Mohammad Sanjeed Hasan

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Career Objective

Aspiring to pursue a Ph.D. in Mechanical Engineering, building on my background in Computational and Experimental Fluid Dynamics research to contribute to advancements in fluid and thermal systems through innovative, interdisciplinary approaches.

Education

Master of Science in Mechanical Engineering — 2023-2025

Embry-Riddle Aeronautical University, Daytona Beach Campus, Florida, USA.

CGPA: 3.44/4.00

Master of Science in Applied Mathematics — 2016-2017

Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Gopalganj, Bangladesh.

CGPA: 3.90/4.00 **Merit Position:** 2nd (out of 14 students)

Thesis Title: *Numerical Study of Non-isothermal Flows with Convective Heat Transfer through a Curved Square Duct with Heating the Lower Wall and Cooling from the Ceiling.*

Bachelor of Science in Mathematics — 2012-2015

Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Gopalganj, Bangladesh.

CGPA: 3.67/4.00 **Merit Position:** 1st (out of 23 students)

Project Thesis Title: *A Comparative Study on Exact Solution of The Sawada-Kotera and Degasperis-Procesi Equations by (G'/G)-Expansion Method.*

Academic Awards

2025 Received as **College of Engineering Best Graduate Poster** in the *Student Research Symposium* at Embry-Riddle Aeronautical University, Daytona Beach, Florida, USA.

2019 **Dean's Award for Scholastic Excellence** - Awarded for securing the **outstanding academic achievement for the 1st position** in Department of Mathematics and Faculty of Science.

2018 **Prime Minister Gold Medal** - Awarded for securing **highest Marks/CGPA** in BSc program across Faculty of Science.

2013 Awarded as **Superior Performance in the 5th National Undergraduate Mathematics Olympiad**, (Khulna Region).

Research Interests

Computational and Experimental Fluid Dynamics and Heat Transfer, Bubble Dynamics, Droplets, Multiphase Flows, Fluid-structure Interactions, Numerical Modeling of Flow Transport in Porous Media, Turbulence.

Publications

Total 35 peer-reviewed articles with 343 citations (as of December 2025)

[Full publication list available here]

Selected Journal Papers

- **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, Md. Zohurul Islam, Giulio Lorenzini, *Physics of Coriolis-Energy Force in Bifurcation and Flow Transition through a Tightly Twisted Square Tube*, Chinese Journal of Physics, Elsevier, 77: 1305-1330, 2022, **SCOPUS & ISI** Indexed, **IF: 4.6**.
- **Mohammad Sanjeed Hasan**, Ratan Kumar Chanda, Rabindra Nath Mondal, Giulio Lorenzini, *Effects of Rotation on Unsteady Fluid Flow and Forced Convection in the Rotating Curved Square Duct with a Small Curvature*, FACTA UNIVERSITATIS, Series: Mechanical Engineering, 20(2): 255-278, 2022, **SCOPUS** Indexed, **IF: 11.8**.
- **Mohammad Sanjeed Hasan**, Shamsun Naher Dolon, Himadri Shekhar Chakraborty, Rabindra Nath Mondal, Giulio Lorenzini, *Numerical Investigation on Flow Transition through a Curved Square Duct with Negative Rotation*, Journal of Applied and Computational Mechanics, 7(3): 1435-1447, 2021, **SCOPUS** Indexed, **IF: 1.1**.
- **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, Giulio Lorenzini, *Physics of Bifurcation of the Flow and Heat Transfer through a Curved Duct with Natural and Forced Convection*, Chinese Journal of Physics, Elsevier, 67: 428-457, 2020, **SCOPUS & ISI** Indexed, **IF: 4.6**.
- **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, Giulio Lorenzini, *Coriolis force effect in steady and unsteady flow characteristics with convective heat transfer through a curved square duct*, International Journal of Mechanical Engineering, 5 (1): 1-40, 2020, **SCOPUS** Indexed, **IF: 2.1**.
- **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, Giulio Lorenzini, *Numerical Prediction of Non-isothermal Flow with Convective Heat Transfer Through a Rotating Curved Square Channel with Bottom Wall Heating and Cooling from the Ceiling*, International Journal of Heat and Technology, 37(3): 710-726, 2019, **SCOPUS, ISI & EiCompendex** Indexed, **IF: 0.8**.

Selected Conference Proceedings Papers

- **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, Giulio Lorenzini, *Centrifugal-Coriolis instability through a rotating curved square duct with bottom wall heating and cooling from the ceiling*, AIP Conference Proceedings, 2324, 040007, 2021, **SCOPUS** Indexed.
- **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, Toshinori Kouchi, Shinichiro Yanase, *Hydrodynamic Instability with Convective Heat Transfer through a Curved Channel with Strong Rotational Speed*, AIP Conference Proceedings, 2121, 030006, 2019, **SCOPUS** Indexed.

Computer skills (Programming Language)

Ansys APDL, Ansys FLUENT, Matlab, Maple, C, Fortran, Fidelity Pointwise

Communication Skills (Oral Presentation in conference)

20th (2017) and 21th (2019) **International Mathematics Conference**, 8th (2018) **International Conference on Thermal Engineering**, 13th (2019) **International Conference on Mechanical Engineering**

Professional and Teaching Experience

Aug 2024 - Dec 2025 **Graduate Teaching Assistant**, Embry-Riddle Aeronautical University, Daytona Beach Campus, Florida, USA.

Course Title: Modeling and Simulation for Complex Engineering Systems (ME326)

Nov 2017 - Jul 2023 **Senior Teacher**, **Mathematics**, Bijoy International School, Dhaka, Bangladesh. **Teacher**, **Mathematics** , Akij Foundation School and College, Manikganj, Bangladesh.

Jun 2017 - Oct 2017 **Contractual Lecturer**, Department of Mathematics and Statistics, Bangladesh University of Business and Technology, Dhaka, Bangladesh.

Course Title: 1. Calculus I, 2. Ordinary Differential Equations (ODE)

Research Experience

Jul 2015 - Jun 2017 **Research Associate** in the research project funded by Bangladesh Ministry of Education entitled **Flow Instability with Convective Heat Transfer through a Rotating Curved Micro-Channel with Strong Curvature** under Prof. Dr. Rabindra Nath Mondal.

Jul 2017 - Jun 2018 **Research Associate** in the research project funded by Bangladesh Ministry of Science and Technology entitled **Flow Transitions with Effects of Secondary Flow on Convective Heat Transfer through a Rotating Curved Channel** under Prof. Dr. Rabindra Nath Mondal.

Membership

Bangladesh Mathematical Society (Serial No: 1516)

Reviewer

AIP Advances, Physics of Fluids, European Journal of Physics - B/Fluids, Fluid Dynamics & Material Processing, International Journal of Heat and Technology, International Journal of Applied Mechanics and Engineering, Journal of Naval Architecture and Marine Engineering.