ABDUL RAHMAN

COMPUTATIONAL MATERIALS SCIENTEST |ALLOY DEVELOPMENT
MACHINE LEARNING |MATERIALS INFORMATICS |ENERGY MATERIALS

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SUMMARY

Materials engineer with 6+ years of experience in R&D, teaching, and industrial process development. Skilled in mechanical testing, curriculum design, and project leadership. Currently expanding expertise in computational materials science, with a focus on machine learning for materials discovery. Innovating with tech and GenAI.

PROFESSIONAL SKILLS

- Bayesian Optimization
- Scikit-learn
- Material Simulation
- Python

TECHNICAL SKILLS

- Alloy Development
- Material Testing & Standardization
- Corrosion Modeling

PROFESSIONAL EXPERIENCE

Research Engineer/ Lecturer   July 2017 - Present

- Applied materials engineering principles to optimize alloy and beneficiation processes for computational modeling.
- Taught thermodynamics and materials behavior—key subjects for multiscale simulations and data-driven materials research.
- Designed structured curricula and technical training aligned with performance metrics
- Managed lab quality systems (ISO 17025), linking experimental validation with potential computational predictions in materials testing.

RESEARCH WORK

Design of Self-Healing Epoxy Coatings Using Al2O3-Loaded ZIF-8 Nanocontainers

- Manuscript submitted for International Conference on Computer Science and Artificial Intelligence Applications 2025

Machine Learning-Guided Design of Epoxy Coatings

19th Middle East Corrosion Conference – Manuscript Submitted

- Modeled corrosion resistance using Random Forest regression and Bayesian optimization
- Built dataset of 32 epoxy formulations via Latin square design
- Validated MgO-loaded ZIF-8 nanocontainers as superior to microfiller systems

Biopolymer Triboelectric Nanogenerators: Sustainable Energy Harvesting for the Next Generation of Wearable Internet of Things Devices

- Presented at: 5th Virtual International Undergraduate Research Conference (ICEM - 5VIURC 2024)
- Conducted research on biopolymer-based triboelectric nanogenerators for sustainable energy harvesting in wearable IoT devices.
- Analyzed material properties and device architecture with relevance to computational modeling and performance optimization.

Development work in PCSIR

- Beneficiation of up to 65% of Low-grade Indigenous Iron Ore to Produce Metallurgical Grade Iron Concentrate and its Direct Reduction to Produce Iron Metal
- Development of Biodegradable implants using Mg-Zn-xHA Alloy by powder metallurgical techniques
- Characterization and Beneficiation of Bentonite Clay for Industrial Applications

Project Engineer, Machine Zone Ltd, Lahore   Jun 2019 - Dec 2019

- Led setup of powder metallurgy production facility, including process and quality planning

EDUCATION

Bachelor of Science in Metallurgical and Materials Engineering
University of Engineering and Technology Lahore   **Sep 2011 - Sep 2015**

- **Thesis**: Effect of welding parameters and PWHT on cladding characteristics & Ferrite Number of weld clad 316L Stainless steel

CERTIFICATIONS

- CSWIP 3.1: Non Destructive testing of Welded Joints
- Google Project Management Certification

CONFERENCES & SEMINARS

- ISO 17025:2017 Accreditation & Certification
- Cathodic Protection & Survey Techniques
- Learn Create Lead (LCL) Entrepreneurship Conference 2016
- Pakistan Engineering Council (PEC) Workshop on Entrepreneurship

SHORT COURSES

- Google Project Management Professional
- McKinsey Forward Program
- Introduction to EdTech (EDHEC)
- Materials Science for Advanced Applications
- Circular Economy & Sustainable Materials Management
- Generative AI Application Development certificate

ADDITIONAL INFORMATION

- **Languages:** English, German, Swedish.
- **Memberships:** Pakistan Engineering Council, Institute of Engineers Pakistan
- **Awards/Activities:** Merit Award in HSSC, Merit Award in B.Sc Engineering