

CHINMOY DEB NATH

Thakurgaon, Bangladesh – 5200 | +8801783228682 | chinmoydebnathbishal@gmail.com

Weblinks: LinkedIn

Education

Chittagong University of Engineering and Technology (CUET)

July 2025

B.Sc. in Mechanical Engineering.

- CGPA: **3.73/4.00**, Last four semesters' GPA: **3.87/4.00**

18th out of 180 graduates-Among **Top 10%**

Professional Experience

Adjunct Lecturer, Dept. of ME, Anwer Khan Modern University.

Oct 2025-Present

- Courses: Engineering Mechanics-II (MEC 2203), Design of Machine Elements-I (MEC 3107), Design of Machine Elements-II (MEC 3207)

Graduate Research Assistant, Chittagong University of Engineering and Technology.

Jul 2025-Present

- Working in Computational Fluid Dynamics Lab.

Research Experience

[1] BANBEIS Project by Ministry of Education, Bangladesh. (GRA Project)

Jul 2025-Present

- Investigating gas bubble splitting and lodging dynamics in patient-specific bifurcating micro vessels using Volume of Fluid Model for advanced understanding and design of embolotherapy strategies.

[2] Computational Investigation of Perfluorocarbon Gas Bubble Dynamics in

Three-Dimensional Bifurcating Arteries. (Undergraduate Thesis)

2025

- Explored the impact of bifurcation geometry and non-Newtonian blood rheology on splitting behavior relevant to gas embolotherapy.

[3] Roll-Induced Variations in Bubble Splitting Dynamics within Patient-Specific Arterial Networks.

Chinmoy Deb Nath, Md. Mamunur Roshid. (Manuscript ready to submit)

- Investigated the influence of vessel orientation on bubble splitting and reversal dynamics in patient-specific arterial geometries using ANSYS Fluent. Identified critical Capillary and Bond Numbers dictating bubble behavior under varying roll angles.

[4]A comparative analysis among Balsa, Pine, and Gamari as a potential piezoelectric material.

2025

Abu Bakar, Sajal Chandra Banik, **Chinmoy Deb Nath** (Accepted in ICMERE 2025).

- Found Balsa to produce the highest voltage output (300.52 mV at 1 kg load), with enhanced performance linked to its low density, high compressibility, and porous structure

Research Interests

Multiphase Flow | Bubble Dynamics | Computational Fluid Dynamics | Bubble Acoustics | Heat Transfer | Aerodynamics | Bio-based Sustainable Energy.

Technical Skills

Programming Languages: MATLAB, Python, C, PLC Programming, CNC Programming.

Simulation Software: Ansys Fluent, OpenFoam.

CAD Software: SolidWorks, Fusion 360.

Image Processing and Analysis Software: ImageJ, 3D Slicer.

Scientific Visualization Software: ParaView.

Basic Software: Microsoft Word, PowerPoint, Excel, Latex.

Projects

[1] Design and Optimization of Savonius Wind Turbine.

- Designed and optimized a Savonius wind turbine using CFD simulations, identifying 130° blade angle as optimal for peak power and aerodynamic efficiency in low-wind conditions.

[2] Biosorption of Copper (II) using coconut husk in aqueous solution.

- Investigated Cu (II) biosorption using coconut husk, identifying optimal pH and kinetics for efficient, eco-friendly heavy metal removal in aqueous systems.

[3] Bubble Oscillation Analysis in Tri-Bubble Interaction System

- Analyzed oscillation behavior of three acoustically interacting bubbles using time and frequency domain in MATLAB to reveal dynamic coupling effects.

[4] Finite Element Analysis Convergence and Mesh Independence

Coursera

Awards

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| - Board Merit Scholarship with Rank 9th out of 261,528 students in 12 th grade (Dinajpur Board). | 2019 |
| - Best player in Inter House Basketball Competition - Junior Group | 2015 |
| - Champion in Inter Cadet College Dance Competition. | 2020 |
| - Champion in Inter Hall Table Tennis Competition | 2024 |
| - Man of the Match in Inter House Cricket Competition | 2018 |

Certifications

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| - <u>CNC & 3D Printing for Industrial Automation</u> under EDGE Course, ICT Division, Bangladesh | 2024 |
| - Mechanical Engineering Design and Manufacturing with Fusion 360 (<u>Coursera</u>). | 2023 |
| - Modeling and Design for Mechanical Engineers with Autodesk Fusion 360 (<u>Coursera</u>) | 2023 |
| - Machine Design Part I (Georgia Institute of Technology) (<u>Coursera</u>). | 2023 |
| - Supply Chain Management Specialization (<u>Logistics, Operation, Planning, Sourcing, Management Strategy</u>) | 2023 |

Extra-Curricular Activities

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| - Association of CUETian Ex-Cadets (Vice President). | 2023-2024 |
| <i>Participated in various welfare and social activities for financially challenged people.</i> | |
| - Joyoddhoney (Dance Secretary). | 2023-2024 |
| <i>Organized and coordinated dance events, choreographies & promoted cultural appreciation through dance.</i> | |
| - Rangpur Old Cadets' Association (Lifetime Member). | May 2019-Present |
| <i>Conveyed relief initiatives for disaster-impacted communities and career guidance programs for high school graduates.</i> | |
| - CUET Sports Club (Event Management Secretary) | 2023-2024 |
| <i>Assisted executive committee in organizing various indoor and outdoor sports competitions.</i> | |
| - House Cultural Prefect (Rangpur Cadet College). | June 2018- May 2019 |
| <i>Fostered cultural activities, acted as a liaison between cadets and the authority, and maintained discipline in communal areas.</i> | |

References

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| 1. Dr. Md. Mamunur Roshid.
Professor
Dept. of Mechanical Engineering.
Chittagong University of Engineering & Technology, Bangladesh.
Email: mamuncuet2003@cuet.ac.bd
Relation: BSc. Thesis Supervisor and Course Teacher. | 2. Dr. Md. Mizanur Rahman.
Professor
Dept. of Mechanical Engineering.
Chittagong University of Engineering & Technology, Bangladesh
Email: mmrahman_me@cuet.ac.bd
Relation: Advisor and Course Teacher. | 3. Dr. Prasanjit Das
Professor
Dept. of Mechanical Engineering.
Chittagong University of Engineering & Technology, Bangladesh
Email: prasanjit@cuet.ac.bd
Relation: Course Teacher. |
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