

Mubashir Hasan

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Ph.D. candidate in Mechanical Engineering with a strong academic foundation and applied industry experience in fluid mechanics, reliability engineering, and computational simulations and 3D modelling. Demonstrated leadership and cross-cultural communication skills through my work, academic societies and international collaborations.

Professional Experience

Company: Velosi Asset Integrity & Safety, Lahore, Pakistan

Jan 2020-Aug 2021

Designation: Assistant Mechanical Engineer

- Developed asset registers, performed Failure Modes & Effects/Criticality Analysis (FMEA/FMECA), and designed preventive maintenance routines for Dragon Oil Turkmenistan offshore facilities (LAM-plants).
- Built asset registers and maintenance plans for Dolphin Energy's Emergency Pipeline Repair System (EPRS) tools and marine base ancillaries.
- Conducted Remaining Life Assessment (RLA) and Fitness-for-Service (FFS) studies for QAFCO ammonia piping (Package-2: Ammonia-3).
- Applied industry standards include SAE JA1011/1012, ISO 14224, OREDA, API 571, API 579, and ASME B31.3 to ensure compliance and reliability.

Company: The Erectors, Lahore, Pakistan

Nov 2018-Aug 2019

Designation: Project Engineer

- Directed mechanical installation of Tea Whitener Plant at Shakarganj Food Products Ltd, supervising 6 multi-skilled field teams.
- Interpreted P&IDs, building layouts, and 3D drawings to plan equipment placement, material handling, fabrication, and piping execution.
- Coordinated daily with clients, delivered progress/rework reports, and ensured timely commissioning.

Education

PhD in Mechanical Engineering (continued)

The University of Tulsa, Tulsa, Oklahoma, USA

Aug 2024-May 2026

Dissertation Title: Effect of Particle Size on Erosion in Annular Flow

CGPA: 3.85/4.0

Master's in mechanical engineering

The University of Tulsa, Tulsa, Oklahoma, USA

Aug 2021-May 2024

CGPA: 3.91/4.0

Bachelor's in mechanical engineering

University of Engineering & Technology Lahore, Pakistan

Aug 2014-May 2018

CGPA: 3.35/4.0

Awards & Honors

- **Top Performance Award**
Velosi Asset Integrity and Safety, 2021
Recognized for outstanding performance and contributions as Employee of the Month.

- **Best Paper Award**

ASME Fluids Engineering Division Summer Meeting (FEDSM), July 2024

Awarded for best paper contribution and presentation in the Multiphase Flows Technical Committee (MFTC) track.

- **Honorary Graduate Returning Scholar Award**

ASME Fluids Engineering Division Summer Meeting (FEDSM), July 2025

Awarded based on contributions as a Graduate Student Scholar in MFTC for continued technical engagement.

Certifications

- CFD Fundamentals Courses 1-3
- CFD for Professionals
- Solid Works
- Introduction to Valve Selection
- Excel/VBA for Creative Problem Solving
- The SIMPLE Algorithm

Technical Skills

- **Software:** MS Office, Solid Works, ANSYS Space Claim, Fluent, ICEM, Excel VBA, Spyder (Python)
- **Analysis:** Data Analysis, CFD, FMECA, RCM, PMRs, FFS, Corrosion Management, Mathematical Modelling
- **Engineering Documentation:** P&IDs, Engineering Drawings and BOM creation, Engineering Report writing
- **Codes and Standards:** SAE JA1011, SAE JA1012, ISO 14224, OREDA, API 571, API 579, ASME B31.3

Extracurricular Activities

- President of Pakistani Student Association at University of Tulsa.

List of Publications

- **M. Hasan**, T.A. Sedrez, F. Darihaki, S.A. Shirazi, S. Karimi, An Experimental and CFD Investigation Into the Effect of Solid Particle Size on Erosion in an Annular Flow, in: ASME Fluids Engineering Division Summer Meeting (FEDSM), July 2025.
<https://doi.org/10.1115/FEDSM2025-158717>
- **M. Hasan**, S.A. Shirazi, S. Karimi, *Experimental and Computational Fluid Dynamics Uncertainty Estimation in Solid Particle Erosion*, *Journal of Fluids Engineering*, 2025, pp. 1–34.
<https://doi.org/10.1115/1.4069437>
- **M. Hasan**, F. Biglari, A. Nadeem, M.M. Othayq, S.A. Shirazi, S. Karimi, Uncertainty Analysis in Solid Particle Erosion Through Validation and Refinement of Experimental Data and Comparison With CFD, in: ASME Fluids Engineering Division Summer Meeting (FEDSM), July 2024.
<https://doi.org/10.1115/FEDSM2024-131389>
- E. Fallah Shojaie, **M. Hasan**, F. Darihaki, S. Karimi, S.A. Shirazi, A Comprehensive Study for Defining the Uncertainty of Erosion Simulations in: ASME Fluids Engineering Division Summer Meeting (FEDSM), July 2024
<https://doi.org/10.1115/FEDSM2024-131145>
- F. Biglari, A. Nadeem, **M. Hasan**, M. Parsi, S. Karimi, R. Vieira, S. Shirazi, Effect of Pipe Size on Solid Particle Erosion of Elbow in Liquid-Solid Flow: Experimental and CFD Analysis in: ASME Fluids Engineering Division Summer Meeting (FEDSM), July 2024
<https://doi.org/10.1115/FEDSM2024-131003>
- A. Nadeem, **M. Hasan**, F. Biglari, H. Ahmad, A. Ali, R.E. Vieira, S.A. Shirazi, A Novel Technique for Determining Threshold Sand Rates from Acoustic Sand Detectors for Well Integrity Management, in: Society of Petroleum Engineers - ADIPEC 2024.
<https://doi.org/10.2118/222272-MS>
- Nadeem, **M. Hasan**, R.E. Vieira, S.A. Shirazi, Evaluation of Acoustic Sand Monitors in Multiphase Flow Production for Small Sand Particle Sizes, in: Proceedings - Annual Technical Conference and Exhibition, Society of Petroleum Engineers (SPE), 2024.
<https://doi.org/10.2118/220727-MS>