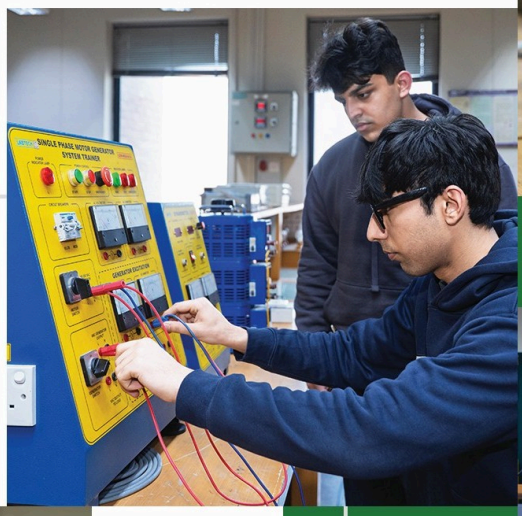
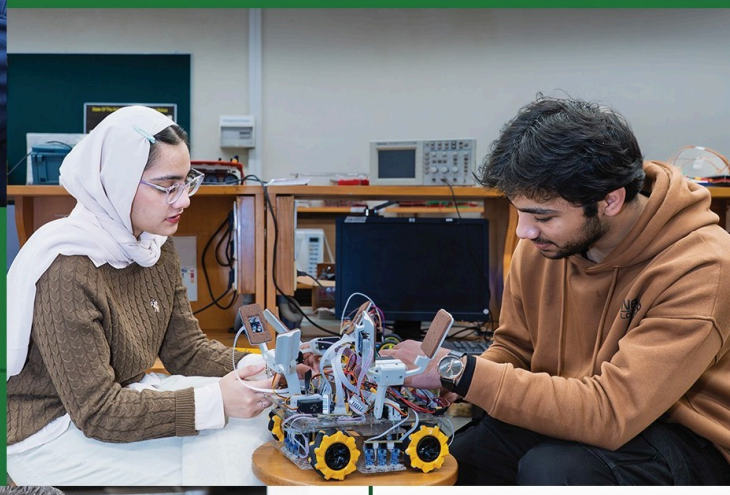
LUMS
A Not-for-Profit University





MS

POWER ENGINEERING AND SMART GRIDS

EMPOWERING EVERY JOURNEY

Syed Babar Ali School of Science and Engineering

SYED BABAR ALI SCHOOL OF SCIENCE AND ENGINEERING (SBASSE)

LUMS and SBASSE Fostering a Dynamic Learning Environment

Founded in 1985 as a not-for-profit, LUMS believes in making quality education accessible while breaking academic, geographic, and socio-economic barriers to enhance students' academic exposure.

SBASSE at LUMS is advancing innovative teaching and impactful research in science and technology. The MS programmes offer rigorous, professional, and research-focused training, with two pathways: MS-by-Coursework or MS-by-Thesis.

WHY MS POWER ENGINEERING AND SMART GRIDS AT LUMS?

The MS Power Engineering and Smart Grids programme equips graduates with design skills in power systems and smart grids, preparing them for Pakistan's evolving electricity market. Graduates will be able to adapt to sector changes and develop strategic solutions for modern power systems and applications.

- World-class faculty
- Top-quality research
- Multidisciplinary environment
- Multiple 100% merit scholarships (tuition waivers)
- Modern technology teaching methodology

PROGRAMME STRUCTURE

Students pursuing the MS PESG degree are required to complete 30 credit hours by taking core courses and major electives, as listed below:

CORE COURSES

In the thesis option, students will take 5 out of 6 core courses (3 credit hours each) from the list below:

- Renewable Energy Systems
- Power Systems Operations and Control
- Power Systems Protection and Sustainability
- Smart Grid Technology and Applications
- Electricity Market
- Power Electronics

MAJOR ELECTIVE COURSES

The tentative list of elective courses is given below. Course offerings may change from year to year.

- Battery Energy Storage Systems
- Embedded Systems
- Digital Control Systems
- Convex Optimisation
- Modelling and Control of Electric Machine Drives
- Software Engineering for Smart Grids
- Machine Learning
- EV Design Studio
- Socio-Ecological Systems and Sustainability
- Photovoltaic Devices
- IoT

Students are required to select one of three options to complete the degree:

- MS with Coursework option: 5 core courses (15 credit hours) and 5 major elective courses (15 credit hours)
- MS with Project option: 5 core courses (15 credit hours), 4 major elective courses (12 credit hours), and MS project (3 credit hours)
- MS with Thesis option: 5 core courses (15 credit hours), 3 major elective courses (9 credit hours), and Thesis (6 credit hours, spread across at least two semesters)

Note: MS PESG is an evening programme, with core courses and most elective classes scheduled after 3 pm.

CAREER PROSPECTS

The evening programme is designed for recent Electrical Engineering graduates, as well as seasoned industry professionals in power systems engineering and/or smart grids. The curriculum prepares students for a variety of dynamic, rewarding, and demanding industries that frequently seek experts, including:

- Power distribution companies
- Power generation companies
- Renewable energy sector
- Smart grid sector
- Government sector (NTDC, NEPRA)
- Power engineering companies
- Central Power Purchasing Agency (CPPA-G)

ACADEMIC BACKGROUND REQUIREMENT

Applicants must have at least 16 years of education with a minimum CGPA of 2.4 (on a 4.0 scale) or 60% marks from an HEC-recognised institution.

Applicants with degrees from non-HEC-listed institutions must provide an HEC Equivalence Certificate.

Applicants must have a Bachelor's (or Master's) degree in any one of the following areas:

- Electrical Engineering
- Power Engineering
- Electronics Engineering or Electronics
- Engineering/Applied Physics
- Mechatronics Engineering
- Computer Engineering
- Other engineering disciplines peripherally related to Power, Electronics, or Electrical Engineering

"Joining the MS PESG programme has been one of the most transformative steps in my academic and professional journey. With prior experience in the power sector, this programme deepened my understanding of modern energy systems and their seamless integration with smart grids. Through advanced coursework, research exposure, and interaction with expert faculty, I have developed a comprehensive perspective on how technology and innovation can drive sustainable energy transitions.

MUHAMMAD EHSAN
MS PESG, Student

ADMISSION CRITERIA AND FINANCIAL SUPPORT

ADMISSION IS PURELY MERIT-BASED.

Scan the code to explore eligibility, deadlines, how to apply to the MS Power Engineering and Smart Grids programme and find out how LUMS can support your academic journey.

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