

COURSE STRUCTURE
FOR
B.TECH DEGREE
IN
ELECTRICAL ENGINEERING
(MAJOR IN E-VEHICLE)
2022 Batch Onwards



विद्यारत्नम् महद्धनम्

RAJIV GANDHI INSTITUTE OF PETROLEUM TECHNOLOGY
JAIS, AMETHI

(RGIPT JAIS, AMETHI)

Course Structure

(B. Tech. in Electrical Engineering: Major in E-Vehicle) 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
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				51
LM101	Basic English* (L)	1	2	0	7
HU101	Universal Human values (HU)	1	1	0	5

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

First Year Even Semester

Course Code	Course/Subject	L	T	P	Cr
MA121	Differential Equations (IS)	3	1	0	11
CS101	Computer Programming (IE)	3	1	2	13
EEV101	Electrical Circuits and Measurements (IE)	3	1	0	11
BY101	Biology (IS)	2	1	0	8
CH161	Engineering Thermodynamics (IE)	3	1	0	11
EEV102	Electrical Engineering Work Practices (EP)	1	0	2	5
ME121	Engineering Graphics (EP)	0	0	3	3
	Total Credits				62
HU102	Community Internship (HU)	0	0	5	5

Second Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
MA211	Linear Algebra and Complex Analysis (IS)	2	1	0	8
EEV211	Electrical Machine – I (DC)	3	1	0	11
EEV211L	Electrical Machine – I Lab (DC)	0	0	2	2
ECE202	Network Analysis and Synthesis (DC)	3	1	0	11
ECE221	Digital Circuits and Systems (DC)	3	0	0	9
ECE221L	Digital Circuits and Systems Lab (DC)	0	0	2	2
ECE211	Signals and Systems (DC)	3	1	0	11
EEV201	Circuit Design and Simulation Lab (EP)	0	0	2	2
	Professional Communications (L)	2	1	0	8
	Total Credits				64

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
EEV212	Electrical Machines – II (DC)	3	1	0	11
EEV221	Power Electronic Devices & Converters (DC)	3	1	0	11
EEV221L	Power Electronic Devices & Converters Lab (DC)	0	0	2	2
	Group Discussion (DP)	0	0	2	2
	Total Credits				58

Third Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
ECE321	Microprocessor and Embedded Systems (DC)	3	0	0	9
ECE321L	Microprocessor and Embedded Systems Lab (DC)	0	0	2	2
ECE312	Electromagnetic Fields and Transmission Lines (DC)	3	1	0	11
EEV321	Power Electronic Converters and Applications (DC)	3	0	0	9
EEV321L	Power Electronic Converters and Applications Lab (DC)	0	0	2	2
	Department Elective – 1 (DE)	3	0	0	9
EEV212L	Electrical Machine – II Lab (DC)	0	0	2	2
	Seminar (DP)	0	0	2	2
EEV418	B.Tech. Project (DP)	0	0	10	10
	Total Credits				56

Departmental Elective – 1 (DE – 1)

EEV351	Introduction to E-Vehicles
EEV322	Modelling and Control of Power Converters
EEV301	Design & Simulation of Electrical Systems
EEV302	Instrumentation Engineering
EEV331	Modern Control Systems
ECE-EL1	Any course from Third Year, Odd Semester ECE

Third Year Even Semester

Course Code	Course/Subject	L	T	P	Cr
ECE311	Principles of Communication Systems (DC)	3	0	0	9
EEV341	Power Systems – I (DC)	3	0	0	9
EEV311	Electric Drives (DC)	3	0	0	9
	Departmental Elective – 2 (DE)	3	0	0	9
EEV352L	Electric Vehicle Technology Lab (EP)	0	0	2	2
EEV311L	Electric Drives Lab (DC)	0	0	2	2
EEV419	B.Tech. Project (DP)	0	0	10	10
	Total Credits				50

Summer Term

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

Departmental Elective – 2 (DE – 2)	
EEV352	Electric Vehicle Technology – I
EEV353	AI and ML for EV Applications
EEV303	Vehicular Communication System
EEV354	Embedded System for E-Vehicle
EEV323	Control Techniques in Power Electronics
EEV332	Digital Control Systems
ECE-EL2	Any course from Third Year, Even Semester ECE

Fourth Year Odd Semester

Course Code	Course/Subject	L	T	P	Cr
EEV441	Power System Protection and Switchgear (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
EEV420	B.Tech. Project (DP)	0	0	10	10
Total Credits					52

Departmental Elective – 3 (DE – 3)	
EEV451	Electric Vehicle Technology – II
EEV452	Impact of E-Vehicle on Power Grids
EEV453	IoT in E-Vehicle Applications
EEV454	Hydrogen and Fuel Cell Technology for Electric and Hybrid Vehicles
EEV455	EV Batteries and Battery Management System
EEV411	Advanced Electric Drives
EEV442	Power Quality
EEV443	Energy Technologies
ECE-EL3	Any course from Fourth Year, Odd Semester ECE

Fourth Year Even Semester

Course Code	Course/Subject	L	T	P	Cr
EEV444	Power Systems – II (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 – 4 (DE – 4)	
EEV456	Electric Vehicle Technology – III
EEV457	Standards, Testing and Certification of Electric & Hybrid Vehicles
EEV458	Vehicle Safety Systems
EEV459	Plug-In Electric Vehicles in Smart Grid
EEV445	Modelling and Simulation of Power System
EEV446	Smart Grid Technology
EEV447	Power System Optimization
EEV448	Distributed Energy Resources
ECE-EL4	Any course from Fourth Year, Even Semester ECE