

Dr. WASEEM KHAN

(HEC Approved PhD Supervisor)



Assistant Professor

Department of Metallurgical Engineering
NED University of Engineering and Technology
University Road, Karachi, Pakistan 75270

Cell # +92-342-2235655
Office Tel # +92-21-99261261-8 Ext # 2517
E-mail: waseemkhan@neduet.edu.pk
wasi12khan@gmail.com



SUMMARY

To prolong the innovative teaching and research work in the field of Metallurgical and Materials engineering and pursue a challenging position in a reputable organization, which can provide a significant growth and where I can render my services for the benefit of the organization as well as enhanced my professional expertise.

My teaching and research interest includes alloy development, entropy alloys, high strength steels, nanomaterials, composites, polymers, thin films coatings, light weight alloys, hydrophobic coatings, mechanics of materials under extreme loads, strain rates, materials simulation techniques (Ansys, LS-Dyna, Abacus, and Comsol), advanced materials, mechanical characterization, surface engineering, nanomaterials, advanced materials characterization (SEM, TEM, AFM, FTIR, STEM, XRD, XRF and OES).



ACADEMIC CREDENTIALS

NED University of Engineering and Technology

Doctor of Philosophy [PhD], Materials & Metallurgical Engineering, (3.75 CGPA)
November 2018 - October 2022

NED University of Engineering and Technology

Master of Engineering [ME], Materials Engineering, First Division (3.85 GPA)
June 2013 – June 2016

NED University of Engineering and Technology

Bachelor of Engineering [BE], Metallurgical Engineering, First Division (82.21%)
January 2008 – December 2011

Govt. Degree College Stadium Road, Karachi

Pre-Engineering, A-Grade (74%)
May 2004 – May 2006

Central Model Ideal Secondary School, Karachi

Computer Science (Physics, Chemistry and Maths), A-Grade (78%)
May 2002- April 2004



PROFESSIONAL WORK EXPERIENCE

Lecturer

(9 February 2016 – 14 March 2018)

Assistant Professor

(15 March 2018 – to date)

Department of Metallurgical Engineering
NED University of Engineering & Technology
Karachi, Pakistan

Responsibilities:

- Planning, preparing & delivering lectures, tutorials, workshops, and seminars to students.
- Developing curricula and course material that can be used across a number of platforms.
- Supervising and mentoring students, guiding them in their research projects and thesis.
- Collaborating with other academics and lecturers to improve teaching methods and expand the knowledge base.
- Conducting research, and writing papers, proposals, journal articles, and books.
- Developing, implementing, assessing, and modifying curriculum as per outcome-based education (OBE) system and contributing to program development and evaluation at the undergraduate and postgraduate levels.
- Setting and grading assignments, tests, and exams.
- Attending and participating in meetings, conferences, and other events in and outside of the university.
- Providing guidance and support to students, including advising on academic related matters.
- Supervising different research laboratories, e.g., metallography lab.
- Reviewing academic materials such as journal articles, outcome based education self-assessment reports, lab manuals, etc., providing expertise and feedback.
- Participating in training opportunities and initiatives at the university.
- Staying current by reading widely and producing published work in the field.
- Preparing, in consultation with the Chairman, detailed schedule of classes for each semester and performing such other functions and duties as are assigned by the Chairman.

Trainee Engineer

(9 January 2012 – 8 February 2013)

Senior Executive Engineer

(9 February 2013 – 9 September 2015)

Production Department
Aisha Steel Mills Limited
Karachi, Pakistan

Responsibilities:

- Responsible for technical issues in the production process and directly supervises junior staff for implementation of production plan to meet daily/monthly production targets.
- Coordinate and monitor all aspects of production process and operations.
- Confer with the Assistant Manager to implement highly productive operating procedures.
- Identifies & proposes opportunities for improvements in the process to increase productivity and quality of products.
- Review production reports on a regular basis and review data logging of the process parameters to improve the product quality.

- Investigate equipment failures and difficulties to diagnose faulty operation and to make recommendations to maintenance crew.
- Coordinate the maintenance and safety procedures, service schedule, and supply of materials requirement to maintain machines and equipment in the prescribed condition.
- Promote the cost down activities and maintain documentation for history of the department.
- Ensure good housekeeping and focus on the safety parameters.



RESEARCH PUBLICATIONS

1. Faheem Akhter, Jawad Ahmed, **Waseem Khan**, Abdul Rehman Jatoy, Mansoor Ahmed Lakhmir, Muhammad Junaid Ahsan, Haris Jawad Arain, Shareen Bhurgri, Niaz Muhammad Laghari & Irfan Ali Sanjrani, "Fabrication of Iron Oxide-Based Chitosan/CNF Bio-Green Composite for Pb(II) Removal from Synthetic Wastewater: Isotherm and Regeneration Studies", *Water Conservation Science and Engineering*, 2024, Volume 9, article number 57. (<https://doi.org/10.1007/s41101-024-00293-5>)
2. Faheem Akhter, **Waseem Khan** & Abdul Rauf Jamali "Efficient Lead (II) Adsorption onto Mesoporous Silica Aerogels Synthesized via Green Method, Organic Solvents, and Modified Aging", *Physical Chemistry Research*, 2024, Vol 12 (1): p. 1-9. (<https://doi.org/10.22036/pcr.2023.374387.2246>)
3. Faheem Akhter, Abdul Rauf Jamali & **Waseem Khan** "EOS Doped vs Non-TEOS Silica Aerogels: A Comparative Study of Synthesis, Characterization, Isotherm Studies and Performance Evaluation for Pb (II) Removal from Synthetic Wastewater", *Water, Air, & Soil Pollution*, 2023, 234:32. (<https://doi.org/10.1007/s11270-022-06051-4>)
4. **Waseem Khan**, Muhammad Tufail and Ali Dad Chandio, "Characterization of Microstructure, Phase Composition, and Mechanical Behavior of Ballistic Steels", *Materials*, 2022, 15(6), 2204. (<https://doi.org/10.3390/ma15062204>)
5. Abdul Rauf Jamali, Jahanzeb Bhatti, **Waseem Khan**, Faheem Akhter, Madiha Batool, Razia Batool and Walid M. Daoush, "Synthesis and Characterization of Silver Nanoparticle-Polydimethylsiloxane (Ag-NP-PDMS) Stretchable Conductive Nanocomposites", *Crystals*, 2022, 12(8), 1098. (<https://doi.org/10.3390/cryst12081098>)
6. Zubia Anwer, Abdul Rauf Jamali, **Waseem Khan**, Jahanzeb Bhatti, Faheem Akhter and Madiha Batool, "Green synthesis of active Fe₂O₃ nanoparticles using Aloe barbadensis and Camellia sinensis for efficient degradation of malachite green and Congo red dye", *Biomass Conversion and Biorefinery*, 2022. (<https://doi.org/10.1007/s13399-022-03626-3>)
7. Rabia Taj, **Waseem Khan**, Abdul Rauf Jamali, Aqsa Asim & Muhammad Faisal Hassan, "Preparation of solid lipid nanoparticles (SLN) and nanostructured lipid carriers (NLC)", *Journal of Population Therapeutics & Clinical Pharmacology*, 2024, Vol 31 (10). (<https://doi.org/10.53555/af1m3d61>)
8. Talha Nadeem, Tariq Rafique, **Waseem Khan**, Sahadat Khandakar, Ahmad Alkhayyat, Mahesh Lohith K S, Zemate Achraf Abdelghafour & Sedra Moulay Brahim "Nanotechnology Meets Quantum Computing: Advancing Quantum Bits (Qubits) And Devices For Next Generation Computing", *Nanotechnology Perceptions*, 2024, Vol.20 (S15). (<https://doi.org/10.62441/nano-ntp.vi.3463>)
9. Abdul Rauf Jamali, **Waseem Khan**, Ali Dad Chandio, Zubia Anwer and Dr. Muhammad Hayat Jokhio, "Effect of Cryogenic Treatment on Mechanical Properties of AISI 4340 & 4140 Steel", *Mehran University Research Journal of Engineering & Technology*, July 2019, Vol 38 (3): p. 755-766. (<https://doi.org/10.22581/muet1982.1903.18>)
10. Abdul Rauf Jamali, Ali Dad Chandio, **Waseem Khan**, Zubia Anwer, Imtiaz Ali Soomro, "Plasmonic effect of gold nanoparticles surrounded by multielectric matrices", *Mehran University Research Journal of Engineering & Technology*, July 2017, Vol 36 (3): p. 741-744. (<https://doi.org/10.22581/muet1982.1703.28>)



CONFERENCES

1. Abdul Rauf Jamali, Ali Dad Chandio, **Waseem Khan**, Zubia Anwer, Imtiaz Ali Soomro, "Plasmonic effect of gold nanoparticles surrounded by multielectric matrices", The 2nd National Conference on Metallurgy and Materials (NCMM-16), 11th August 2016, Mehran University of Engineering and Technology, Jamshoro, Pakistan.
 2. Abdul Rauf Jamali, **Waseem Khan**, Ali Dad Chandio, Zubia Anwer and Dr. Muhammad Hayat Jokhio, "Effect of Cryogenic Heat Treatment on Mechanical Properties of AISI 4340 Steel", The 2nd National Conference on Metallurgy and Materials (NCMM-16), 11th August 2016, Mehran University of Engineering and Technology, Jamshoro, Pakistan.
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COURSES TAUGHT

- Physical Metallurgy
 - Design, Selection & Characterization of Engineering Materials
 - Mineral Processing
 - Non-Ferrous Extractive Metallurgy
 - Mechanical Behaviour of Materials
 - Iron Making Processes
 - Metallurgy of Advanced Steels
 - Nanomaterials & Nanotechnology
 - High Temperature Materials & Superalloys
 - Production and Refining of Materials
 - Fracture Mechanics & Failure Analysis
 - Foundry: principles, methods and practices
 - Furnaces & Refractories
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SOFTWARE COMPETENCIES

- Ansys Simulation Software (LS-Dyna and Autodyn)
 - Abacus
 - Origin Pro and MS Office.
 - FactSage Thermodynamic Software (GTT-Technologies)
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EQUIPMENT TRAINING

- Scanning Electron Microscope
- X-ray Diffractometer (PANalytical PW3040/60 X'Pert P)
- Optical Emission Spectroscopy (Ametek, Model: SPECTROMAXx).
- Rockwell hardness, Micro-vicker hardness and Universal Hardness tester.
- Nanoindenter (Anton Paar TTX-NHT3)



THESIS & PROJECTS

- **Development and Characterization of Ballistic Steels and Composite Laminates for Armoring Applications. (PhD Thesis).**
November 2018 – June 2022
 - **Microstructural Characterization of Spray Painted, Powder Coated, Anodized and Galvanized Samples. (ME Thesis)**
January 2015 – December 2015
 - **Extraction of Magnesium by Modified Bulzano, Pudgeon, and Magnetherm Process. (BE Project)**
January 2011 – December 2011
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ORGANIZATIONS

Life Time Membership (Registered Engineer)

Pakistan Engineering Council
June 2012 – Present
PEC # Metal / 2846



REFERENCES

Reference # 1

Prof. Dr. Ali Dad Chandio
Department of Metallurgical Engineering
NED University of Engineering and Technology
Email: alidad@neduet.edu.p
Tel Office: (9221)99261261-8, Ext. 2516

Reference # 2

Prof. Dr. Muhammad Tufail
Pro Vice Chancellor
NED University of Engineering and Technology
Email: pvc@neduet.edu.pk
Tel Office: (9221)99261261-8 Ext. 2323

Reference # 3

Prof. Dr. Fayaz Hussain
Department of Materials Engineering
NED University of Engineering and Technology
Email: fhussain@neduet.edu.pk
Tel Office: (9221)99261261-8, Ext. 2388