Mohammad Sanjeed Hasan

Curriculum Vitae

3528 Forest Branch Drive, Apt A,
Port Orange, Florida 32129
386-843-6431
HASANM1@my.erau.edu

Career Objective

Aspiring to pursue a Ph.D. in Mechanical Engineering, leveraging my strong foundation in mathematics and research experience in computational fluid dynamics and heat transfer. I aim to drive advancements in this field through innovative research and interdisciplinary collaboration, applying my analytical and technical expertise to solve complex engineering challenges.

Research Interests

- Computational Fluid Dynamics and Heat Transfer
- Multiphase Flows
- Phase Change Materials
- Curved Duct Flow and Heat Transfer
- Mathematical and Numerical Modelling of Transport Phenomena in Porous Media
- Bubble Dynamics
- Droplets
- Turbulence

Professional and Teaching Experience

22th August 2024-5th May 2025 — **Graduate Teaching Assistant**, Embry-Riddle Aeronautical University, Daytona Beach Campus, Florida, USA.

Course Title: Modeling and Simulation for Complex Engineering Systems

Course Code: ME326

Responsibilities: Lab Session Supervision, Code Assistance and Debugging, Office Hours Support, Grading and Feedback, Student Guidance and Mentorship, Report and Assignment Evaluation.

4th January 2023-4th July 2023 — **Teacher**, **Mathematics (English Version)**, Akij Foundation School and College, Manikganj, Bangladesh.

Responsibilities: Lesson Planning, Student Mentorship, Classroom Management, Exam Preparation, Grading and Feedback, Academic Support.

1st November 2017-3rd January 2023 — **Senior Teacher**, **Mathematics (English Version)**, Bijoy International School, Dhaka, Bangladesh.

Responsibilities: Lesson Planning, Student Mentorship, Classroom Management, Exam Preparation, Grading and Feedback, Academic Support.

5th June 2017-5th October 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)

Responsibilities: Lecture Delivery, Curriculum Design, Assessment and Grading, Feedback and Evaluation, Discussion Facilitation, Student Support, Office Hours Assistance.

Research Experience

July 2015 to June 2017

Research experience as a **Research Associate** in the research project funded by Bangladesh Ministry of Education (MoEdu) entitled **Flow Instability with Convective Heat Transfer through a Rotating Curved Micro-Channel with Strong Curvature** under Prof. Dr. Rabindra Nath Mondal, Dept. of Mathematics, Jagannath University, Dhaka.

July 2017 to Jun 2018

Research experience as a **Research Associate** in the research project funded by Bangladesh Ministry of Science and Technology (MOST) entitled **Flow Transitions with Effects of Secondary Flow on Convective Heat Transfer through a Rotating Curved Channel** under Prof. Dr. Rabindra Nath Mondal, Dept. of Mathematics, Jagannath University, Dhaka.

Papers and Publications

Published Papers

Journal Papers (Organize in yearly based)

35 Saykat Poddar, Jui Saha, Badhan Neogi, **Mohammad Sanjeed Hasan**, Muhammad Minarul Islam, Giulio Lorenzini, Md. Mahmud Alam, *Steady-State Solution of MHD Flow with Induced Magnetic Field*, Fluid Dynamics & Materials Processing, 21(2): 233-252, 2025, **SCOPUS & ISI** Indexed, **IF: 0.8**.

34 Sreedham Chandra Adhikari, **Mohammad Sanjeed Hasan**, Rifat Ara Rouf, Giulio Lorenzini, Rabindra Nath Mondal, *A computational modeling on two-dimensional laminar flow and thermal characteristics through a strongly bent square channel*, AIP Advances, 13(11): 115007-17, 2023, **SCOPUS** Indexed, **IF: 1.4**.

33 **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: 3.237**.

32 **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, Giulio Lorenzini, *Curvature Induced Instability Characteristics of Laminar Flow and Heat Transfer through a Bent Square Channel*, Chinese Journal of Physics, Elsevier, 77: 189-213, 2022, **SCOPUS & ISI** Indexed, **IF: 3.237**.

31 **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.

30 Sreedam Chandra Adhikari, **Mohammad Sanjeed Hasan**, Rabeya Akter, Rabindra Nath Mondal, *Unsteady Features of Laminar Viscous Incompressible Flow and Temperature Dissemination through a Rotating Bent Rectangular Channel: The Case of Negative Rotation*, Jagannath University Journal of Science, 8(1): 33-44, 2022.

29 **Mohammad Sanjeed Hasan**, Md. Tusher Mollah, Dipankar Kumar, Rabindra Nath Mondal, Giulio Lorenzini, *Effects of Rotation on Transient Fluid Flow and Heat transfer through a Curved Square Duct: The Case of Negative Rotation*, International Journal of Applied Mechanics and Engineering, 26(4): 29-50, 2021, **SCOPUS** Indexed.

28 **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.

27 **Mohammad Sanjeed Hasan**, Sabrina Rashid, Shamsun Naher Dolon, Ratan Kumar Chanda, Muhammad Minarul Islam, Rabindra Nath Mondal, Giulio Lorenzini, *Investigation on Energy Distribution in Steady and Unsteady Flow Instabilities through a Bend Square Pipe*, Reports in Mechanical Engineering, 2: 86-104, 2021.

26 Ratan Kumar Chanda, **Mohammad Sanjeed Hasan**, Md. Mahmud Alam, Rabindra Nath Mondal, *A Computational Study on Flow Characteristics and Energy Distribution in a Rotating Coiled Rectangular Duct with Longitudinal Vortex Generation*, Journal of Naval Architecture and Marine Engineering, 18(2), 187-205, 2021, **SCOPUS** Indexed.

25 Rabindra Nath Mondal, **Mohammad Sanjeed Hasan**, Md. Zohurul Islam, Md. Saidul Islam, Suvash C. Saha, *A Numerical Study of Unsteady Fluid Flow and Heat Transfer through a Rotating Curved Rectangular Duct of Small Curvature*, International Journal of Heat and Technology, 39(4): 1213-1224, 2021, **SCOPUS, ISI & EiCompendex** Indexed.

24 Ratan Kumar Chanda, **Mohammad Sanjeed Hasan**, Giulio Lorenzini, Rabindra Nath Mondal, *Effects of Rotation and Curvature Ratio on Fluid Flow and Energy Distribution through a Rotating Curved Rectangular Channel*, Journal of Engineering Thermophysics, Springer, 30(2): 243-269, 2021, **SCOPUS & ISI** Indexed, **IF: 1.402**.

23 Ratan Kumar Chanda, **Mohammad Sanjeed Hasan**, Md. Mahmud alam, Rabindra Nath Mondal, *Taylor-Heat Flux Effect on Fluid Flow and Heat Transfer in a Curved Rectangular Duct with Rotation*, International Journal of Applied and Computational Mathematics, Springer, 7(4): 146, 2021, **SCOPUS** Indexed.

22 Shamsun Naher Dolon, **Mohammad Sanjeed Hasan**, Giulio Lorenzini, Rabindra Nath Mondal, *A Computational Modelling on Transient Heat and Fluid Flow through a Curved Duct of Large Aspect Ratio with Centrifugal Instability*, The European Physical Journal Plus, Springer, 136:382, 2021, **SCOPUS & ISI** Indexed, **IF: 3.911**.

21 Noor Alam, Saykat Poddar, M Enamul Karim, **Mohammad Sanjeed Hasan**, Giulio Lorenzini, *Transient MHD Radiative Fluid Flow over an Inclined Porous Plate with Thermal and Mass Diffusion: An EFDM Numerical Approach*, Mathematical Modelling of Engineering Problems, 8(5): 739-749, 2021, **SCOPUS** Indexed.

20 **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: 3.237**.

19 **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.

18 **Mohammad Sanjeed Hasan**, Md. Sirajul Islam, Md. Faisal Badsha, Rabindra Nath Mondal, Giulio Lorenzini, *Numerical Investigation on the Transition of Fluid Flow Characteristics Through a Rotating Curved Duct*, International Journal of Applied Mechanics and Engineering, 25(3): 45-63, 2020, **SCOPUS** Indexed.

17 Samir Chandra Ray, **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, *On the Onset of Hydrodynamic Instability with Convective Heat Transfer Through a Rotating Curved Rectangular Duct*, Mathematical Modelling of Engineering Problems, 7(1): 31-44, 2020, **SCOPUS** Indexed.

16 Ratan Kumar Chanda, **Mohammad Sanjeed Hasan**, Md. Mahmud alam, Rabindra Nath Mondal, *Hydrothermal Behavior of Transient Fluid Flow and Heat Transfer Through a Rotating Curved Rectangular Duct with Natural and Forced Convection*, Mathematical Modelling of Engineering Problems, 7(4): 501-514, 2020, **SCOPUS** Indexed.

15 Mohsen Izadi, Iman Shahivand, S. A. M. Mehryan, **Mohammad Sanjeed Hasan**, Giulio Lorenzini, *Magneto-hydrodynamic Flow of Micropolar Nanofluid Containing Motile Microorganisms Passing over a Vertical Stretching Sheet with magnetic field dependent Viscosity*, Journal of Engineering Thermophysics, 29(4): 632–656, 2020, **SCOPUS & ISI** Indexed, **IF: 1.402**.

14 **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.

13 **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, Giulio Lorenzini, *Centrifugal Instability with Convective Heat Transfer through a Tightly Coiled Square Duct*, Mathematical Modelling of Engineering Problems, 6(3): 397-408, 2019, **SCOPUS** Indexed.

12 Laisa Mahtarin Iva, **Mohammad Sanjeed Hasan**, Sanjit Kumar Paul, Rabindra Nath Mondal, *MHD free convection heat and mass transfer flow over a vertical porous plate in a rotating system with hall current, heat source and suction*, Int. J. Adv. Appl. Math. and Mech., 5(4): 49–64, 2018.

11 Muhammad Minarul Islam, **Mohammad Sanjeed Hasan**, *A study on exact solution of the telegraph equation by (G′/G)-expansion method*, African Journal of Mathematics and Computer Science Research, 11(7): 103-108, 2018.

10 Muhammad Minarul Islam, Md. Tusher Mollah, **Mohammad Sanjeed Hasan**, Md. Mahmud Alam, *Numerical Solution of Unsteady Viscous Compressible Fluid Flow along a Porous Plate with Induced Magnetic Field*, AMSE JOURNALS-AMSE IIETA publication-2017-Series: Modelling B, 86: 850-863, 2017, **SCOPUS** Indexed.

Conference Proceedings Papers (Organize in yearly based)

9 **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.

8 **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, Shinichiro Yanase, *Numerical Prediction of Unsteady Fluid Flow and Heat Transfer through a Stationary Curved Square Duct*, AIP Conference Proceedings, 2324, 050020, 2021, **SCOPUS** Indexed.

7 Shamsun Naher Dolon, **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, *Non-isothermal flow with convective heat transfer through a curved duct for various aspect ratios*, AIP Conference Proceedings, 2324, 050014, 2021, **SCOPUS** Indexed.

6 Shamsun Naher Dolon, **Mohammad Sanjeed Hasan**, Ratan Kumar Chanda, Rabindra Nath Mondal, *Numerical study of unsteady fluid flow through a tightly coiled rectangular duct of large aspect ratio*, AIP Conference Proceedings, 2324, 040006, 2021, **SCOPUS** Indexed.

5 **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.

4 **Mohammad Sanjeed Hasan**, Muhammad Minarul Islam, Samir Chandra Ray, Rabindra Nath Mondal, *Bifurcation Structure and Unsteady Solutions through a Curved Square Duct with Bottom Wall Heating and Cooling from the Ceiling*, AIP Conference Proceedings, 2121, 050003, 2019, **SCOPUS** Indexed.

3 Mst. Nasrin Sultana, **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, *A Numerical Study of Unsteady Heat and Fluid Flow through a Rotating Curved Channel with Variable Curvature*, AIP Conference Proceedings, 2121, 030009, 2019, **SCOPUS** Indexed.

2 Shamsun Naher Dolon, **Mohammad Sanjeed Hasan**, Samir Chandra Ray, Rabindra Nath Mondal, *Vortex-Structure of Secondary Flows with Effects of Strong Curvature on Unsteady Solutions through a Curved Rectangular Duct of Large Aspect Ratio*, AIP Conference Proceedings, 2121, 050004, 2019, **SCOPUS** Indexed.

1 Md. Nahidul Islam, Samir Chandra Ray, **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, *Pressure-driven Flow Instability with Convective Heat Transfer through a Rotating Curved Rectangular Duct with Differentially Heated Top and Bottom Walls*, AIP Conference Proceedings, 2121, 030011, 2019, **SCOPUS** Indexed.

Conference Papers (Oral Presentation)

6 **Mohammad Sanjeed Hasan**, Ratan Kumar Chanda, Rabindra Nath Mondal, *Time-dependent Flow with Convective Heat Transfer through a Curved Square Channel*, 21th International Mathematics Conference, University of Dhaka, Bangladesh, 8-10 December, 2019.

5 Shamsun Naher Dolon, **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, *Effects of Aspect Ratio on Unsteady Fluid Flow and Convective Heat Transfer through a Curved Rectangular Duct of Strong Curvature*, 21th International Mathematics Conference, University of Dhaka, Bangladesh, 8-10 December, 2019.

4 Ratan Kumar Chanda, **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, *Effects of Rotation on Unsteady Fluid Flow and Heat Transfer through a Curved Rectangular Duct with Bottom Wall Heating and Cooling from the Ceiling*, 21th International Mathematics Conference, University of Dhaka, Bangladesh, 8-10 December, 2019.

3 Selim Hussen, **Mohammad Sanjeed Hasan**, Rabindra Nath Mondal, *Two-dimensional Steady Flow and Unsteady Solutions through a Curved Square Duct*, 21th International Mathematics Conference, University of Dhaka, Bangladesh, 8-10 December, 2019.

2 **Mohammad Sanjeed Hasan**, Md Shakil Aman and Rabindra Nath Mondal, *Flow Instability with Convective Heat Transfer through a Curved Square Duct with Heating the Lower Wall and Cooling from the Ceiling*, 20th International Mathematics Conference, University of Dhaka, Bangladesh, 8-10 December, 2017.

1 Maksuda Akter Sawpna, **Mohammad Sanjeed Hasan** and Rabindra Nath Mondal, *Unsteady Fluid Flow and Heat Transfer through a Rotating Curved Duct with Differentially Heated Vertical Sidewalls*, 20th International Mathematics Conference, University of Dhaka, Bangladesh, 8-10 December, 2017.

Academic Awards

2019 Awarded as **DEAN'S AWARD FOR SCHOLASTIC EXCELLENCE** for securing the **outstanding academic achievement for the 1st position** in Bachelor of Science in Mathematics examination From the Faculty of Science.

2018 Awarded as **Prime Minister Gold Medal 2015** for securing the **highest Marks/CGPA** in Bachelor of Science in Mathematics examination From the Faculty of Science.

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

Education

Master of Science

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

Department Mechanical Engineering

Subject Mechanical Engineering

Session *2023-2025*

Result	*3.25 (GPA out of 4.0 scale)*
Medium of Instruction	English
Major Studied Courses	Modeling Methods in Mechanical Engineering, Conduction and Radiation Heat Transfer, Multiscale kinetic Modeling, Special Topics in Mechanical Engineering, Intermediate Heat Transfer, Research Methods for Engineers, Computational Heat Transfer, Finite Element Method.

Master of Science

University Name	Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Gopalganj, Bangladesh.
Department	Mathematics
Subject	Applied Mathematics
Session	*2016-2017*
Result	*3.90 (GPA out of 4.0 scale)*
Position	**1st class 2nd position** out of the entire 14 students in the class.
Medium of Instruction	English
Major Studied Courses	Fluid Dynamics, Advanced Numerical Analysis, Magneto-Hydrodynamics, Operations Research, Astrophysics, Industrial Mathematics, Thermodynamics and Statistical Mechanics, Theory of Relativity.
	Masters 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

University Name	Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Gopalganj, Bangladesh.
Department	Mathematics
Subject	Mathematics
Session	*2011-2015*
Result	*3.67 (GPA out of 4.0 scale)*
Position	**1st class 1st position** out of the entire 23 students in the class.
Achievement	**Prime Minister Gold Medal 2015**
	DEAN'S Award 2019
Medium of Instruction	English

Major Courses Studied Basic Algebra and Trigonometry, Geometry in Two Dimension, Geometry in Three Dimension, Calculus-I, Calculus-II, Linear Algebra, Ordinary Differential Equation, Partial Differential Equation, Vector and Tensor Analysis, Real Analysis-I, Real Analysis-II, Discrete Mathematics, Programming With Fortran, Programming With Fortran Lab, Abstract Algebra, Complex Analysis, Mechanics, Classical Mechanics, Quantum Mechanics, Mathematical Methods, General Topology, Theory of Numbers, Numerical Analysis, Numerical Analysis Lab, Linear Programming, Lattice Theory, Hydrostatics and Hydrodynamics, Astronomy, Integral Equations, Differential Geometry, Mathematical Modeling in Biology, Rings and Modules, Wavelet Analysis.

Project Thesis

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

Higher Secondary Certificate

College Adamjee Cantonment College, Dhaka.
Group Science
Passing Year *2011*
Board Dhaka
Result *4.30 (GPA out of 5.0 scale)*

Secondary School Certificate

School Bangladesh Navy School, Dhaka.
Group Science
Passing Year *2009*
Board Dhaka
Result *5.00 (GPA out of 5.0 scale)*

Computer skills

Intermediate Microsoft Windows, Microsoft Office

Programming Language ANSYS APDL, ANSYS FLUENT, MATLAB, MAPLE,C/C++,FORTRAN, FIDELITY POINTWISE

Communication Skills

2017 Oral Presentation at the 20th International Mathematics Conference

2018 Oral Presentation at the 8th International Conference on Thermal Engineering

2019 Oral Presentation at the 21th International Mathematics Conference

2019 Oral Presentation at the 13th International Conference on Mechanical Engineering

Language Skill

Bengali Mothertongue

English Fluent

Membership

Bangladesh Mathematical Society (Serial No: 1516)

Reviewer

International Journal of Heat and Technology (IJHT)
International Journal of Applied Mechanics and Engineering (IJAME)
Journal of Naval Architecture and Marine Engineering (JNAME)

Useful Links

Personal Website	https://mohammad-sanjeed-hasan.github.io/
Google Scholar	https://scholar.google.com/citations?user=kKiImJcAAAAJ&hl=en
Researchgate	https://www.researchgate.net/profile/Mohammad-Hasan-26
Scopus	https://www.scopus.com/authid/detail.uri?authorId=57198745772
Orcid	https://orcid.org/0000-0003-2960-5524
Publons	https://publons.com/researcher/3213662/mohammad-sanjeed-hasan/publications/

References

- **Dr. James J Pembridge**
  Associate Dean and Professor
  Engineering Fundamentals,
  Engineering Fundamentals,
  Embry-Riddle Aeronautical University, Daytona Beach Campus, Florida, USA.
  Email: James.Pembridge@erau.edu
- **Dr. Rabindra Nath Mondal**
  Professor
  Department of Mathematics,
  Faculty of Science,
  Jagannath University, Dhaka, Bangladesh.
  Contact no: +880-1710851580
  Email: rnmondal@jnu.ac.bd
- **Md. Zohurul Islam**
  Associate Professor,
  Department of Mathematics,
  Jashore University of Science and Technology, Jashore, Bangladesh
  Contact no: +880-1717964452
  Email: mz.islam@just.edu.bd

Declaration

I can assure that the information given here is true and accurate to the best of my knowledge and belief.

Signature