



*PhD*

# CHEMICAL AND ENVIRONMENTAL ENGINEERING

**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 PhD programmes prepare students for independent, high-quality research. Key milestones include Coursework, Comprehensive (Qualifying) Exams, Thesis Proposal Defense, at least one article in a peer-reviewed journal, and final PhD Thesis Defense. Whether you are aiming for an academic or industry career, LUMS equips you to lead.

## WHY PHD CHEMICAL AND ENVIRONMENTAL ENGINEERING AT LUMS?

The PhD in Chemical and Environmental Engineering equips students to tackle modern environmental challenges through advanced research and coursework. Students benefit from fully equipped labs and collaborative research clusters.

- **Interdisciplinary Research:** Projects span traditional chemical engineering and its intersections with Medicine, Physics, Materials Sciences and Engineering
- **Research-Driven:** Designed to produce scholars who contribute to knowledge creation and share findings through publications and industry partnerships
- **Cutting-edge Curriculum & Research Facilities:** Focuses on emerging trends in information and technology within the Chemical and Environmental Engineering domains
- **Research Themes:**
  - Sustainable Energy Resources
  - Environmental Science and Engineering
  - Molecular Engineering of Materials
  - Process Systems Engineering
- **Sustainable Production & Environmental Remediation:** Combines Chemical and Environmental Engineering with a strong emphasis on sustainability

# RESEARCH AREAS

The PhD Chemical and Environmental Engineering programme emphasises sustainable production as well as environmental remediation. With this combination, the students explore advances in separations, energy, and nanomaterials.

The programme trains students to translate molecular interactions into products and processes. The faculty are actively engaged in teaching and research in the fundamental sciences and applied engineering fields including:

## ENERGY MATERIALS

Dr. Ali Rauf

## MEMBRANE SCIENCE AND ENGINEERING

Dr. Faheem Hassan Akhtar

## SUSTAINABLE ENVIRONMENTAL SOLUTIONS

Dr. Qasim Imtiaz

## WATER AND WASTEWATER TREATMENT

Dr. Tauqeer Abbas

## HETEROGENEOUS CATALYSIS

Dr. Qandeel Almas

## INDOOR AIR QUALITY MONITORING

Dr. Shahana Khurshid

## SUSTAINABLE AND GREEN INDUSTRY PROCESSES

Dr. Usman Bin Shahid

## PROGRAMME STRUCTURE

To graduate, students must complete 42 credit hours, including at least 18 credit hours of coursework (as per the Higher Education Commission, Pakistan requirement) and 18 credit hours of research work. The remaining 6 credit hours can be used for either coursework, research work, or a mix of both.



# CAREER PROSPECTS

Graduates of the PhD programme are equipped for impactful careers in both academia and industry. With expertise in sustainable technologies and environmental solutions, they find opportunities in various fields.

## Industry

- Water & Power Development
- Oil & Gas, Petrochemicals, Fertilisers & Cement
- Pharmaceuticals, Food & Beverages & Consumer Products
- Environmental Protection Agencies
- Energy Audit & Green Process Design

## Academia & Research

- Faculty positions at universities
- Postdoctoral research at international labs

## Environmental Sector

- Waste Disposal & Sanitation
- Environmental Compliance & Regulation
- Pollutant Management & Sustainable Infrastructure



“ My academic journey as a PhD student at LUMS has been rewarding. My research focuses on machine learning for energy-efficient water desalination, a critical area that tackles global water scarcity. This work is relevant to modern chemical processes and contributes to the programme's core focus on sustainable production. The programme has been a catalyst for my professional growth. Through networking opportunities and international collaborations, I've been able to connect with leading experts in the field.

**UZAIR AHMAD**  
PhD Chemical & Environmental  
Engineering Student

## ADMISSION CRITERIA AND FINANCIAL SUPPORT

### ADMISSION IS PURELY MERIT-BASED.

Scan the code to explore eligibility, deadlines, how to apply to the PhD Chemical and Environmental Engineering programme and find out how LUMS can support your academic journey.



### PHD CHEMICAL AND ENVIRONMENTAL ENGINEERING ADMISSION CRITERIA FOR FOREIGN NATIONALS

Foreign nationals must obtain a visa and a no-objection certificate to study at LUMS, with support provided by the university. Applicants from developing countries may also apply via the TWAS–UNESCO portal: <https://rb.gy/j83y7v>. Scan to find out more.



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