



Department of Mechanical Engineering  
Khulna University of Engineering & Technology  
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**Arup Kumar Debnath**  
Assistant Professor  
**Research Area** Fatigue and Fracture  
Mechanics Composite material

## Biography

I am **Arup Kumar Debnath**, an Assistant Professor in the Mechanical Engineering Department at Khulna University of Engineering & Technology (KUET). I completed my BSc in Mechanical Engineering from KUET with a CGPA of 3.91, securing the first position in my class. I also completed my MSc in Mechanical Engineering at KUET, achieving a perfect CGPA of 4.00 out of 4.00, with my research focused on geopolymer composites.

I have a strong academic background and have received numerous awards and accolades for my outstanding performance. As an Assistant Professor at KUET, I have taught several courses, including Solid Mechanics, Machine Design, and Automobile Engineering.

Currently, I am involved in a UGC-funded project titled "Comparative Analysis of Alkali Treatment on Interfacial and Mechanical Properties of Kenaf-Carbon Fiber Reinforced Epoxy Composites." My research interests lie in material mechanics and composite materials, and I am committed to advancing these fields. I am also a PhD aspirant, looking to pursue a doctorate in Mechanical Engineering or Material Science.

In my leisure time, I enjoy traveling and exploring new places, as well as playing table tennis. I believe that having hobbies and interests outside of work and academics is important for maintaining a healthy work-life balance.

For more information, visit my personal website: [Portfolio | Arup Kumar Debnath \(arupkuet.wixsite.com\)](https://arupkuet.wixsite.com)

## Education

### Masters of Science in Mechanical Engineering

Khulna University of Engineering & Technology, Bangladesh (July 2021-March 2024)

Thesis Title: Effect of Elevated Temperature on Behavior of Carbon and Kevlar Fiber Reinforced Geopolymer Composites

### Bachelor of Science in Mechanical Engineering

Khulna University of Engineering & Technology, Bangladesh (2016-2021)

Thesis Title: Investigation of Mechanical Properties of Timber Beam Reinforced With FRC

### Higher Secondary Certificate

Satkhira Govt. College, Bangladesh (2013-2015)

### Secondary School Certificate

Satkhira Govt. High School, Bangladesh (2011-2013)

## Service Records

- **Assistant Professor**  
**Department/Section:** Department of Mechanical Engineering  
**Khulna University of Engineering & Technology** From 2024-06-24 00:00:00 to 1970-01-01 06:00:00
- **Lecturer**  
**Department/Section:** Department of Mechanical Engineering  
**Khulna University of Engineering & Technology** From 2022-02-01 00:00:00 to 2024-06-23 00:00:00

## Research Interest

### Fatigue and Fracture Mechanics

### Composite material

Comparative Analysis of Alkali Treatment on Interfacial and Mechanical Properties of Kenaf-Carbon Fiber Reinforced Epoxy Composites

The objective of this project is to develop and optimize hybrid composite materials that integrate chemically treated kenaf fibers with carbon fibers in an epoxy matrix. The specific objectives are:

- To chemically treat kenaf fibers using sodium hydroxide, sulfuric acid, and lead oxide to improve their surface properties for better adhesion with the epoxy matrix.
- To manufacture hybrid composites by combining treated kenaf fibers with carbon fibers, using an epoxy resin as the matrix material.
- To investigate the physical, mechanical, and surface morphology of the manufactured hybrid composites.
- To compare the physical and mechanical properties of the fabricated composites.