	
ECE434	Semiconductor Optoelectronic Devices	
ECE435	Green Energy and Flexible Electronics	
ECE412	VLSI Digital Signal Processing	
ECE413	Wireless Communication	Communication
ECE412	VLSI Digital Signal Processing	
ECE414	Advanced Digital Signal Processing	
ECE401	Microwave Engineering	
EEV401	Vehicular Communication System	
ECE414	Advanced Digital Signal Processing	Digital Technique & Instrumentation (DTI)
EEV331	Modern Control Systems	
ECE433	Electronics System Design	
ECE435	Green Energy and Flexible Electronics	
EEV-EL3	Any course from Fourth Year, Odd Semester EEV	E-Vehicle

Fourth Year Even Semester

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)	
ECE421	Design Thinking	
ECE416	Optical Networks	Communication
ECE417	Information Theory	
ECE418	Satellite Communication	
ECE402	Antennas and Propagation	
ECE421	Design Thinking	
ECE421	Design Thinking	Digital Techniques & Instrumentation (DTI)
ECE422	Switching Theory and Fault Tolerance	
ECE438	Micro-Electromechanical Systems (MEMS)	
EEV-EL4	Any course from Fourth Year, Even Semester EEV	E-Vehicle

COURSE STRUCTURE
FOR
B.TECH DEGREE
IN
ELECTRONICS ENGINEERING
(2022 Batch Onwards)

विद्यास्त्लम् महद्धनम्

RAJIV GANDHI INSTITUTE OF PETROLEUM TECHNOLOGY JAIS,
AMETHI

(RGIPT JAIS, AMETHI)

Course Structure
(B. Tech Electronics Engineering)
2022 Batch onwards

First Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
PY111	Classical Physics (IS)	3	1	0	11
CY111	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
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

Course Code	Course/Subject	L	T	P	Cr
MA121	Differential Equations (IS)	3	1	0	11
CH161	Engineering Thermodynamics (IE)	3	1	0	11
CS101	Computer Programing (IE)	3	1	2	13
EE102	Fundamentals of Electrical Engineering (IE)	3	0	0	9
ME121	Engineering Graphics (EP)	0	0	3	3
BY101	Biology (IS)	2	1	0	8
	Total Credits				**55**
HU102	Community Internship (HU)	0	0	5	5

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
ECE221L	Digital Circuits and Systems Lab (DC)	0	0	2	2
ECE201	Network Analysis & Synthesis (DC)	3	1	0	11
ECE211	Signals and Systems (DC)	3	1	0	11
ECE231	Solid State Electronic Devices (DC)	3	1	0	11
ECE222	Circuit Design and Simulation (EP)	1	0	2	5
	Total Credits				**59**

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
ECE232L	Analog Circuits and Systems Lab (DC)	0	0	2	2
EEV231	Control Systems (DC)	3	1	0	11
CS231	Computer Organization and Architecture (IE)	3	0	0	9
MA323	Optimization Methods and Applications (IE)	3	0	0	9
ECE223L	Lab Workshop on FPGA Architecture & HDL Programming (EP)	0	0	2	2
	Professional Communications (L)	2	1	0	8
	Group Discussion (DP)	0	0	2	2
	Total Credits				**62**

Third Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
ECE311	Principles of Communication Systems (DC)	3	0	0	9
ECE311L	Communication Lab (DC)	0	0	2	2
ECE312	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
ECE321L	Microprocessor and Embedded Systems Lab (DC)	0	0	2	2
	Seminar (DP)	0	0	2	2
ECE418	B.Tech. Project (DP)	0	0	10	10
	Total Credits				**54**

Departmental Elective (DE - 1)		
ECE332	Fundamentals of System on Chip (SoC) Design	Microelectronics
ECE333	Advanced Analog IC Design	
ECE334	Memory Circuits and System	
ECE313	Stochastic Process	Communication
ECE314	Artificial Intelligence	
ECE322	System Verilog for Design and Verification	Digital Technique & Instrumentation (DTI)
ECE333	Advanced Analog IC Design	
ECE334	Memory Circuits and System	
ECE314	Artificial Intelligence	
EEV351	Fundamental of E-Vehicles	E-Vehicle
EEV-EL1	Any course from Third Year, Odd Semester EEV	

Third Year Even Semester

Course Code	Course/Subject	L	T	P	Cr
ECE315	Digital Signal Processing (DC)	3	1	0	11
ECE316	Digital Communication (DC)	3	0	0	9
ECE316L	Digital Communication & Signal Processing Lab (DC)	0	0	2	2
ECE335	IC Fabrication (DC)	3	0	0	9
	Department Elective – 2 (DE)	3	0	0	9
ECE323	Advanced Design and Simulation (DC)	1	0	2	5
ECE419	B.Tech. Project (DP)	0	0	10	10
	Total Credits				**55**

Summer Term

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

Departmental Elective (DE - 2)		
ECE336	Advanced System on Chip (SoC) Design	Microelectronics
ECE337	CMOS RFIC Design	
ECE324	Advanced Digital Design	
ECE317	Internet of Things (IoT)	
ECE317	Internet of Things (IoT)	Communication
ECE318	Modern Coding Theory	
ECE324	Advanced Digital Design	Digital Technique & Instrumentation (DTI)
ECE317	Internet of Things (IoT)	
ECE325	Electrical and Electronics Measurements	
EEV-EL2	Any course from Third Year, Even Semester EEV	E-Vehicle

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
	Open Elective – 1 (OE)	3	0	0	9
	Management Courses M – 1 (M)	3	0	0	9
	HSS – 1 (HU)	2	0	0	6
ECE420	B.Tech. Project (DP)	0	0	10	10
	Total Credits				**52**

Departmental Elective (DE - 3)		
ECE431	Advanced Field Effect Devices	Microelectronics
ECE432	VLSI Design	
ECE433	Electronics System Design	
ECE434	Semiconductor Optoelectronic Devices	
ECE435	Green Energy and Flexible Electronics	
ECE412	VLSI Digital Signal Processing	
ECE413	Wireless Communication	Communication
ECE412	VLSI Digital Signal Processing	
ECE414	Advanced Digital Signal Processing	
ECE401	Microwave Engineering	
EEV401	Vehicular Communication System	
ECE414	Advanced Digital Signal Processing	Digital Technique & Instrumentation (DTI)
EEV331	Modern Control Systems	
ECE433	Electronics System Design	
ECE435	Green Energy and Flexible Electronics	
EEV-EL3	Any course from Fourth Year, Odd Semester EEV	E-Vehicle

Fourth Year Even Semester

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)	
ECE421	Design Thinking	
ECE416	Optical Networks	Communication
ECE417	Information Theory	
ECE418	Satellite Communication	
ECE421	Design Thinking	
ECE402	Antennas and Propagation	
ECE421	Design Thinking	Digital Techniques & Instrumentation (DTI)
ECE422	Switching Theory and Fault Tolerance	
ECE438	Micro-Electromechanical Systems (MEMS)	
EEV-EL4	Any course from Fourth Year, Even Semester EEV	E-Vehicle