



Department of Mechanical Engineering
Khulna University of Engineering & Technology
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Md. Mohiuddin
Lecturer
Research Area

Biography

Md. Mohiuddin is a Lecturer in the Department of Mechanical Engineering at Khulna University of Engineering & Technology. His current research focuses on enhancing energy output and velocity range through flow-induced vibration. Additionally, he is actively working on the shape optimization of piezoelectric cantilever energy harvesters using numerical and machine-learning techniques. Mohiuddin's research interests span across energy harvesting, fluid-solid interactions, thermo-fluid dynamics, and both linear and non-linear vibrations, with a strong emphasis on leveraging machine learning to solve complex engineering problems.

In addition to his academic and research pursuits, Khalek is passionate about mentoring students and actively supports them in their undergraduate engineering projects. As a lecturer, he has taught various courses, including fluid mechanics, solid mechanics, thermodynamics, and thermal engineering,

He is dedicated to advancing the field of mechanical engineering through innovative research and collaboration, aiming to develop sustainable solutions for energy challenges in the modern world.

Education

Master of Science in Mechanical Engineering, M.Sc. (ME)

Khulna University of Engineering & Technology, Bangladesh (2023-2025)

Thesis Title: [Effect of Bluff Body Geometry on Output of Flow Induced Vibration Energy Harvester.](#)

Bachelor of Science in Mechanical Engineering, B.Sc. (ME)

Khulna University of Engineering & Technology, Bangladesh (2018-2023) Achievement: Deans Award

Higher Secondary School Certificate (HSC)

Bangladesh International School & College, Riyadh, Bangladesh (2015-2017)

Secondary School Certificate (SSC)

Bangladesh International School & College, Riyadh, Bangladesh (2013-2015)

Service Records

- **Lecturer**

Department/Section: Mechanical Engineering

Khulna University of Engineering & Technology From 23-03-2023 to 01-01-1970

Research Interest

Energy Harvesting
Fluid Solid Interaction
Piezoelectricity

- **Piezoelectric Energy Harvesting**
- **Flow Induced Energy Harvesting**

This research focuses on capturing flow energy using a bluff body to induce vibrations. The primary benefit of this energy harvester is its ability to operate effectively in low-velocity flows. However, a challenge is that it produces significant power output only within a very limited velocity range. Ongoing studies aim to expand this bandwidth and enhance the power output.

Publication

Books

Journals

Conference

5. Mohiuddin, M., Ahmed, Z. U., Rahman, A. and Islam, M. R. (2024), "Performance Enhancement of Flow-Induced Energy Harvester through Integration of Semi-Circular Passive Turbulence Control," **2nd International Conference on Mechanical, Manufacturing and Process Engineering (ICMPE - 2024)**
4. Mohiuddin, M., Ahmed, Z. U. and Ahmed, R. (2024), "Influence of Beam Geometry on the Power Capacity of a Cantilever Beam Based Energy Harvester," **ASME 2023 International Mechanical Engineering Congress and Exposition**, ISBN:978-0-7918-8763-9, ASME, vol6, DOI:10.1115/IMECE2023-112154
3. Mohiuddin, M., Rahman, K. M., Ahmed, Z. U. and Ahmed, R. (2024), "An Analysis of Concave and Convex Shaped Cantilever Beams on Vibration-Based Piezoelectric Energy Harvesting," **International Design Engineering Technical Conferences and Computers and Information in Engineering Conference**, ASME

2. Parvez, M. S. , Mohiuddin, M. , Islam, M. R. and Ahmed, Z. U. (2024) , "Performance Analysis of PCM in a Fin and Tube Heat Exchanger," **14th International Conference on Mechanical Engineering (ICME 2023)** , SSRN Electronic Journal, DOI:10.2139/ssrn.4859499
1. Mohiuddin, M. , Rahman, K. M. , Ahmed, Z. U. and Riaz, A. (2023) , "Impact of Base Beam Length on Piezoelectric Cantilever Energy Harvesters: A Numerical Investigation," **6th Industrial Engineering and Operations Management Bangladesh Conference** , ISBN:979-8-3507-1733-4, IEOM Society International, DOI:10.46254/BA06.20230093