

Vision–EE–IUST@2047

Powering Ideas for a Smarter, Sustainable Future

Department of Electrical Engineering
Islamic University of Science and Technology

Executive Summary

The Department of Electrical Engineering envisions becoming a **Centre of Excellence in Intelligent and Sustainable Energy Systems** by integrating Artificial Intelligence, Internet of Things, Digital Twins, Cybersecurity, advanced power engineering, research-driven education, innovation, entrepreneurship, and societal engagement. The Vision–2047 roadmap aligns departmental growth with **NEP–2020**, **Sustainable Development Goals**, and **Viksit Bharat@2047**.

Department Snapshot

Established: 2012

Academic Programmes

- B.Tech Electrical Engineering
- Ph.D.
- Honours / Minor
- M.Tech (Electric Vehicle Technology)

Highlights

20
Patents

100+
Research Papers

INR 4 Cr+
Sponsored Research

50%
Core Placement

Collaborations with leading universities, government agencies, and industry partners.

Core Expertise

- Power and Energy Systems
- Power Electronics and Drives
- Computational Methods in Systems and Control
- Renewable Energy
- Smart Grids

Current Position

- **First M.Tech in Electric Vehicle Technology in Jammu & Kashmir.**
- Regional leader in Renewable Energy education.
- Strong foundation in Smart Grids, EVs and AI-enabled Energy Systems.
- Positioned to contribute to India's clean-energy transition.

Infrastructure

- Modern teaching laboratories, Specialized equipment
- Solar PV Skilling Laboratory
- EV Technology Laboratory
- Proprietary Software: MATLAB, PSCAD, ANSYS, HOMER

Vision 2047

To become a nationally recognised **Centre of Excellence in Intelligent and Sustainable Energy Systems** through

- High-quality education
- Translational research
- Innovation
- Entrepreneurship
- Industry collaboration
- Community impact

Key Performance Indicators

Patents	100+
Research Papers	100+
Sponsored Funding	INR 5.5 Cr
Start-ups	15–20
Commercialized Prototypes	40+
Faculty Strength	13
Solar Capacity	30 kW
Experiential Learning	40%

Strategic Objectives

1. Strengthen Human Resources
2. Modern AI-enabled Curriculum
3. Industry-ready Skill Development
4. Consultancy and Testing Ecosystem
5. Research and Innovation
6. Community Outreach
7. Entrepreneurship and Start-ups
8. Sustainability and SDG Alignment

Resource Mobilization

Potential Funding Sources: DST, ANRF, AICTE, MNRE, MeitY, CSR, Alumni, Industry, Consultancy, International Collaborations.

Way Forward

The Department will pursue a phased transformation from a regional teaching department into a nationally and internationally recognized Centre of Excellence in Intelligent and Sustainable Energy Systems. The roadmap integrates education, research, innovation, consultancy, entrepreneurship, and societal engagement while remaining aligned with **NEP 2020, Sustainable Development Goals** and **Viksit Bharat@2047**

Implementation Matrix

Phase	Academic	Infrastructure	Research / Industry
2025–2030	B.Tech DDES NBA Accreditation Skill India Courses	Solar PV Lab EV Lab PLC/SCADA Tinkering Lab	Consultancy Industry Projects Research Funding
2030–2040	New PG Programmes 40% Experiential Learning	Innovation Hub Testing Facilities	International MoUs Patents Incubation
2040–2047	Global Academic Programmes	Net Zero Campus Regional Centre of Excellence	International Leadership Commercialization Global Recognition

Vision Statement

**Educating Engineers.
Advancing Research.
Driving Innovation.
Powering a Sustainable Future.**