DR. ZAHEER AHMED KHAN

ASSISTANT PROFESSOR & DEPUTY DIRECTOR (BIC)

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Executive Summary

Dr. Zaheer Ahmed Khan is an **eminent academic, researcher, and certified quality assurance professional**, currently serving as **Assistant Professor (BPS-19)** in the **Department of Farm Structures & Postharvest Engineering** and **Deputy Director (Business Incubation Center)** at **Sindh Agriculture University (SAU), Tandojam**. He is a **Nationally Certified Reviewer for Higher Education Institutions (HEIs)** and ranks among the **Top 10 Certified Reviewers in Pakistan**, as recognized by the **Sindh Higher Education Commission (SHEC)**. His professional journey reflects a strong commitment to academic innovation, institutional quality enhancement, and research-driven development in agricultural engineering and higher education. Dr. Khan's research and teaching interests include the **design and development of innovative farm structures**, **postharvest engineering and food preservation**, **renewable energy applications in agriculture**, **grain storage and quality assessment**, and the **implementation of Continuous Quality Improvement (CQI) frameworks** in academia. His work integrates **sustainable technologies** such as **hydroponics, tunnel farming, solar drying, hermetic storage**, and **environment-controlled systems** to minimize postharvest losses, enhance food security, and promote environmental sustainability. With extensive experience in **institutional quality reviews, on-site evaluations, and post-accreditation follow-up mechanisms**, Dr. Khan specializes in the design and monitoring of **Key Performance Indicators (KPIs)** and the application of internationally recognized **CQI frameworks**, including **LetCI, ADLI, ADRI, PDCA, and SWOT analysis**, for strategic planning and continuous improvement in higher education. As an **HEC-approved Master Trainer**, Dr. Khan has conducted numerous **faculty development programs**, **training workshops**, and **capacity-building sessions** across multiple institutions, focusing on teaching innovation, curriculum design, entrepreneurship, and quality assurance mechanisms. He is a **lifetime member** of the **Pakistan Engineering Council (PEC)**, a member of **The Institution of Engineers Pakistan (IEP)**, and an active member of the **International Association of Engineers (IAENG)**.

ADDITIONAL OFFICIAL ASSIGNMENTS & PROFESSIONAL MEMBERSHIPS

- Member, Students Teacher Engagement Programs (STEP), Sindh Agriculture University, Tandojam
- Focal Person, Speech and Debate Society under STEP, SAU Tandojam
- Academic, Career and Wellness Counsellor for students, Faculty of Agricultural Engineering & Technology
- Member, Outcome Based Education (OBE) Committee (syllabus revision & PEC implementation)
- Member, Sports Management Committee (SMC) for promotion of sports & interfaculty competitions
- Focal Person, Tunnel Farming Project, Business Incubation Centre (BIC)
- Additional Charge of Faculty Development, Faculty of Agricultural Engineering & Technology
- Member, Quality Enhancement Cell (QEC) Program Team, Department of Farm Structures
- HEC-Approved Master Trainer (capacity-building workshops & training across institutions)
- Member, Departmental BoS, Department of Farm Structures & Postharvest Engineering
- Member, Departmental BoS, Department of Energy and Environment
- Former Member, Beautification and Parking Committee, Faculty of Agricultural Engineering
- Lifetime Member, Pakistan Engineering Council (PEC)
- Member, The Institution of Engineers Pakistan (IEP)
- Member, International Association of Engineers (IAENG)

ACADEMIC QUALIFICATIONS

DEGREE/CERTIFICATE	INSTITUTION / BOARD	YEAR	DIVISION
Ph.D. (Farm Structures)	Sindh Agriculture University Tandojam	2025	**1st**
Master of Engineering (I&D)	Sindh Agriculture University Tandojam	2016	**1st**
B.E (Agriculture)	Sindh Agriculture University Tandojam	2010	**1st**
F.Sc Pre-Engineering	Saifee College Of Computer Science Hyderabad	2005	**1st**
Matriculation	Mono Public English High School Hyderabad	2003	**1st**

WORKING EXPERIENCE

- ✓ **Assistant Professor (BPS-19),** Department of Farm Structures and Postharvest Engineering, Faculty of Agricultural Engineering and Technology, Sindh Agriculture University, Tandojam Sindh, Pakistan (**May 2023 – till date**).
- ✓ **Lecturer (BPS-18),** Department of Farm Structures, Faculty of Agricultural Engineering, Sindh Agriculture University, Tandojam Sindh, Pakistan (**May 2014 – April 2023**).
- ✓ **Farm Manager,** Jahanzaib Farmhouse, Nooriabad. The City School Group, Hyderabad-Karachi, Sindh, Pakistan (**March 2013 – April 2014**).
- ✓ **Engineer**, The City School, Gulistan-E-Johar Campus, Shalimar Construction Company (Pvt.) Ltd, Karachi, Sindh, Pakistan (**January 2012 – Feb 2013**).
- ✓ **Project Supervisor** Sardar Project, Sindh, Pakistan (Al-Dahra Agricultural Company Pakistan (Pvt) Ltd. (**November 2010 – September 2011**).

ACHIEVEMENTS

National Certified Reviewer of Higher Institutions from Sindh Higher Education Commission (SHEC)

Provincial Winner of National Idea Bank-III (NIB-III)

Certificate of **MASTER TRAINER** from Sindh Higher Education Commission (SHEC)

TRAINING IMPARTED INSTITUTES

PROFESSIONAL DEVELOPMENT & CAPACITY BUILDING (TRAINER / RESOURCE PERSON)

*With extensive experience in academic capacity building and quality enhancement, Dr. Khan has served as a **trainer and resource person** in multiple faculty development programs and higher education quality initiatives. His sessions focus on **innovative teaching, curriculum alignment, and accreditation processes**. Key expertise includes **Outcome-Based Education (OBE), Faculty Development, and Quality Assurance**. He has also trained faculty in **AutoCAD, entrepreneurship, and academic performance frameworks (PREE, RIPE)**. Dr. Khan's contributions strengthen institutional excellence and sustainable academic growth.*

RESEARCH INTERESTS

Farm Structures & Protected Cultivation: *Design and development of efficient crop storage, livestock housing, and protected systems (hydroponics, aquaponics, tunnel farming) suited to local climates.*

Grain Storage & Quality Engineering: *Advancement of hermetic storage, silo monitoring, and quality assessment of cereals to reduce postharvest losses.*

Postharvest Technology & Food Preservation: *Development of grading, drying, and packaging systems for improved food safety and shelf-life sustainability.*

Renewable Energy in Agriculture: *Integration of solar-powered and energy-efficient technologies for drying, storage, and processing applications.*

Smart Agricultural Systems: *Application of IoT and automation for real-time environmental control in storage and production facilities.*

Academic Quality & Accreditation: *Implementation of CQI frameworks (LetCI, ADLI, ADRI, PDCA, SWOT) for curriculum improvement, institutional assessment, and faculty capacity building.*

Highlights of A Supervised Research Theses & FYDP Projects

Postgraduate and undergraduate research projects *in* ***farm structures, postharvest engineering, renewable energy, and smart agriculture****. Key works include* ***IoT-based grain storage, solar drying, hydroponics, aquaponics, and onion grading automation****, contributing to sustainable and energy-efficient agri-tech innovations.*

Postgraduate (M.E):

- *Engr. Manwar – Performance Evaluation of Various Low-Cost Onion Structures and Their Effect on Quality (2025) – Final Seminar*
- *Engr. Khuda Dino – Development and Evaluation of Automatic Grading Machine for Onion Bulb Size (2025) – Thesis Write-up*
- *Engr. Zahid – Quality Assessment of Wheat Grains under Hermetic Storage Techniques (2022) – Synopsis*
- *Engr. Jazeb Ali – Development of Aquaponic System & Assessment of its Efficiency and Economic Aspect (2020) – Thesis Write-up*
- *Engr. Abdullah Soomro – Evaluation of Empirical Relations for Drying Characteristics of Paddy Rice Using Fluidized Bed Dryers (2020) – Completed*
- *Engr. Ainul Ibad Shah – Designing and Fabricating Hydroponic Structure (2020) – Completed*
- *Engr. Rafaqat Ali – Evaluation of Physical Properties of Wheat Varieties Grown in Sindh (2020) – Completed*
- *Engr. Abdullah Veesar – Design Perspective of Existing Buffalo Sheds and Their Impact on Animal Behavior (2019) – Completed*
- *Engr. Saddam Hussain – Design, Construction, and Evaluation of Indirect Solar Dryer (2019) – Completed*
- *Engr. Ali Hassan – Experimental Study on Drying of Red Chili in Solar and Open Sun Methods (2019) – Completed*

Undergraduate (B.E):

- *Comparison of Predicted and Observed Data for Drying Characteristics of Wheat Using Fluidized Bed Dryer* (2019) – Completed
- *Effect of Hot Water Treatment and Storage Conditions on Quality of Tomato* (2019) – Completed
- *Experimental Investigation of Fly Ash Block with Varying Composition Ratios and Materials* (2019) – Completed
- *Comparative Study of Poultry Sheds (Controlled vs Conventional) and Their Impact on Poultry Production* (2018) – Completed
- *Design and Fabrication of Indirect Solar Dryer* (2018) – Completed
- *Role of Image Processing in Agricultural Process Engineering* (2017) – Completed
- *Effect of Different Packaging Materials on Quality of Bitter Gourd* (2017) – Completed
- *Design and Fabrication of Hot Water Treatment Plant* (2016) – Completed
- *Tunnel Farming Technology (Production of Off-Season Vegetables in Walk-In Tunnels)* (2016) – Completed
- *Effect of Hot Water Treatments on Dormancy of Cotton and Forestry Seeds* (2016) – Completed
- *Comparison of Compressive Strength of Stabilized Mud Blocks with Different Additives* (2015) – Completed

HIGHLIGHTS OF A FEW RESEARCH PUBLICATIONS

Publications in international and national journals; focus on Agricultural Engineering, Smart Systems, Postharvest Technology, Irrigation Management, and Climate-Smart Agriculture.

- **Khan, Z. A.**, Ibupoto, K. A., Chattha, S. H., & Shaikh, I. A. (2025). *Quality Analysis of Wheat Grains Stored in Different Bins Over Time. Int. J. Agric. & Sustainable Dev.,* 7(1), 127–142.
- **Khan, Z. A.**, Ibupoto, K. A., Chattha, S. H., & Shaikh, I. A. (2025). *Optimizing Fly-Ash Cement Ratios for Load-Bearing Cement Blocks. Southern J. Engg. & Tech.,* 3(2), 39–52.
- Muhammad, M., **Khan, Z. A.**, Yang, M., Ma, W., & Tola, A. A. (2025). *Enhancing Wheat Storage Efficiency: A Microcontroller-Based Environment Control System for Silo. Smart Agricultural Technology,* Elsevier.
- Chattha, S. H., Soomro, S. A., Rahu, A. H., Wagan, B., **Khan, Z. A.**, et al. (2025). *Comparative Analysis of Traditional and Solar Drying Techniques for Red Chili. J. Agric. & Food, 6(1),* 118–130.
- Tang, L., Shaikh, I. A., Tunio, A., Junejo, A. R., Dahri, J., **Khan, Z. A.**, et al. (2024). *Effect of Raised Flat Bed and Ridge Planting on Wheat Growth under Varying Soil Moisture. Agronomy, 14(7),* 1404. *(MDPI)*
- Vistro, R. B., Talpur, M. A., Shaikh, I. A., Soomro, S. A., **Khan, Z. A.**, et al. (2024). *Sustaining Wheat Yield Using Tractor Wheel Compaction and Ridge Bed Fertilizer Placement. agriTECH, 44(3),* 251–260.
- **Khan, Z. A.**, Chattha, S. H., Soomro, S. A., Arshad, I., & Jafferi, L. A. (2019). *Thermal Treatments for Enhancing Dormancy of Cotton Seed. Pure & Applied Biology, 8(3),* 1999–2006.
- Chattha, S. H., **Khan, Z. A.**, et al. (2020). *Storage Performance of Forced, Natural, and Traditional Onion Bulb Ventilation Methods.*
- Syed, A., **Khan, Z. A.**, Chattha, S. H., et al. (2021). *Comparative Assessment of Hydroponic and Geoponic Systems for Spinach Cultivation. Pakistan J. Agric. Res., 34(4).*
- Mirani, B. N., Chattha, S. H., **Khan, Z. A.**, et al. (2022). *Effect of Post-Harvest Treatments on Quality of Carrots During Storage. RADS J. Biological Res. & Applied Sci.,* 13(2), 168–174.
- Soomro, S. A., Almani, S., Bux, L., **Khan, Z. A.**, et al. (2020). *Mathematical Modeling and Optimization of Paddy Drying Parameters. Pakistan J. Agric. Res.,* 34(2), 337–345.
- Shaikh, I. A., Wayayok, A., Mangrio, M. A., **Khan, Z. A.**, et al. (2022). *Optimizing Water Allocation to Off-Takes during Reduced Flows. Water Resources Management, 36(3),* 891–913. *(Springer)*
- Arshad, I., Rabbani, M. U., **Khan, Z. A.**, & Ali, W. (2021). *Impact of Vocational Agricultural Training Programs on Date Palm Cultivation in UAE. Int. J. Alternative Fuels & Energy, 5(2),* 16–20.
- Arshad, I., **Khan, Z. A.**, Shah, N. H. (2019). *Effect of Nutrient Solution on Growth and Yield of Mango using Stem Injection Technique. Int. J. Alternative Fuels & Energy, 3(2),* 25–30.
- Arshad, I., Vallejera, C. A. E., **Khan, Z. A.**, (2019). *Finite Element Analysis of Phosphate Movement through Soil using Geo-Slope (CTRAN/W). PSM Biological Research, 4(1),* 20–28.
- Arshad, I., **Khan, Z. A.**, Ali, W. (2023). *Impact of Farmer Training Programs on Alfalfa Cultivation in UAE. PSM Biological Research, 8(1),* 31–35.
- **Khan, Z. A.**, co-author in *Fabrication and Installation of Automatic Water Level Recorder through GSM* (IJIST, 2025).
- Arshad, I., Shaikh, I. A., **Khan, Z. A.** (2025). *Finite Element Study: Impact of Cutoff Wall Length on Seepage in Earth Dams (Hub Dam). Applied Observation & Pedagogical Studies Poster, 4(1).*

- Arshad, I., Medani, K. M., **Khan, Z. A.** (2016). *Integrated Impact of N & P on Rhodes Grass under Ghotki Environment. J. Agric. Res., 54(4),* 687–695.
- Jamali, L. A., Soomro, S. A., **Khan, Z. A.**, et al. (2016). *Effect of Grain Moisture on Physico-Engineering Properties of Wheat. J. Agric. Res., 54(4),* 773–785.
- Arshad, I., Hanaffy, I., Bly, M., Yerla, R., Jamali, L. A., & **Khan, Z. A.** (2015). *Performance of Pre-Cooling Unit under Controlled Atmosphere Storage. Am.-Eurasian J. Agric. Environ. Sci, 15(12),* 2331–2336.

PROFESSIONAL TRAININGS/COURSES/SEMINARS/WORKSHOPS:

As Resource Person / Master Trainer / Coordinator / Participant

Dr. Zaheer was recognized as a top performer in the Generative AI Application Developer program under PEC's Generative AI Cohort 2, showcasing his ability to integrate cutting-edge AI tools into engineering education and research (*Source for verification 1 https://quiz.ideagist.com/ideagist-certificate/?cert_hash=14702f2613450629*)

- Resource Person – *5-Day Faculty Development Program (FDP)*, SHEC & Mehran UET, USPCAS-W Jamshoro (May 20–24, 2024)
- Master Trainer – *Training of Trainers (ToT)*, Faculty Development Program, SHEC, SAU Tandojam (Oct 21–25, 2024)
- Focal Person / Coordinator – *ToT Program*, Faculty Development, SHEC, SAU Tandojam (Oct 21–25, 2024)
- Master Trainer – *ToT – Cascading 2024*, SHEC, LUMHS Jamshoro (Jul 1–5, 2024)
- Resource Person – *AutoCAD Hands-on Training*, PEC CPD (License No. S-SAUTDJ-0065), SAU Tandojam (Feb 16, 2023)
- Resource Person – *Webinar on Modern Storage Technology*, PEC CPD (License No. S-SAUTDJ-0065), SAU Tandojam (Sep 7, 2022)
- *National Certified Reviewer Training Program (Modules I–IV & Final, 100 Hours)* – Sindh HEC (Dec 2023–Dec 2024)
- *Training of Trainers – Faculty Development Program (10 Days)* – Sindh HEC (Mar 2024)
- *Training Course on New Technology Tropical Agriculture for Developing Countries* – Ministry of Commerce, China (Aug–Sep 2022)
- *PREE Hands-on Workshop* – Sindh HEC (Feb 27, 2025)
- *National Seminar on RIPE* – Jinnah Sindh Medical University & SHEC (May 13, 2025)
- *Workshop: Challenges in DAIs for Quality Assurance* – Newports Institute, Karachi (May 26, 2025)
- *Faculty Entrepreneurial Development Program – RISE* – National Incubation Center, Hyderabad (Oct 4–5, 2023)
- *Grant Writing & Modeling Tools to Support Climate Resilience Research* – Univ. of Utah & Univ. of Alabama (Jun 5–7, 2024)
- *Hazard Mapping for Flood-Affected Districts* – FAO Pakistan (Mar 13–16, 2023)
- *From Waste to Weapon: Biochar's Rise as a Climate Change Avenger* – SAU Tandojam (Oct 31, 2024)
- *Soil Salinity Identification, Assessment & Land Reclamation* – SAU Tandojam (Oct 23, 2024)
- *Six Sigma in TQM*, *Emotional Intelligence & Stress Management*, *Pumped Storage Hydropower* – PEC CPD Webinars (Feb 2025)
- *PSG 2023 – Challenges & Solutions* – Sindh Institute of Physical Medicine & Rehabilitation (Dec 23, 2024)
- *Google Earth Engine (Virtual Training Workshop)* – FAO Pakistan (Oct–Dec 2020)

- *ProQuest Research Training Series* (RefWorks, Academic Publishing, Database Use) – HEC & ProQuest (Oct–Dec 2020)
- *Development of Technical Team & Project Execution* – HEC Pakistan (Mar 26, 2021)
- *GIS/RS for Agro-Ecological Zones Formation* – FAO & SAU (Jul 2–6, 2018)
- *Global GAP Certification & Implementation in Small Farms* – NPO, MoI&P, GoP (Dec 15–19, 2014)
- *Banana Tissue Culture & Micro-Irrigation for Tunnel Farming* – CAEWRI, NARC, Islamabad (Nov 26, 2015)
- *AutoCAD 2D & 3D Training* – APTECH Computer Education, Hyderabad (Sep–Oct 2007)

REFERENCES

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