



Department of Electrical Engineering

School of Engineering and Technology

Student Starter Kit

Academic Session 2026–27

A Guide to Your Academic Journey

This handbook provides an overview of academic programmes, curriculum structure, programme outcomes, laboratory facilities, electives, projects, internships and graduation requirements in the Department of Electrical Engineering, Islamic University of Science and Technology.

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1. Welcome

Welcome to the Department of Electrical Engineering. This Starter Kit has been prepared to help you understand the academic structure of the Department and to familiarise you with the opportunities available during your studies. It summarises the curriculum, programme outcomes, laboratory facilities, electives, projects, internships and academic requirements of the programmes offered by the Department. The handbook should be read together with the University Ordinances, Academic Regulations and notifications issued from time to time.

2. Programmes Offered

Programme	Description
B.Tech. Electrical Engineering	Four-year undergraduate programme providing strong foundations in electrical engineering together with laboratory training, projects, industrial exposure and multidisciplinary electives.
B. Tech. (Lateral Entry) Electrical Engineering	3-year undergraduate programme providing strong foundations in electrical engineering together with laboratory training, projects, industrial exposure and multidisciplinary electives.
B.Tech. Honours	An optional pathway enabling students to pursue advanced study in an approved specialisation along with the regular B.Tech. curriculum.
B.Tech. Minor Specialisation	An interdisciplinary pathway allowing students to acquire expertise in a secondary area of study.
M.Tech. Electrical Engineering (Electric Vehicle Technology)	A postgraduate programme focusing on electric mobility, power electronics, advanced control, battery systems and sustainable transportation technologies.
Ph.D. Electrical Engineering	Research programme leading to the award of the Doctor of Philosophy.

3. B.Tech. Electrical Engineering

3.1 Programme Overview

The Bachelor of Technology (B.Tech.) programme in Electrical Engineering is an eight-semester undergraduate programme designed to develop strong analytical, computational and practical engineering skills. The curriculum combines engineering sciences, electrical engineering, computing, laboratories, industrial exposure, multidisciplinary electives and project-based learning to prepare graduates for professional practice, higher studies, research and entrepreneurship. Students may also pursue Honours or Minor Specialisation pathways in accordance with the Academic Regulations of the University.

3.2 Programme Outcomes

Graduates of the B.Tech. programme will have:

PO	Programme Outcome
PO1	Ability to apply the knowledge of mathematics, science and engineering principles for modeling, analyzing and solving electrical engineering problems.
PO2	Ability to identify, formulate and analyze real-life electrical engineering problems.
PO3	Ability to design and develop solutions for real-life electrical engineering problems.
PO4	Ability to design and develop sophisticated equipment and experimental systems for carrying out detailed investigation to multifaceted electrical engineering problems.
PO5	Ability to develop and utilize modern tools for modeling, analyzing and solving electrical engineering problems.
PO6	Dedication to work as an electrical engineer who is capable of identifying solutions to various local and global problems faced by the society.
PO7	Ability to design and develop modern systems for the upkeep of pollution free environment.
PO8	Willingness and ability to upkeep professional ethics and social values.
PO9	Willingness and ability to think independently, take initiative and lead a team of engineers or researchers.
PO10	Ability to express ideas clearly and communicate orally as well as in writing with others.
PO11	Willingness and ability to maintain lifelong learning process by way of participating in various professional activities.
PO12	Willingness and ability to take up administrative responsibilities involving both project and financial management confidently.

3.3 Programme Snapshot

Item	Details
Programme	Bachelor of Technology (B.Tech.) in Electrical Engineering
Duration	Four Years (Eight Semesters)
Mode	Full Time
Department	Electrical Engineering
Special Pathways	Honours and Minor Specialisation
Learning Components	Theory, Laboratory, Industrial Training, Seminar, Minor Project and Major Project

3.4 Curriculum Highlights

The curriculum has been designed to provide balanced exposure to engineering fundamentals, electrical engineering, computing, professional practice and multidisciplinary learning.

Engineering Core

Electrical Networks
Signals and Systems
Engineering
Electromagnetics
Electrical Machines
Power Electronics
Power Systems
Control Systems
Electrical Measurements

Computing

Programming
Scientific Computing
Microprocessors
Microcontrollers
Python Programming
Data Science
Machine Learning
Simulation

Professional Practice

Laboratory Courses
Industrial Training
Seminar
Minor Project
Major Project
Open Electives
Generic Electives
Discipline Electives

3.5 Core Curriculum

The curriculum is organised into four broad components.

Component	Representative Courses
Basic Sciences	Engineering Mathematics, Applied Physics, Applied Chemistry, Engineering Graphics, Programming and Workshop Practice
Electrical Engineering Fundamentals	Electrical Networks, Signals and Systems, Engineering Electromagnetics, Electrical Engineering Materials, Electrical Measurements and Electrical Machines
Power and Energy	Power Electronics, Power Systems, Electric Drives, Switchgear and Protection, Renewable Energy Systems and Electric Vehicle Technology
Automation and Computing	Control Systems, Microprocessors, Microcontrollers, Scientific Computing, Data Science and Machine Learning

3.6 Laboratory Experience

Laboratory instruction forms an integral part of the programme. Students perform experiments alongside theory courses to reinforce analytical, computational and practical engineering skills.

- Basic Electrical Engineering Laboratory
- Electrical Networks Laboratory
- Electrical Machines Laboratory
- Power Electronics Laboratory
- Control Systems Laboratory
- Electrical Measurements Laboratory
- Microprocessor Laboratory
- Electric Drives Laboratory
- Power Systems Laboratory
- Renewable Energy Laboratory
- Data Science Laboratory
- Scientific Computing Laboratory

3.7 Distribution of Credits

The B.Tech. Electrical Engineering curriculum is organised across foundational, professional, elective and project-based learning components. The minimum credit requirements are distributed as follows.

S. No.	Category	Credits Breakup
1	Humanities and Social Science including Management Courses	09
2	Basic Science Courses	19
3	Engineering Science Courses	31
4	Professional Core Courses	75
5	*Discipline Centric Electives	12
6	**Generic Electives (Minimum)	09 (min)
7	Open Electives (Minimum)	08 (min)
8	Project	10
9	Specialization	18 (Optional)
10	Seminar / Internship	Audit
Total		173 (min)

**Discipline Centric Electives are open only to students of Electrical Engineering.*

***Generic electives are open to students of Electrical Engineering, Electronics and Communication Engineering, Mechanical Engineering, Computer Science and Engineering, and other relevant disciplines, subject to the applicable University regulations.*

3.8 Elective Courses

The programme provides flexibility through Discipline-Centric Electives, Generic Electives and Open Electives, enabling students to pursue advanced topics according to their academic interests and career aspirations.

Discipline-Centric Electives

- | | |
|--|--|
| 1. Power Station Practice | 11. Nonlinear Control Systems |
| 2. Special Electrical Machines | 12. Flexible AC Transmission Systems (FACTS) |
| 3. Computational Electromagnetics | 13. EHV AC and DC Transmission |
| 4. Electrical Machine Design | 14. Utilization of Electrical Energy |
| 5. Applied Linear Algebra for Electrical Engineering | 15. Electric Vehicle Technology |
| 6. Power Generation Plants | 16. Power System Dynamics and Stability |
| 7. Power System Operation and Control | 17. Power Quality |
| 8. High Voltage Engineering | 18. Fundamentals of Smart Grids |
| 9. Energy Conservation and Auditing | 19. Principles of System Identification |
| 10. Advanced Power Electronics | 20. Optimal Control Methods |

Generic Electives

- | | |
|--|--|
| • Renewable Energy Systems | • Small Hydro Plants |
| • Sensors, Transducers and Instrumentation Systems | • Wind Energy Technology |
| • Electrical Installations | • Optimization for Engineering Design |
| • Design of Solar PV Systems | • Carbon Audit and Net Zero Energy Buildings |

3.9 Experiential Learning

The programme emphasizes learning through practical experience.

Component	Purpose
Laboratory Courses	Develop experimental skills and reinforce theoretical concepts.
Industrial Training	Provide exposure to industrial practices and the professional work environment.
Minor Project	Develop analytical, design and implementation skills through guided project work.
Major Project	Integrate knowledge acquired throughout the programme into an independent engineering project.

3.10 Programme Completion Requirements

The Bachelor of Technology in Electrical Engineering degree shall be awarded upon successful completion of:

- All prescribed theory courses
- All laboratory courses
- Industrial Training
- Seminar requirements
- Minor Project
- Major Project
- Required Discipline-Centric Electives
- Required Generic Electives
- Required Open Electives
- All prescribed programme credits
- Any additional academic requirements prescribed by the University

Note on Course Structure: *The detailed semester-wise course structure for the B.Tech. Electrical Engineering programme, including course codes, course titles, L–T–P–S distribution, credits, electives, industrial training, internship and project requirements, is provided in Annexure I.*

4. B.Tech. Honours and Minor Specialisations

The Department offers Honours and Minor Specialisation pathways to provide students with opportunities for advanced learning beyond the regular B.Tech. curriculum. These pathways enable students to acquire specialised knowledge in emerging areas while maintaining the breadth of the Electrical Engineering programme.

4.1 Objectives

The Honours and Minor pathways are intended to:

- Encourage multidisciplinary learning
- Provide advanced domain knowledge
- Strengthen analytical and design capabilities
- Prepare students for higher studies and research
- Improve professional competence and employability
- Promote innovation and lifelong learning

4.2 Programme Features

Feature	Description
Eligibility	As prescribed in the University Academic Regulations.
Duration	Completed concurrently with the regular B.Tech. programme.
Learning Mode	Additional theory courses, electives, laboratory work and projects.
Award	B.Tech. with Honours or B.Tech. with Minor Specialisation.
Objective	Advanced study in approved specialisation domains.

4.3 Specialisations Offered by the Department

The Department presently offers the following specialisation pathways.

Energy Systems Engineering

Renewable Energy
Smart Grids
Distributed Generation
Energy Storage
Power System Planning
Sustainable Energy Technologies

Electric Vehicle Technology

Electric Vehicles
Battery Systems
Electric Drives
Charging Infrastructure
Power Electronics
Vehicle Control

4.4 Minor Specialisations from Other Departments

- Artificial Intelligence and Machine Learning
- Sustainability Engineering
- Computational Mechanics
- VLSI Design and Technology
- Food Quality and Safety
- Space Technology
- Solar Photovoltaic

4.5 Benefits

Completion of an Honours or Minor pathway enables students to:

- Acquire advanced knowledge in emerging technologies
- Strengthen preparation for postgraduate studies
- Improve research aptitude
- Enhance industry readiness
- Broaden multidisciplinary exposure
- Improve career opportunities

4.6 Completion Requirements

A student shall be eligible for the award of the Honours or Minor Specialisation after:

- Successful completion of all prescribed specialisation courses (18 credits)
- Completion of the prescribed additional credits
- Successful completion of all B.Tech. degree requirements
- Fulfilment of the applicable University regulations

Note on Course Structure: *The detailed semester-wise course structure for the B.Tech. Honours and Minor Specialisations, including course codes, course titles, L–T–P–S distribution, credits, electives, industrial training, internship and project requirements, is provided in Annexure II.*

5. M.Tech. Electrical Engineering (Electric Vehicle Technology)

The Master of Technology (M.Tech.) in Electrical Engineering with specialisation in Electric Vehicle Technology is a two-year postgraduate programme designed to develop advanced knowledge in electric mobility, power electronics, energy storage, intelligent transportation systems and sustainable energy technologies. The programme integrates advanced coursework, laboratory training, industrial internship and research leading to a dissertation.

5.1 Programme Outcomes (POs)

The Programme Outcomes define the specialised knowledge, technical competence, sustainability perspective, research aptitude and innovation capability expected of graduates of the M.Tech. Electrical Engineering programme in Electric Vehicle Technology.

PO	Programme Outcome
PO1	Students will have a deep understanding of the principles and technologies related to electric vehicles, including energy storage, power electronics and electric propulsion systems.
PO2	Students will be capable of designing and optimizing electric vehicle systems, encompassing battery management, electric drives and charging infrastructure.
PO3	Students will understand the environmental impact of electric vehicles and be able to design sustainable transportation solutions.
PO4	Students will be knowledgeable about various battery technologies, their performance, and how to select and manage them for electric vehicles.
PO5	Students will have expertise in power electronics for motor control, energy conversion and efficient power management in electric vehicles.
PO6	Students will be able to work on intelligent systems and software for vehicle control, navigation and autonomous driving.
PO7	Students will be prepared to engage in research and innovation in the field of electric vehicles, contributing to advancements in the industry.

5.2 Programme Snapshot

Item	Details
Programme	M.Tech. in Electrical Engineering (Electric Vehicle Technology)
Duration	Two Years (Four Semesters)
Mode	Full Time
Credits	71
Major Components	Core Courses, Electives, Laboratory, Internship, Pre-dissertation and Dissertation
Award	Master of Technology

5.3 Programme Structure

Semester	Major Components	Credits
I	Core Courses, Generic Elective and Laboratory	21
II	Core Courses, Laboratory, Internship and Open Elective	23
III	Discipline-Centric Electives, Generic Elective, Open Elective and Pre-dissertation	15
IV	Dissertation	12
Total Credits		71

5.4 Curriculum Highlights

- Electric Vehicle Engineering
- Battery Management Systems
- Advanced Motor Drives
- Charging Infrastructure
- Embedded Systems
- Advanced Control Systems
- Power Electronics
- Research Methodology
- Industrial Internship
- Pre-dissertation
- Dissertation

5.5 Elective Courses

Representative elective areas include:

- EV Motor Design
- Data Analytics and Digital Twins
- EV Safety and Regulations
- Smart Grids
- Power Quality
- Cybersecurity in EV Systems
- Reliability Engineering
- Intelligent Transportation Systems
- Hydrogen and Fuel Cell Technology
- Renewable Energy Systems
- Optimal Control Methods
- Soft Computing

5.6 Research and Dissertation

A distinguishing feature of the programme is its emphasis on research. Students undertake an Industrial Internship followed by a Pre-dissertation and a Dissertation, enabling them to address real-world engineering problems through analytical, computational and experimental investigation.

5.7 Programme Completion Requirements

The M.Tech. degree shall be awarded upon successful completion of:

- All prescribed core courses
- All required electives including open electives (4 credits)
- Laboratory requirements
- Industrial Internship
- Pre-dissertation
- Dissertation
- All prescribed programme credits
- Other academic requirements prescribed by the University

Note on Course Structure: *The detailed semester-wise course structure for the M.Tech. Electrical Engineering (Electric Vehicle Technology) programme, including core courses, electives, laboratory work, industrial internship, pre-dissertation and dissertation requirements, is provided in Annexure III.*

Annexure I: B.Tech. Electrical Engineering Course Structure

Semester-wise course structure. X , Y and S denote Generic Elective, Open Elective and Specialisation-course credits, respectively. Bridge courses are audit courses for lateral-entry students. Specialisation courses apply to students opting for Honours or Minor pathways.

Semester I

S. No.	Code	Course Title	L	T	P	S	Cr.
1	MTH115C	Calculus for Engineers	3	1	0	0	4
2	PHY102C	Engineering Physics	3	0	2	0	4
3	CHM102C	Engineering Chemistry	3	0	2	0	4
4	CIV101A	Introduction to Environmental Science and Engineering	2	0	0	1	0
5	MEC102C	Engineering Visualisation	1	0	4	0	3
6	ENG107F	Technical Communication	2	0	2	0	3
7	MEC104A	Engineering Perspectives	1	0	0	1	0
Total Credits							18

Semester II

S. No.	Code	Course Title	L	T	P	S	Cr.
1	MTH155C	Linear Algebra and Differential Equations	3	1	0	0	4
2	CIV152C	Engineering Mechanics	3	0	0	0	3
3	ELE150C	Basic Electrical Engineering	3	0	2	0	4
4	CSE160F	Programming for Problem Solving	3	0	2	0	4
5	ECE151C	Basic Electronic Devices	3	0	0	0	3
6	MEC152C	Product Realisation through Manufacturing	0	0	2	1	2
7	SS01A	Ethics and Social Responsibilities	1	0	0	0	0
Total Credits							20

Semester III

S. No.	Code	Course Title	L	T	P	S	Cr.
1	ELE202C	Network Analysis	3	1	0	0	4
2	ELE205C	Signals and Systems	3	0	0	0	3
3	PHY201C	Electrical Engineering Materials	3	0	0	0	3
4	PHY202C	Engineering Electromagnetics	3	0	0	0	3
5	ECE213C	Analog Electronics	3	0	0	0	3
6	ELE208C	Introduction to Matrix Programming	0	0	2	0	1
7	MTH204C	Advanced Engineering Mathematics	3	0	0	0	3
8	ECE214C	Analog Electronics Lab	0	0	2	0	1
9	XXX0xx	Open Elective	–	–	–	–	Y
10	MTH210B	Bridge Course in Mathematics I (Audit)	2	0	0	0	0
11	XXXxxxS	Specialisation Course I	–	–	–	–	S
Total Credits							$21 + Y + S$

Semester IV

S. No.	Code	Course Title	L	T	P	S	Cr.
1	ELE256C	Electrical Machines-I	3	1	0	0	4
2	ELE257C	Data Science with Statistical Foundations	2	0	2	0	3
3	ELE258C	Control Systems Principles	3	1	0	0	4
4	ELE259C	Electrical Measurements	3	1	0	0	4
5	ECE263C	Digital Electronics and Logic Design	3	0	0	0	3
6	ELE260C	Electrical Machines-I Lab	0	0	2	0	1
7	ELE261C	Electrical Measurements Lab	0	0	2	0	1
8	ELE262C	Control Systems Principles Lab	0	0	2	0	1
9	ELE263A	Seminar	–	–	–	–	0
10	ECE264C	Digital Electronics and Logic Design Lab	0	0	2	0	1
11	XXX0xx	Open Elective	–	–	–	–	Y
12	MTH260B	Bridge Course in Mathematics II (Audit)	2	0	0	0	0
13	XXXxxxS	Specialisation Course II	–	–	–	–	S
Total Credits							22 + Y + S

Semester V

S. No.	Code	Course Title	L	T	P	S	Cr.
1	ELE302C	Electrical Machines-II	3	1	0	0	4
2	ELE304C	Elements of Power Systems	3	1	0	0	4
3	ELE308C	Numerical Methods Using Scientific Computing	2	0	2	0	3
4	ECE318C	Microprocessors and Microcontrollers	3	0	0	0	3
5	ECO301C	Fundamentals of Economics	3	0	0	0	3
6	ELE310C	Electrical Machines-II Lab	0	0	2	0	1
7	ELE311C	Elements of Power Systems Lab	0	0	2	0	1
8	ECE319C	Microprocessors and Microcontrollers Lab	0	0	2	0	1
9	XXX0xx	Open Elective	–	–	–	–	Y
10	XXXxxxS	Specialisation Course III	–	–	–	–	S
Total Credits							20 + Y + S

Semester VI

S. No.	Code	Course Title	L	T	P	S	Cr.
1	ELE352C	Power Electronics	3	1	0	0	4
2	ELE357C	Power System Analysis	3	1	0	0	4
3	ELE358C	Control System Design	2	0	2	0	3
4	ECE364C	Communication Systems	3	0	0	0	3
5	ELE359C	Power Electronics Lab	0	0	2	0	1
6	ELE362C	Tinkering Lab	0	0	2	0	1
7	ELE360C	Power System Analysis Lab	0	0	2	0	1
8	XXX3xxG	Generic Elective	–	–	–	–	X
9	ELE3XXE	Discipline-Centric Elective	3	0	0	0	3
10	XXX0xx	Open Elective	–	–	–	–	Y
11	ELE361A	Industrial Training (15 days)	–	–	–	–	0
12	XXXxxxS	Specialisation Course IV	–	–	–	–	S
Total Credits							20 + X + Y + S

Semester VII

S. No.	Code	Course Title	L	T	P	S	Cr.
1	ELE401C	Electric Drives	3	1	0	0	4
2	ELE407C	Introduction to Machine Learning	2	0	2	0	3
3	ELE410C	Switchgear and Protection	3	1	0	0	4
4	DMS4EEC	Project Management Reporting	3	0	0	0	3
5	ELE4xxE	Discipline-Centric Elective	3	0	0	0	3
6	XXX4xxG	Generic Elective	–	–	–	–	<i>X</i>
7	XXX0xx	Open Elective	–	–	–	–	<i>Y</i>
8	ELE409C	Electric Drives Lab	0	0	2	0	1
9	ELE411C	Switchgear and Protection Lab	0	0	2	0	1
10	ELE408C	Minor Project	0	0	4	0	2
11	XXXxxxS	Specialisation Course V	–	–	–	–	<i>S</i>
Total Credits							$21 + X + Y + S$

Semester VIII

S. No.	Code	Course Title	L	T	P	S	Cr.
1	ELE451C	Major Project	0	0	16	0	8
2	ELE4xxE	Discipline-Centric Elective I	3	0	0	0	3
3	ELE4xxE	Discipline-Centric Elective II	3	0	0	0	3
4	XXX4xxG	Generic Elective	–	–	–	–	<i>X</i>
5	XXX0xx	Open Elective	–	–	–	–	<i>Y</i>
6	XXXxxxS	Specialisation Course VI	–	–	–	–	<i>S</i>
7	ELE452A	Internship (30 days / 4 weeks)	–	–	–	–	0
Total Credits							$14 + X + Y + S$

Annexure II: B.Tech. Honours Course Structure

Honours/Minor Specialisation in Electric Vehicle Technology

S. No.	Semeste	Course Code	Course Title	L	T	P	Credits
1	III	ELE202S	Introduction to Electric Vehicles	3	0	0	3
2	IV	ELE251S	Vehicle Dynamics	3	0	0	3
3	V	ELE302S	Safety and Regulations of EVs	3	0	0	3
4	VI	ELE350S	Energy Storage Systems	3	0	0	3
5	VII	ELE402S	EV Charging Infrastructure	3	0	0	3
6	VIII	ELE451S	EV Motor Drives <i>OR any approved relevant course from the NPTEL/SWAYAM platform</i>	3	0	0	3
Total Credits							18

Note: For Semester VIII, students may take **EV Motor Drives (ELE451S)** or any approved relevant course offered through the NPTEL/SWAYAM platform, subject to approval by the Department.

Honours/Minor Specialisation in Energy Systems Engineering

S. No.	Semeste	Course Code	Course Title	L	T	P	Credits
1	III	ELE201S	Fundamentals of Solar Technologies	3	0	0	3
2	IV	ELE250S	Wind and Small Hydro Systems	3	0	0	3
3	V	ELE301S	Power Electronics for Renewables	3	0	0	3
4	VI	ELE350S	Energy Storage Systems	3	0	0	3
5	VII	ELE401S	Modelling of Energy Systems	3	0	0	3
6	VIII	ELE450S	Energy Audit and Management <i>OR any approved relevant course from the NPTEL/SWAYAM platform</i>	3	0	0	3
Total Credits							18

Note: For Semester VIII, students may take **Energy Audit and Management (ELE450S)** or any approved relevant course offered through the NPTEL/SWAYAM platform, subject to approval by the Department.

Annexure III: M.Tech. Electrical Engineering (EVT) Course Structure

Course structure for M.Tech. Electrical Engineering (Electric Vehicle Technology), applicable to batches admitted in 2026 and onwards.

Semester I (21 Credits)

S. No.	Code	Course Title	L	T	P	S	Cr.
1	MEC511C	Fundamentals and Dynamics of EVs	3	1	0	0	4
2	ELE501C	Electric Vehicle Engineering Fundamentals	3	0	0	0	3
3	ELE505C	Design and Control of Power Converters	3	1	0	0	4
4	ELE503C	Charging Infrastructure for EVs	3	1	0	0	4
5	–	Elective I (Generic)	3	0	0	0	3
6	ELE504C	EV System Design and Analysis	2	0	2	0	3
Total Credits							21

Semester II (23 Credits)

S. No.	Code	Course Title	L	T	P	S	Cr.
1	ELE550C	Battery Management System	3	1	0	0	4
2	ELE551C	Advanced Motor Drives	3	1	0	0	4
3	ELE552C	Advanced Control Systems	3	1	0	0	4
4	ELE553C	Embedded System Design for EVs	2	0	2	0	3
5	ELE556C	Scientific Research Methods and Practices	3	0	0	0	3
6	ELE554C	Electric Vehicle Systems Laboratory	0	0	2	0	1
7	ELE555C	Industrial Internship	–	–	–	–	2
8	–	Open Elective I	2	0	0	0	2
Total Credits							23

Semester III (15 Credits)

S. No.	Code	Course Title	L	T	P	S	Cr.
1	–	Elective II (Discipline-Centric)	3	0	0	0	3
2	–	Elective III (Discipline-Centric)	3	0	0	0	3
3	–	Elective IV (Generic)	3	0	0	0	3
4	–	Open Elective II	2	0	0	0	2
5	ELE601C	Pre-dissertation	0	0	8	0	4
Total Credits							15

Semester IV (12 Credits)

S. No.	Code	Course Title	L	T	P	S	Cr.
1	ELE650C	Dissertation	0	0	24	0	12
Total Credits							12

Elective Courses

The M.Tech. Electrical Engineering (Electric Vehicle Technology) programme offers Discipline-Centric and Generic Electives to provide specialised and interdisciplinary learning opportunities.

Discipline-Centric Electives

Eligibility: These electives are open only to students of the M.Tech. Electrical Engineering (Electric Vehicle Technology) programme. Student is required to complete 6 credits from DCEs.

S. No.	Course Code	Course Title
1	ELE501E	Sensors and Instrumentation for EVs
2	ELE502E	EV Motor Design and Thermal Analysis
3	ELE503E	Safety and Regulations of EVs
4	ELE504E	Data Analytics and Digital Twins for EVs
5	ELE505E	Cybersecurity in EVs and Charging Networks
6	ELE506E	Power Quality in EV Systems
7	ELE507E	Innovation and Entrepreneurship in EVs
8	ELE508E	EVs Economics, Policy and Social Embedding
9	ELE509E	EVs and Smart Grids
10	ELE510E	Reliability Engineering for EVs
11	ELE511E	Restructured Power Systems
12	ELE512E	Solar EV Charging Infrastructure Design
13	ELE513E	Retrofitting and Intelligent Transportation System
14	ELE514E	Renewable Energy and Sustainable Systems

Generic Electives

Eligibility: These electives are open to students of M.Tech. programmes in Electrical Engineering, Electronics and Communication Engineering, Mechanical Engineering, Computer Science and Engineering, and other relevant disciplines. Student is required to complete 6 credits from GEs.

S. No.	Course Code	Course Title
1	ELE501G	Hydrogen and Fuel Cell Technologies
2	ELE452G	Optimization for Engineering Design
3	ELE454G	Carbon Audit and Net Zero Energy Buildings
4	ELE502G	Bio-Conversion and Processing of Waste
5	ELE503G	Renewable Energy Resource Assessment and Forecasting
6	ELE455G	Nonlinear Control Systems
7	ELE456G	Optimal Control Methods
8	ELE457G	Principles of System Identification
9	ELE504G	Soft Computing and Intelligent Systems

Contact

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The Department of Electrical Engineering, IUST wishes you a rewarding academic journey and an enriching learning experience.