

CURRICULUM VITAE OF SHAMS FORRUQUE AHMED, PhD

Assistant Professor of Mathematics & Computational Science
Science and Math Program, Asian University for Women
20/A M. M. Ali Road, Chittagong-4000, Bangladesh
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CAREER OBJECTIVE

A highly motivated and intuitive teacher/researcher with excellent team building, strong mathematical background, good organizational and interpersonal skills, and the ability to build or participating in multi-disciplinary collaborations with other academic staff and students at each level in educational environments. I feel confident in applying my strong mathematical knowledge and computational skills in educational institution. I am very enthusiastic about committing myself to applying my current experience and learning new skills so that I can demonstrate my technical and experimental skills to achieve my research and teaching goals.

EDUCATIONAL QUALIFICATIONS

01/06/2012-02/03/2016	Doctor of Philosophy School of Engineering and Technology Central Queensland University, Rockhampton, Australia
09/01/2007-24/02/2009	Master of Philosophy Department of Applied Mathematics, University of Rajshahi, Bangladesh
19/03/2003-27/12/2004	Master of Science Department of Applied Mathematics, University of Rajshahi, Bangladesh - Achieved first class 3 rd position
20/04/1999-16/01/2003	Bachelor of Science Department of Mathematics, University of Rajshahi, Bangladesh - Achieved first class 3 rd position

TEACHING AND RESEARCH EXPERIENCE

16/08/2017-Present	Assistant Prof. of Math. & Computational Science, Asian University for Women, Bangladesh Subjects taught: Probability & Statistics with R programming, Introduction to Computing and Programming (Python), Discrete Mathematics, Calculus-I, Differential Equations.
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Job Responsibilities:

- Delivering lectures, conducted tutorials, quizzes and assignments on the courses assigned to me at undergraduate level.
- To design the courses taught in each semester, and to develop the curriculum of mathematics, and computational science.
- To conduct research independently to make a significant contribution to research, scholarship and teaching for the benefit of the University
- Applying for research grants to collect research fund for conducting high quality research
- To produce scientific research articles, and to publish those in refereed international journals and conferences.

Accomplishments:

- Produced research articles and submitted to refereed journals and conferences.
- Worked as a Co-chair of the 5th International Conference on Natural Science and Technology (ICNST'18).
- Selected as a member of the Teaching, Learning and Quality Assurance committee, and Research and Ethics committee

02/05/2016-15/08/2017 Assistant Professor, Dept. of Mathematics & Physics, North South University, Bangladesh
Subjects taught: Linear Algebra, Precalculus, Calculus and Analytical Geometry II, Multi-variable calculus, Differential Equations (ODE and PDE).

Job Responsibilities:

- To conduct research independently to make a significant contribution to research, scholarship and teaching for the benefit of the University
- Applying for research grants to collect research fund for conducting high quality research
- To produce a good number of scientific research articles, and to publish those in refereed international journals and conferences
- Delivering lectures, conducted tutorials, quizzes and assignments on the courses of Applied Mathematics at undergraduate level
- To design the courses taught in each semester, and to develop the curriculum of mathematics.

Accomplishments:

- Secured Research Grant of BDT 4,00,000 from North South University, Bangladesh for the period of 2016-2017
- Produced research articles and submitted to high quality journals
- Selected as the member of the Faculty Search Committee of the Dept. of Mathematics & Physics, North South University, Bangladesh.

05/09/2015-29/03/2016 Postdoctoral Research Fellow, School of Engineering, Deakin University
Geelong Waurin Ponds Campus, Victoria 3220, Australia.
Subjects taught: Engineering Modelling.
Research project: Linearization of nonlinear multi-machine power systems.

Job Responsibilities:

- Built 2D and 3D geometries, and generated mesh using DesignModeler tools in ANSYS
- Simulated the models using the simulation program, ANSYS Fluent
- Solved the heat transfer problem of earth pipe cooling system using CFD code in Fluent 15.0
- Validated the models by comparing the numerical results with the experimental results
- Optimized the models by parametric analysis using FLUENT
- Solved non-linearized multi-machine power system problems using MATLAB
- Analyzed and interpreted large set of data for determining specific trends of a phenomena
- Taught mathematical courses to undergraduate students
- Designed the course outlines of Mathematics courses, and prepared course materials
- Delivered lectures, conducted class tests and assignments
- Applied for research grants to collect research fund for conducting high quality research
- Conducted research independently to make a significant contribution to research, and teaching for the benefit of the University
- Produced high quality research articles, and published those in refereed international journals.

Accomplishments:

- Solved non-linearized multi-machine power system problems using MATLAB
- Developed horizontal and vertical earth pipe cooling models using the simulation program, ANSYS Fluent
- Validated the models by comparing the numerical results with the experimental results
- Optimized the models by parametric analysis using FLUENT
- Published a very good journal article titled "Parametric study on thermal performance of horizontal earth pipe cooling system in summer," in the journal of Energy Conversion and Management (Impact Factor: 4.801)

13/07/2011-04/09/2015 Senior Lecturer in Mathematics, Prime University, Bangladesh
Subjects taught: Mathematical Applications in Engineering, Numerical Analysis, Mathematical Methods, and Operation Research.

Job Responsibilities:

- Conducted research independently to make a significant contribution to research, scholarship and teaching
- Produced a good number of research papers, and published in refereed international journals and conferences
- Supervised degree completion projects and internships, and guided the undergraduate and postgraduate students to develop their mathematical knowledge
- Delivered lectures, conducted tutorials, quizzes and assignments on the courses of Applied Mathematics at undergraduate level
- Designed the courses taught in each semester, and developed the curriculum of mathematics.

Accomplishments:

- Produced and published a good number of research articles in refereed international journals
- Developed mathematical knowledge by teaching the students at undergraduate and postgraduate level
- Supervised a good number of degree completion projects and internships

06/03/2009-12/07/2011

Lecturer in Mathematics, Prime University, Bangladesh

Subjects taught: Engineering Foundation Mathematics, Integral and Differential Calculus, Business Mathematics, Linear Algebra, Fundamentals of Computers, and Business Statistics.

Job Responsibilities:

- Conducted research independently to produce good quality research papers and published those in refereed international journals and conferences
- Supervised degree completion projects and internships, and guided them to develop their mathematical knowledge
- Delivered lectures, conducted tutorials, quizzes and assignments on the courses of Applied Mathematics at undergraduate level
- Designed the courses assigned in every semester, and developed the curriculum of the courses.

Accomplishments:

- Produced and published a good number of research articles in refereed international journals
- Developed mathematical knowledge by teaching the students at undergraduate level
- Supervised degree completion projects and internships

TEACHING INTEREST

Pure and Applied Mathematics, Statistics, and Scientific Computing.

RESEARCH INTEREST

Computational Fluid Dynamics, Mathematical Modeling, Heat Transfers and Heat Exchangers, Sustainable Energy Technologies.

RESEARCH PUBLICATIONS

2018:

1. S. T. A. Siddique, **S. F. Ahmed**, and M. H. Islam, "Earth Pipe Cooling Strategy in Buildings: A Sustainable Approach", Journal of "Natural Science" (Under Review).
2. Abu Naser Sarker, M. Jalal Ahammad, and **S. F. Ahmed**, "A Numerical Study of the Non-Steady Diffusion Equation in Two Dimensions", in 5th International Conference on Natural science and Technology, Chittagong, Bangladesh.
3. S. Ahmed, A. M. Hall, and **S. F. Ahmed**, "Comparative Biodegradability Assessment of Different Types of paper" Journal of "Natural Science" (Under Review).

2017:

4. **S. F. Ahmed**, M. M. K. Khan, M. T. O. Amanullah, M. G. Rasul, and N. M. S. Hassan, "Vertical earth pipe cooling performance in low energy buildings in summer," *Applied Energy*, Elsevier (Under review).
5. **S. F. Ahmed**, "Passive cooling system for hot and humid subtropical climates: a sustainable approach", *Building and Environment*, Elsevier (Under review).
6. **S. F. Ahmed**, M. M. K. Khan, M. T. O. Amanullah, M. G. Rasul, and N. M. S. Hassan, "Parametric study on vertical earth pipe cooling performance in a subtropical climate," *Energy*, Elsevier (Under review).
7. **S. F. Ahmed**, M. M. K. Khan, M. T. O. Amanullah, M. G. Rasul, and N. M. S. Hassan, "Horizontal earth pipe cooling performance in low energy buildings in summer", *Renewable Energy*, Elsevier (Under review).

2016:

8. **S. F. Ahmed**, M. T. O. Amanullah, M. M. K. Khan, M. G. Rasul, and N. M. S. Hassan, "Parametric study on thermal performance of horizontal earth pipe cooling system in summer," *Energy Conversion and Management*, vol. 114, pp. 324-337, 2016.

2015:

9. **S. F. Ahmed**, M. M. K. Khan, M. T. O. Amanullah, M. G. Rasul, and N. M. S. Hassan, "Performance assessment of earth pipe cooling system for low energy buildings in a subtropical climate," *Energy Conversion and Management*, vol. 106, pp. 815-825, 2015.
10. **S.F. Ahmed**, M.M.K. Khan, M.T.O. Amanullah, M.G. Rasul and N.M.S. Hassan. 2015. Numerical Modelling of Vertical Earth Pipe Cooling System for Hot and Humid Subtropical Climate, In: *Progress in Clean Energy, Volume II: Novel Systems and Applications*, Springer, ISBN: 978-3-319-17030-5.
11. **S.F. Ahmed**, M.M.K. Khan, M.T.O. Amanullah, M.G. Rasul and N.M.S. Hassan. 2015. Performance evaluation of hybrid earth pipe cooling with horizontal piping system, In: *Thermofluid Modelling for Energy Efficiency Applications*, Elsevier, ISBN: 9780128025895.
12. **S.F. Ahmed** and M. S. A. Sarker, "Derivation of turbulent energy of fiber suspensions," *Journal of Computational and Applied Research in Mechanical Engineering*, vol. 4, pp. 155-163, 2015.
13. **S. F. Ahmed**, M. M. K. Khan, M. T. O. Amanullah, M. G. Rasul, and N. M. S. Hassan, "Integrated model of horizontal earth pipe cooling system for a hot humid climate," in *7th International Exergy, Energy and Environment Symposium*, Valenciennes, France 2015.
14. A. K. Azad, M. G. Rasul, B. Giannangelo, and **S. F. Ahmed**, " Diesel engine performance and emission study using soybean biodiesel blends with fossil diesel," in *7th International Exergy, Energy and Environment Symposium*, Valenciennes, France 2015.
15. A. K. Azad, M. G. Rasul, Rubayat Islam, and **S. F. Ahmed**, " A Study on energy and environmental management techniques used in petroleum process industries," in *7th International Exergy, Energy and Environment Symposium*, Valenciennes, France 2015.

2014:

16. **S. F. Ahmed**, M. M. K. Khan, M. T. O. Amanullah, and M. G. Rasul, "Selection of suitable passive cooling strategy for a subtropical climate," *International Journal of Mechanical and Materials Engineering*, vol. 9 (1), pp. 1-11, 2014.
17. **S. F. Ahmed**, M. M. K. Khan, M. G. Rasul, M. T. O. Amanullah, and N. M. S. Hassan, "Comparison of Earth Pipe Cooling Performance Between two Different Piping Systems," *Energy Procedia*, vol. 61, pp. 1897-1901, 2014.
18. **S. F. Ahmed** and M. S. A. Sarker, "Fiber Motion in Dusty Fluid Turbulent Flow in a Rotating System," *International Journal of Applied Mathematics and Mechanics*, vol. 10, pp. 92-109, 2014.

19. **S. F. Ahmed**, "Conversion of energy equation for turbulent motion and its applications," *Applied and Computational Mathematics*, vol. 3, pp. 110-116, 2014.
20. **S. F. Ahmed**, M. M. K. Khan, M. T. O. Amanullah, M. G. Rasul, and N. M. S. Hassan, "Performance Analysis of Vertical Earth Pipe Cooling System for Subtropical Climate," in *International Conference on Clean Energy*, Istanbul, Turkey 2014, pp. 691-700.
21. **S. F. Ahmed**, M. M. K. Khan, M. T. O. Amanullah, M. G. Rasul, and N. M. S. Hassan, "Numerical Modelling of Hybrid Vertical Earth Pipe Cooling System," in *The 19th Australasian Fluid Mechanics Conference*, Melbourne, Australia 2014.
22. T. Ahasan, **S. F. Ahmed**, M. G. Rasul, M. M. K. Khan, and A. K. Azad, "Performance Evaluation of Hybrid Green Roof System in a Subtropical Climate Using Fluent," *Journal of Power and Energy Engineering*, vol. 2, p. 113, 2014.
23. A. K. Azad, M. G. Rasul, M. M. K. Khan, T. Ahasan, and **S. F. Ahmed**, "Energy Scenario: Production, Consumption and Prospect of Renewable Energy in Australia," *Journal of Power and Energy Engineering*, vol. 2, p. 19, 2014.

2013:

24. **S. F. Ahmed**, "Derivation of turbulent energy in a rotating system," *Journal of Computational and Applied Research in Mechanical Engineering*, vol. 3, pp. 75-83, 2013.
25. **S. F. Ahmed**, "Derivation of energy equation for turbulent flow with two-point correlation," *Pure and Applied Mathematics Journal*, vol. 2, pp. 197-200, 2013.
26. **S. F. Ahmed**, "Derivation of turbulent energy in presence of dust particles," *American Journal of Applied Mathematics*, vol. 1, pp. 71-77, 2013.
27. **S. F. Ahmed**, M. M. K. Khan, M. T. O. Amanullah, M. G. Rasul, and N. M. S. Hassan, "Thermal performance analysis of earth pipe cooling system for subtropical climate," in *12th International Conference on Sustainable Energy Technologies*, Hong Kong, 2013, pp. 1795-1803.

2012:

28. **S. F. Ahmed**, "Turbulent Energy for Dusty Fluid in a Rotating System," *International Journal of Applied Mathematics and Mechanics*, vol. 9, pp. 50-61, 2012.

2011:

29. **S. F. Ahmed** and M. S. A. Sarker, "Fibre Suspensions in Turbulent flow with Two-Point Correlation," *Bangladesh Journal of Scientific and Industrial Research*, vol. 46, pp. 265-270, 2011.
30. **S. F. Ahmed** and M. S. A. Sarker, "Fibre motion in dusty fluid turbulent flow with two-point correlation," *Journal of Scientific Research*, vol. 3, pp. 283-290, 2011.
31. **S. F. Ahmed**. 2011. *Fibre Motion in Turbulent Flow: A Mathematical study of fibre suspensions in turbulent flow*. Lambert Academic Publishing Limited, Germany, ISBN: 978-3846548660.

2009:

32. M. S. A. Sarker and **S. F. Ahmed**, "Motion of fibres in turbulent flow in a rotating system," *Rajshahi University Studies, Part-B, Journal of Science*, vol. 37, pp. 107-117, 2009.

REVIEWER:

Energy and Buildings, Elsevier

SCHOLARSHIPS, ACADEMIC AWARDS AND RESEARCH GRANTS

- Secured Research Grant of BDT 400000 from North South University, Bangladesh for the period of 2016-2017.

- Received Thesis Academic Excellence Award - 2016 from Central Queensland University, Australia for outstanding PhD research work.
- Received International Postgraduate Research Award (IPRA) for pursuing PhD at Central Queensland University, Australia in 2012.
- Received postgraduate research scholarship for MPhil research work by the University of Rajshahi, Bangladesh in 2007.

PROFESSIONAL DEVELOPMENT

- Owned the membership of three professional associations: Bangladesh Mathematical Society (MBS), Australasian Fluid Mechanics Society (AFMS), and World Society of Sustainable Energy Technologies (WSSET).
- Accomplished the 5th International Conference on Natural Science & Technology (ICNST'18) at Asian University for Women, Chittagong as a Co-chair of the event.
- Successfully completed the teachers training program "Training of the teachers for tomorrow" at Prime University, Bangladesh.
- Completed a computer programming language course of Visual Basic in the University of Rajshahi, Bangladesh.
- Attended the conferences of 5th Asian Mathematical Conference (Kuala Lumpur, Malaysia), 19th Australasian Fluid Mechanics Conference (Melbourne, Australia), and 7th International Exergy, Energy and Environment Symposium (Valenciennes, France).

KEY STRENGTHS

- Quick learner of new technologies.
- Having a strong knowledge in particular subject areas.
- Strong analytical and problem solving skills.
- Ability to work in a team.
- Strong communication, interpersonal, learning and organizing skills.
- An ability to manage change with ease.

COMPUTER AND TECHNICAL SKILLS

- Programming language: R, Python, FORTRAN, C, C++, VISUAL BASIC, MATLAB
- Modeling language: ANSYS FLUENT
- Database: MS Access; Design software: Design Modeler
- Operating systems: Windows; Software: Microsoft Office 2010/2013
- Utilities: Kaspersky Internet Security, Norton, and Sophos Anti-Virus

EXTRA-CURRICULUR ACTIVITIES

01/2011 - 01/2012	Proctor	Prime University, Dhaka, Bangladesh
01/2011 - 01/2012	Member Secretary, Disciplinary Committee	Prime University, Dhaka, Bangladesh
05/2009 - 01/2011	Member Secretary, Examination Committee	Prime University, Dhaka, Bangladesh
01/2011 - 05/2012	Member, Newsletter Committee	Prime University, Dhaka, Bangladesh
09/2010 - 05/2012	Member, Debate Committee	Prime University, Dhaka, Bangladesh
01/2010 - 05/2012	Member, Cultural Committee	Prime University, Dhaka, Bangladesh
10/2013 - 09/2014	Member, Multi-faith Chaplaincy Reference Group	Central Queensland University, Australia
09/2016 - 08/2017	Member, Faculty Search Committee	North South University, Bangladesh
10/2017 - present	Member, Learning, Teaching and Quality Assurance Committee	Asian University for Women, Bangladesh
10/2017 - present	Member, Research and Ethics Committee	Asian University for Women, Bangladesh
11/2017 - present	Co-chair, International Conference on Natural Science & Technology	Asian University for Women, Bangladesh

REFERENCES

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