

# DR. AKHLAQ AHMAD

Assistant Professor, Department of Mechanical Engineering

Bahauddin Zakariya University (BZU), Multan, Pakistan

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## PROFESSIONAL SUMMARY

Academic leader and mechanical/mechatronics engineer with 20 years of experience spanning teaching, research, and university administration at BZU Multan. Former Head of Department, with a record of PEC accreditation delivery, curriculum development, and lab infrastructure development. International research background in MEMS and photonics from the Gwangju Institute of Science & Technology (GIST), South Korea. Ph.D. in solar energy systems, with a publication record in indexed journals covering solar thermal systems, water desalination, and GIS-based resource management. Supervises graduate and undergraduate research, including an industry-linked B.Sc. project undertaken in collaboration with Innovative Chemicals, Multan. Experienced board and committee member, contributing to faculty selection, technical procurement, and institutional governance. University Focal Person (2016–2021) for large-scale entrance examinations (E-CAT, MD-CAT), coordinating 9 exam cycles serving up to 10,000 candidates in partnership with UET Lahore, UHS Punjab, and the District Administration of Multan.

## EDUCATION

- **Ph.D., Indigenization of Solar Systems;** 2016–2024, Agricultural Engineering Department, Bahauddin Zakariya University (BZU), Multan, Pakistan
- **M.Sc., MEMS & Nano-Photonics, Mechatronics Department;** 2003–2005, Gwangju Institute of Science & Technology (GIST), South Korea. Thesis: "Micromachined Electric Circuit Switch Using Chevron-Type Actuators" (2005).
- **B.Sc., Mechanical Engineering;** 1995–2000, University of Engineering & Technology (UET), Lahore, Pakistan
- **B.Sc., Mathematics & Physics;** 1991–1994, Bahauddin Zakariya University (BZU), Multan, Pakistan

## PROFESSIONAL EXPERIENCE

### Assistant Professor

2008 – Present

*Department of Mechanical Engineering, BZU Multan*

- Served as Head of Department (2008–2013): managed faculty affairs, budgeting, lab development, and PEC accreditation.
- Led development and revision of the B.Sc. Mechanical Engineering curriculum.
- Served on faculty selection boards and as convener of the Board of Studies.
- Member, Technical Committee constituted by the Government of Punjab for the procurement of solid waste management machinery for Multan district, with funding provided under the Prime Minister of Pakistan's Fund.
- Chaired and participated in technical committees for infrastructure, equipment procurement, and student transport.
- Taught undergraduate courses including Mechanics of Machines, Power Plant Engineering, Energy Resources, Thermodynamics, Mechanics of Materials, Manufacturing Processes, and Engineering Drawing & Graphics.

### Focal Person – E-CAT/MD-CAT Entrance Examinations

2016 – 2021

*Bahauddin Zakariya University (BZU), Multan*

- Served as University Focal Person for the conduct of E-CAT and MD-CAT entrance examinations, coordinating 9 examination cycles in partnership with UET Lahore, UHS Punjab, and the District Administration of Multan, for a candidate pool averaging 6,000+ and reaching 10,000 in the 2021 MD-CAT.
- Directed exam-day logistics across each cycle's 300–400 exam centers, coordinating staff deployment, security, traffic, and medical emergency management, seating for up to 10,000 parents/guardians, rental seating for candidates, classroom and hall preparation, and uninterrupted power supply via backup generators, ensuring the smooth, incident-free conduct of every examination.

**Assistant Professor***Jul 2006 – Aug 2007**Department of Mechatronics & Control Engineering, UET Lahore*

- Taught Fluids and Pneumatics to postgraduate students, and Computer Integrated Manufacturing (CIM) and Mechanics of Machines to undergraduate students.
- Ranked among Category-1 teachers based on student evaluations (2007).

**Research Engineer***2005 – 2006**Laser Application Research Center (LARC), Chosun University, South Korea*

- Conducted ESPI-based nondestructive testing and ANSYS modeling for MEMS structures.

**Trainee Engineer***Jul 2000 – Sep 2001**NGPS Piran Ghaib, Multan*

- Supported operation and maintenance of 272-ton boilers and 65 MW steam turbines.

**RESEARCH SUPERVISION**

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**M.Sc. Theses Supervised:**

- Supervising M.Sc. students on research theses spanning machine learning applications, automotive emissions testing, and industrial asset integrity management (2023–2024).

**B.Sc. Project Supervised (Industry Collaboration):**

- "Design and Fabrication of a Low-Cost Pallet Burner" — in collaboration with Innovative Chemicals, Multan

**SELECTED PUBLICATIONS**

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- [1] Baig, M.N., Ahmad, A. et al. (2014). CPC-Trough — Compound Parabolic Concentrator for Cost-Efficient Low-Temperature Applications. *Journal of Energy and Power Engineering*, 8(10).
- [2] Ahmad, A., Khan, Z.M., Farid, H.U. (2025). Optimization of Condensing Tray Shapes for a Multi-Effect Solar Still Coupled with Parabolic Solar Collectors. *Environmental Progress & Sustainable Energy*, 44(1), e14515.
- [3] Ahmad, A., Khan, Z.M., Farid, H.U. (2024). A Potential Solution for Clean Water Supply: Multi-Effect Solar Still. *Water Supply*, 24(2), 329–340.
- [4] Naeem et al. (2024). GIS-Based Analytical Hierarchy Process for Identifying Groundwater Potential Zones in Punjab. *ISPRS International Journal of Geo-Information*, 13(9), 317.
- [5] Bukhari et al. (2023). Computational Study of Mechanical Behavior of Coated 316L Stainless Steel Alloy. *Technical Journal of UET Taxila*, 28(3).
- [6] Haseeb, M. et al. (2023). Quantifying Irrigation Water Demand and Supply Gap Using GIS in Multan. *Environmental Monitoring and Assessment*, 195(8), 990.
- [7] Hanif, M.F. et al. (2025). The Solar AI Nexus: Reinforcement Learning in Energy Management. *WIREs Energy and Environment*, 14(3), e70012.
- [8] Ahmad, A. et al. (2004). Latch-Up Type Thermoelastic Micro Actuator for RF Switches. 6th Korea MEMS Conference, Jeju Island, Korea.

**ACADEMIC AND TECHNICAL ROLES**

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- HOD, Mechanical Engineering Department, BZU, Multan (Oct 2008 – Feb 2013)
- University Focal Person, E-CAT/MD-CAT Entrance Examinations, BZU (2016–2021)
- Member, Board of Studies & Board of Faculty (since 2008)
- Chairman, Technical Committee for Generator Systems & Transport, BZU
- Member, Affiliation Inspection Team for B.Tech Programs
- Member, Technical Procurement Committee, Punjab Govt. Solid Waste Project
- Director, Student Affairs, UCET-BZU (2008–2009)

- External Verifier, City & Guilds UK
- Member, Selection Board for Faculty Induction

## TECHNICAL SKILLS

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- **Simulation & Design:** ANSYS, AutoCAD, Origin
- **Productivity:** Microsoft Office, Adobe Photoshop
- **Languages:** English, Urdu