

Electrical Engineering (Rail Engineering) Program Curriculum

Sr. No	Category	Breakup of Credits	
1	Humanities and Social Sciences	5	3.13%
2	Basic Science	19	11.88%
3	Railway and Transportation Specific	27	16.88%
4	Program Core	63	39.38%
5	Project and Internships	16	10.00%
6	Electives	6	3.75%
7	Engineering Sciences	24	15.00%
	Total:	160	100.00%

Sem-I

Sr. no.	Course code	Course Title	L	T	P	C
1	IDL101	Introduction to Mechanical and Civil Engineering	3	0	0	3
2	IDP102	Engineering Graphics and Workshop Practices	1	0	2	2
3	IDP103	Computer Programming - I (C, C++)	2	0	2	3
4	1DL104	Design Thinking	2	0	0	2
5	REL101	Introduction to Rail Systems Engineering	2	0	0	2
6	MAL101	Mathematics-I	3	1	0	4
7	PHL101	Physics	3	0	0	3
8	PHP102	Physics Lab	0	0	2	1
Total			16	1	6	20

Sem-II

Sr. no.	Course code	Course Title	L	T	P	C
1	IDL105	Engineering Mechanics	2	1	0	3
2	IDP106	Engineering Mechanics Lab	0	0	2	1
3	IDL107	Basic Electrical and Electronics Engineering	2	1	0	3
4	IDP108	Basic Electrical and Electronics Engineering Lab	0	0	2	1
5	IDP109	Computer Programming - II (Python)	1	0	2	2
6	TLL101	Introduction to Multimodal Transportation Ecosystem	1	0	0	1
7	MAL102	Mathematics-II (Including Statistics)	3	1	0	4
8	CYL101	Chemistry	3	0	0	3
9	CYP102	Chemistry Lab	0	0	2	1
10	EEI101	Health, Wellness and Yoga	0	0	2	1
11	HSP101	Summer Internship-1 (2 - 3 Weeks)	0	0	2	1
Total			12	3	12	21

Sem-III

Sr. no.	Course code	Course Title	L	T	P	C
1	MAL203	Numerical Methods in Engineering	2	0	2	3
2	REL202	Principles of Railway Operations	2	0	0	2
3	EEL201	Engineering Electromagnetics	3	0	0	3
4	EEL202	Electrical Networks Analysis & Synthesis	3	0	0	3
5	EEL203	Electrical Networks Analysis & Synthesis Lab	0	0	2	1
6	EEL204	Analog and Digital Electronics	3	0	0	3
7	EEL205	Analog and Digital Electronics Lab	0	0	2	1
8	EEL206	Signals and Systems	3	1	0	4
9	IDL201	Entrepreneurship and Innovation	2	0	0	2
Total			18	1	6	22

Sem-IV

Sr. no.	Course code	Course Title	L	T	P	C
1	REL203	Fundamentals of Railway Signalling Systems	3	0	0	3
2	EEL207	Electrical Machines 1	3	0	0	3
3	EEP208	Electrical Machines 1 Lab	0	0	2	1
4	EEL209	Microcontrollers and Embedded Systems	3	0	0	3
5	EEP210	Microcontrollers and Embedded Systems Lab	0	0	2	1
6	EEL211	Electrical Measurements and Instrumentation	3	0	0	3
7	EEP212	Electrical Measurements and Instrumentation Lab	0	0	2	1
8	EEL213	Linear Control Systems	3	0	0	3
9	EEP214	Linear Control Systems Lab	0	0	2	1
10	IDL202	Ethics in Engineering Practice	1	0	0	1
11		Summer internship-2 (4 to 6 weeks)	0	0	4	2
Total			16	0	12	22

Sem-V

Sr. no.	Course code	Course Title	L	T	P	C
1	EEL315	Electrical Machines 2	3	0	0	3
2	EEP316	Electrical Machines 2 Lab	0	0	2	1
3	EEL317	Electrical Power Generation, Transmission & Distribution	3	0	0	3
4	EEL318	Data Structures and Algorithms	3	0	0	3
5	EEP319	Data Structures and Algorithms Lab	0	0	2	1
6	EEL320	Modern Control Systems	3	1	0	4
8	IDL303	Artificial Intelligence and Machine Learning	3	0	0	3
9	REL304	Engineering Economics, Costing, Estimation and Tendering	3	0	0	3
10	HSL301	Indian Constitution	1	0	0	1
Total			19	1	4	22

Sem-VI

Sr. no.	Course code	Course Title	L	T	P	C
1	REL305	Energy Sustainability	3	0	0	3
2	EEL321	Switchgear and Protection	3	0	0	3
3	EEP322	Switchgear and Protection Lab	0	0	2	1
4	REL306	Electric Drives, Traction and Rolling Stock	3	0	0	3
5	REP307	Electric Drives, Traction and Rolling Stock Lab	0	0	2	1
6	EEL323	Power Electronics	3	0	0	3
7	EEL324	Power Electronics Lab	0	0	2	1
8	EEL3XX	Elective-1	3	0	0	3
9	TL302	Logistics and Supply Chain Management	2	0	0	2
10	EEI302	Summer internship-3 (4 to 6 weeks)	0	0	6	3
Total			17	0	12	23

Sem-VII

Sr. no.	Course code	Course Title	L	T	P	C
1	REL408	High Voltage Engineering	3	0	0	3
2	REP409	High Voltage Engineering Lab	0	0	2	1
3	EEL425	Robotics and Drones	3	0	0	3
4	EEP426	Robotics and Drones Lab	0	0	2	1
5	REL410	Rail Vehicle Dynamics	3	0	0	3
6	EEL427	Advanced Power Electronics	3	0	0	3
7	EEL428	Advanced Power Electronics Lab	0	0	2	1
8	EEL4XX	Elective-2	3	0	0	3
9	IDL404	Reliability, Availability, Maintainability and Safety	2	0	0	2
10	EED401	Project-I	0	0	4	2
Total			17	0	10	22

Sem-VIII

Sr. no.	Course code	Course Title	L	T	P	C
1	EED402	Project-II	0	0	16	8
Total			0	0	16	8

Elective 1

Power System Operation and Control
Digital Signal Processing
Special Electrical Machines

Elective 2

Energy Storage and Battery Management Systems
Design of Electric Machines
Operations Research