
CURRICULUM VITAE

Name	Umer Zahid
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EDUCATION

Doctor of Philosophy University of Wollongong, Wollongong, Australia	Jul 2022-Present
Master of Science in Mechanical Engineering Politecnico di Torino, Turin, Italy	Oct 2017-Apr 2020
Bachelor of Mechanical Engineering National University of Sciences and Technology (NUST), Karachi, Pakistan	Jan 2011-Jan 2015
University of Cambridge International Examinations Syndicate Advanced Levels Saint Patrick's High School, Karachi, Pakistan	Jun 2008-May 2010
University of Cambridge International Examinations Syndicate Ordinary Levels Beacon House School System, Karachi, Pakistan	Jun 2005-May 2008

PROFESSIONAL EXPERIENCE

UNIVERSITY OF WOLLONGONG, NEW SOUTH WALES, AUSTRALIA Taught students as an engineering part-time teaching faculty member for the Faculty of Engineering and Information Sciences. The provision of tutoring services for the core courses related to the bachelor's degree in mechanical and civil engineering.	Feb 2024-July 2025
ATLAS BATTERY LIMITED, S.I.T.E, KARACHI Worked as a Project Engineer from January 18, 2016. Major responsibilities included the installation of advanced facility with modified scrubbers for enhancing the charging capacity of the lead acid batteries and design optimization of spot cooling ducting and dust collectors in the plant.	Jan 2016-Jan 2017

ZISHAN ENGINEERS (PVT) LIMITED, P.E.C.H.S, KARACHI

Feb 2015-Nov 2015

Worked as a Stress Engineer for several projects. Carried out flexibility and stress analysis of various piping systems through finite element method and displacement matrix model method. Other major responsibilities included preparation of Material Take Off and Pipe Spec documents for procurement purposes.

LOTTE CHEMICAL PAKISTAN LTD, PORT QASIM RD, KARACHI

Feb 2014-Jan 2015

Research and industrial project on flexibility and stress analysis of process piping to accommodate heat exchanger. Designed the piping layout for industry using CAESAR-II version 6.10 software and ASME B31.3 code for process piping. Tested the proposed optimized design of process piping layout under different worse scenario cases.

PAKISTAN REFINERY LTD, KORANGI CREEK RD, KARACHI

Jun 2013-July 2013

Internship training with Pakistan Refinery Limited from June 13, 2013, to July 10, 2013. Received on job training in the Engineering Department. Applied many engineering concepts in actual practice in the industry. Learned the elementary use of the ERP software, SAP.

DEVELOPMENT AND TECHNICAL SKILLS

- Currently engaged in conducting research for the tensile capacity evaluation of hydrogen based pipeline systems utilizing National Computational Infrastructure (NCI Australia) for the University of Wollongong.
- Involvement in the European research project concerned with buried pipeline system response under the landslide movements.
- Knowledge of several pipe stress analysis software such as CAESAR II, NozzlePro, FEPipe, BOSfluids and PV Elite. Made extensive use of them to carry out flexibility analysis of process piping as a part of academic thesis and actual job responsibility.
- Conducted comprehensive workshops on the stress analysis of piping using computational tool resources organized by ASHRAE and IMechE society.
- Mentored trainee engineers at Engro VoPak Terminal Limited on conducting of flexibility and stress analysis of extensive pipeline systems using ASME B31.4 code for transportation of liquids and slurries.
- Conducted the feasibility analysis of PV solar/wind energy sources and hybrid storage systems as part of research projects.
- Conducted the performance optimization analysis of a shell and tube heat exchanger for a research project using STAR CCM+ CFD code.
- Application knowledge of computer aided engineering drawing for industrial and research purpose.
- Made several equation solver numerical codes in MATLAB software. Carried out the energy-exergy analysis of K-Electric Bin Qasim Power Station-1 using EES Solver Commercial Version 6.883.

ACHIEVEMENTS

- ✓ Secured government scholarship award (Higher Education Commission Pakistan scholarship) for pursuing fully funded MS and PhD studies in leading world ranking universities.
 - ✓ Secured HDR performance scholarship in view of exceptional research performance throughout the PhD candidature.
 - ✓ Secured Italian government scholarship award (EDISU scholarship) upon recognition of academic activities.
 - ✓ Received Chancellor Medal award from the President of Pakistan for display of academic excellence in bachelor's degree.
 - ✓ Received Prime Minister award in view of high SGPA (semester grade point average) in various semesters of bachelor's degree.
 - ✓ Earned merit scholarships from NUST for securing SGPA of more than 3.5 from second semester onwards.
 - ✓ Received Gold Medal from the Beacon House School administration for exceptional performance in the University of Cambridge International Examinations Syndicate Ordinary Levels.
 - ✓ Earned a certificate of participation and merit in an essay competition organized by the Church World Service P/A.
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PUBLICATIONS

1. Umer Zahid, "Flexibility analysis methodology for pipeline networks under occasional loads," *Natural Hazards Research*, Vol 3, Issue 1, pp. 97-124, 2023, DOI: 10.1016/j.nhres.2023.01.003.
 2. Sidra Zahid, Shafiq-Ur-Rehman Qureshi, Waqar Ahmed Khan, and Umer Zahid, "Exergetic analysis of the humidification-dehumidification desalination cycle involving variation in top temperature," *Applied Thermal Engineering*, Volume 215, 118998, 2022, DOI: 10.1016/j.applthermaleng.2022.118998.
 3. Zaib Shahid, Massimo Santarelli, Paolo Marocco, Domenico Ferrero, and Umer Zahid, "Techno-economic feasibility analysis of Renewable-fed Power-to-Power (P2P) systems for small French islands," *Energy Conversion and Management*, Volume 255, 115368, 2022, DOI: 10.1016/j.enconman.2022.115368.
 4. Ali Zahid, Umer Zahid, and Muhammad Khuldoon, "Growth, characterization and theoretical optical properties of polycrystalline n-silicon thin films for oxide-silicon tandem cells," *Engineering Research Express*, Vol 3, Issue 3, 035034, 2021, DOI: 10.1088/2631-8695/ac209f.
 5. Ahmad Hanan, Umer Zahid, Tariq Feroze, and Sohaib Z. Khan "Analysis of the performance optimization parameters of shell and tube heat exchanger using CFD," *Australian Journal of Mechanical Engineering*, 2021, DOI: 10.1080/14484846.2021.1914890.
 6. Ali Zahid, Umer Zahid, Aamir Hasan, and Muhammad Khuldoon, "Growth and characterization of polycrystalline silicon thin films for photocatalytic splitting of water in oxide-Si tandem cells," *Preprints*, 2020, 2020070274, DOI: 10.20944/preprints202007.0274.v1.
 7. Ali Zahid and Umer Zahid, "Data pertaining to induction brazing of contact materials in a 3 layered sandwich structure consisting of a silver-tin oxide (Ag-SnO(II)) layer, a silver (Ag) inter-layer and a thin layer of phosphorous free braze-A4-TUD," *Mendeley Data*, v2, 2020, DOI: 10.17632/zg2pcm8r6w.2.
 8. Ali Zahid and Umer Zahid, "Data pertaining to Si deposition via magnetron sputtering for photocatalytic conversion of water-A7-TUD," *Mendeley Data*, v3, 2020, DOI: 10.17632/g959zz7bb2.3.
 9. Umer Zahid, Alberto Godio and Stefano Mauro, "An analytical procedure for modelling pipeline-landslide interaction in gas pipelines," *Journal of Natural Gas Science and Engineering*, Volume 81, 103474, 2020, DOI: 10.1016/j.jngse.2020.103474.
 10. Ali Zahid and Umer Zahid, "Influence of process parameters on the formation and quality of joining zones during induction brazing," *Engineering Research Express*, Vol 2, Issue 2, 025034, 2020, DOI: 10.1088/2631-8695/ab95e9.
 11. Umer Zahid, Sohaib Z. Khan, Muhammad A. Khan, Hassan J. Bukhari, Salman Nisar and Kamran A. Khan, "A methodology for flexibility analysis of pipeline systems," *Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering*, Vol 233, Issue 4, pp. 893-907, 2019, DOI: 10.1177/0954408918812275.
 12. Umer Zahid, Sohaib Z. Khan, Muhammad A. Khan, Hassan J. Bukhari, Imran Ahmed, and Kamran A. Khan, "A methodology for flexibility analysis of process piping," *Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering*, Vol 232, Issue 6, pp.751-761, 2018, DOI: 10.1177/0954408917738963.
 13. Umer Zahid and Ahmad Hanan, "Performance optimization analysis of heat exchanger using STAR CCM+," 2nd International Conference on Design, Mechanical and Material Engineering (D2ME 2017), Melbourne, Australia, September 14-16.
 14. Umer Zahid, Muhammad Ihsan Ul Haq, Abdullah Khan, Muhammad Mansoor, Sidra Zahid, and Ahmed Abdullah Khan, "Feasibility analysis of 100 kW grid connected PV system: A case study at Karachi," 5th International Conference on Power Science and Engineering (ICPSE2016), Venice, Italy, December 14-17.
 15. Umer Zahid, Muhammad Ihsan Ul Haq, Sidra Zahid, Abdullah Khan, Muhammad Mansoor and Ahmed Abdullah Khan, "Feasibility analysis of 100 kW grid connected PV system: A case study at Karachi," *International Journal of Electrical Energy*, Vol. 4, No. 3, pp. 165-173, 2016, DOI: 10.18178/ijoe.4.3.165-173.
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