

Curriculum Vitae of Prof. Dr. Tofael Ahmed

Mailing Address:

Professor
Department of Electrical & Electronic Engineering
Chittagong University of Engineering & Technology (CUET)
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Educational Details

PhD	Electrical Engineering (Power System: Transmission Planning) University of Malaya (UM), Kuala Lumpur, Malaysia
M. Engg. Sc.	Electrical Engineering (Electricity & Energy) University of Malaya (UM), Kuala Lumpur, Malaysia
B.Sc. (Engg.)	Electrical & Electronic Engineering Chittagong University of Engineering & Technology (CUET), Chittagong, Bangladesh

Current and Previous Positions

Professor June 27, 2022 - till to date	Department of Electrical and Electronic Engineering, Chittagong University of Engineering and Technology, Chattogram, Bangladesh. Responsibilities: <ol style="list-style-type: none">1. Undergraduate Electrical & Electronic Engineering teaching through lectures, demonstration and tutorials in a class size of 60-65.2. Conducting undergraduate Electrical & Electronic Engineering laboratory sessions.3. Administered and graded class test, homework and assignments, monitoring student progress, and tutoring students to supplement the class lectures.4. Supervised undergraduate project/thesis and advised students on course and academic matters.5. Supervised graduate students' thesis.6. Administrative work as assigned by the head of the department.7. Providing consultancy services for the local industries
Associate Professor Feb 11, 2021 – June 27, 2022	Department of Electrical and Electronic Engineering, Chittagong University of Engineering and Technology, Chattogram, Bangladesh.
Assistant Professor Nov 15, 2011 – Feb 10, 2021	Department of Electrical and Electronic Engineering, Chittagong University of Engineering and Technology, Chattogram, Bangladesh.
Lecturer Sep 02, 2008 – Nov 14, 2011	Department of Electrical and Electronic Engineering, Chittagong University of Engineering and Technology, Chattogram, Bangladesh.

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Administrative duties

HEAD Aug 2022 – Aug 2024	Department of Biomedical Engineering Chittagong University of Engineering and Technology, Chittagong, Bangladesh.
Laboratory-in-charge Jan 2018 – till to date	Advance Power System Laboratory Department of Electrical and Electronic Engineering, Chittagong University of Engineering and Technology, Chittagong, Bangladesh.
Secretary Sep 2018 – July 2022	Bureau of Research, Testing and Consultancy (BRTC), Department of Electrical and Electronic Engineering, CUET
Assistant Provost Jun 2010 – Jan 2012	Bangabandhu Hall Chittagong University of Engineering and Technology, Chittagong, Bangladesh.
Member, Sub-project management team, HEQEP Jan 2011 – Jan 2012	Enhancement of Lab Instruction in EEE Department, CUET Sub-project under Higher Education Quality Enhancement Project (HEQEP), Department of Electrical and Electronic Engineering, Chittagong University of Engineering and Technology, Chittagong, Bangladesh.

Research Project Involvement

Principle Investigator Jan 2023 to Dec 2025	Design of Multi Band Power Oscillation Damping Controller (MB-PODC) for the energy storage system of Interconnected Microgrids - Funded by Director of Research & Extension, CUET.
Principle Investigator Jan 2022 to Dec 2024	Real-time Control and Management of Resilient Interconnected Microgrids - Funded by Director of Research & Extension, CUET.
Co-principle Investigator Jan 2022 to Dec 2024	Agro-voltaic Systems Development for Crop Growth and Energy Generation - Funded by Director of Research & Extension, CUET.
Co-researcher Jun 2009 – Jun 2010	Feasibility Study of Hybrid Micro Grid System Based on Mini and Micro Hydro - Funded by University Grants Commission of Bangladesh. Department of Electrical and Electronic Engineering, Chittagong University of Engineering and Technology, Chittagong, Bangladesh.
Research Assistant Feb 08, 2012 – Jun 30, 2016	Applications of Solar Energy in Agricultural Sector , - High Impact Research (HIR), Ministry of Higher Education, University of Malaya, Malaysia.
Research Assistant Sep 13, 2016 – Jan 12, 2017	High Penetration of Photovoltaic Generation impact on Smart Grids , - Fundamental Research Grant Scheme (FRGS), University of Malaya, Malaysia.

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Training Involvement

April 23-25, 2019

Training on Net Metering (NM), Conducted by - Sustainable and Renewable Energy Development Authority (SREDA), Bangladesh.

Professional Services

- ✓ Naf Project Consultancy Services for Construction of Cable Car in Naf Tourism Park, Teknaf, Cox's Bazar.
- ✓ Earth Conductivity Measurement and Earthing System Design of NAF Tourism Park, Teknaf, Cox's Bazar.
- ✓ Feasibility Study of Hydro Potential at Chittagong and Bandarban, Ludwig Pfeiffer Hoch- und Tiefbau GmbH & Co.KG
Lilienthalstr,33, zz34123 Kassel / Germany
- ✓ Inspection of Installation of Capital Machinery and Equipment's of various industry in Bangladesh.
- ✓ Designing of Lightning Protection System (LPS) for Sena kallyan Bhaban, Agrabad, Chittagong.
- ✓ Designing of Utility System for the residential/commercial buildings in Bangladesh.
- ✓ Electrical Utility System design, drawing, estimation, and tender documents preparation for Karnaphuli Gas Distribution Limited (KGDCL) 10 storied residential building at Chittagong.
- ✓ Electrical Utility System design, drawing, estimation, and tender documents preparation for 10 storied residential building at South Khulshi, Chittagong.
- ✓ Substation design, commissioning, and inspection for various Institutes/Industries in Bangladesh.
- ✓ Electrical drawing, estimation, and tender documents preparation.

Testing/ Consultancy Under Bureau of Research, Testing and Consultancy (BRTC), CUET

Conducted various testing and report writing related to Transformer, Transmission line materials, Motor, Generator, Inverter, and Solar PV etc.

Associate Editor

Elsevier's e-Prime – Advances in Electrical Engineering, Electronics and Energy, Publisher: Elsevier.

Selected Publications:

Journals

1. M. N. Tasnim, **T. Ahmed**, S. Ahmad, and S. Mekhilef, "Implementation of Control Strategies for Energy Storage Systems and Interlinking Converters in an Interconnected Hybrid Microgrid System for Optimal Power Management Using OPAL-RT," IEEE Transactions on Industrial Application, 2024.
2. Ahmad, S.; Hasan, S.M.N.; Hossain, M.S.; Uddin, R.; **Ahmed, T.**; Mustayen, A.G.M.B.; Hazari, M.R.; Hassan, M.; Parvez, M.S.; Saha, A. A Review of Hybrid Renewable and Sustainable Power Supply System: Unit Sizing, Optimization, Control, and Management. Energies 2024, 17, 6027. <https://doi.org/10.3390/en17236027>

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3. Sagor, A.R.; Talha, M.A.; Ahmad, S.; **Ahmed, T.**; Alam, M.R.; Hazari, M.R.; Shafiullah, G.M. Pelican Optimization Algorithm-Based Proportional–Integral–Derivative Controller for Superior Frequency Regulation in Interconnected Multi-Area Power Generating System. *Energies*, 17, 3308, 2024.
4. Chowdhury, A., M. I. Miskat, **T. Ahmed**, S. Ahmad, M. R. Hazari, L. J. Awalın and S. Mekhilef "Feasibility and sustainability analysis of a hybrid microgrid in Bangladesh," *International Journal of Electrical and Computer Engineering (IJECE)*, vol. 14, no. 2, pp. 1334-1351, 2024.
5. Hasan, K., S. Ahmad, A. F. Liaf, M. Karimi, **T. Ahmed**, M. A. Shawon and S. Mekhilef, "Oceanic Challenges to Technological Solutions: A Review of Autonomous Underwater Vehicle Path Technologies in Biomimicry, Control, Navigation and Sensing," *IEEE Access*, 2024.
6. Hasan, S. M. N., S. Ahmad, A. F. Liaf, A. Mustayen, M. Hasan, **T. Ahmed**, S. Howlader, M. Hassan and M. R. Alam. "Techno-Economic Performance and Sensitivity Analysis of an Off-Grid Renewable Energy-Based Hybrid System: A Case Study of Kuakata, Bangladesh." *Energies* 17(6): 1476, 2024.
7. Tasnim, M. N., **T. Ahmed**, M. A. Dorothi, S. Ahmad, G. M. Shafiullah, S. M. Ferdous and S. Mekhilef . "Voltage-Oriented Control-Based Three-Phase, Three-Leg Bidirectional AC-DC Converter with Improved Power Quality for Microgrids." *Energies*, vol. 16, no. 17, p. 6188, 2023.
8. S. Ahmad, H. Mubarak, U. K. Jhuma, **T. Ahmed**, S. Mekhilef, and H. Mokhlis, "Point of Common Coupling Voltage Modulated Direct Power Control of Grid-Tied Photovoltaic Inverter for AC Microgrid Application," *International Transactions on Electrical Energy Systems*, vol. 2023, p. 3641907, 2023/05/13 2023, doi: 10.1155/2023/3641907.
9. Islam, J. B. F., M. T. Rahman, S. Ahmad, **T. Ahmed**, G. M. Shafiullah, H. Mokhlis, M. Othman, T. F. T. M. N. Izam, H. Mohamad and M. T. Arif, "Multi-Objective-Based Charging and Discharging Coordination of Plug-in Electric Vehicle Integrating Capacitor and OLTC," *Energies*, vol. 16, no. 5, p. 2172, 2023.
10. Abdellatif, A., H. Mubarak, S. Ahmad, **T. Ahmed**, G. M. Shafiullah, A. Hammoudeh, H. Abdellatef, M. M. Rahman and H. M. Ghani, "Forecasting Photovoltaic Power Generation with a Stacking Ensemble Model," *Sustainability*, vol. 14, no. 17, p. 11083, 2022.
11. Mubarak H, Muhammad MA, Mansor NN, Mokhlis H, Ahmad S, **Ahmed T**, Sufyan M., "Operational Cost Minimization of Electrical Distribution Network during Switching for Sustainable Operation," *Sustainability*, vol. 14, no. 7, p. 4196, 2022.
12. Ahmad S, Mekhilef S, Mokhlis H, Karimi M, Pourdaryaei A, **Ahmed T**, Jhuma UK, Afzal S., "Fuzzy Logic-Based Direct Power Control Method for PV Inverter of Grid-Tied AC Microgrid without Phase-Locked Loop," *Electronics*, vol. 10, no. 24, p. 3095, 2021.
13. U. K. Jhuma, S. Ahmad, and **T. Ahmed**, "A Novel Approach for Secure Hybrid Islanding Detection considering the Dynamic Behavior of Power and Load in Electrical Distribution Network" *Sustainability*, 2021.

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International Conferences

14. N. Bhuiyan, W. Ullah, R. Islam, **T. Ahmed**, and N. Mohammad, "Performance optimisation of parabolic trough solar thermal power plants – a case study in Bangladesh," *International Journal of Sustainable Energy*, vol. 39, no. 2, pp. 113-131, 2019.
15. **T. Ahmed**, S. Mekhilef, R. Shah, and N. Mithulananthan, "An assessment of the solar photovoltaic generation yield in Malaysia using satellite derived datasets," *International Energy Journal*, vol. 19, no. 2, pp. 61-76, 2019.
16. **T. Ahmed**, S. Mekhilef, R. Shah, N. Mithulananthan, M. Seyedmahmoudian, and B. Horan, "ASEAN power grid: A secure transmission infrastructure for clean and sustainable energy for South-East Asia," *Renewable and Sustainable Energy Reviews*, vol. 67, pp. 1420-1435, 2017.
17. **T. Ahmed**, S. Mekhilef, R. Shah, and N. Mithulananthan, "Investigation into transmission options for cross-border power trading in ASEAN power grid," *Energy Policy*, vol. 108, pp. 91-101, 2017.
18. **T. Ahmed** and S. Mekhilef, "Semi-Z-source inverter topology for grid-connected photovoltaic system," *IET Power Electronics*, vol. 8, pp. 63-75, Jan 2015.
19. **T. Ahmed**, T. K. Soon, and S. Mekhilef, "A Single Phase Doubly Grounded Semi-Z-Source Inverter for Photovoltaic (PV) Systems with Maximum Power Point Tracking (MPPT)," *Energies*, vol. 7, pp. 3618-3641, Jun 2014.
20. N. Mohammad and **T. Ahmed**, *Dispersion Compensation of the Fiber Optic Cables: Principles and Practices*: VDM Verlag Dr. Müller, 2010.
21. T. Chowdhury, S. S. Mondal, and **T. Ahmed**, "Tidal Energy Assessment of River Karnaphuli: A Technical Analysis," in 2024 IEEE Region 10 Symposium (TENSYP), 2024: IEEE, pp. 1-5.
22. M. N. Tasnim, **T. Ahmed**, S. Ahmad, and S. Mekhilef, "Autonomous Power Management and Control Among Interconnected Standalone Hybrid Microgrids," in 2023 10th IEEE International Conference on Power Systems (ICPS), 2023: IEEE, pp. 1-6.
23. T. J. Rumky, **T. Ahmed**, M. Ahmed, S. Ahmad, and M. Rahman, "Performance of Microgrid Systems on Multiple Dynamic Loads Penetration," in 2023 10th IEEE International Conference on Power Systems (ICPS), 2023: IEEE, pp. 1-6.
24. M. J. Abedin, S. Dey, **T. Ahmed**, and M. R. Alam, "Performance Evaluation between Back-to-Back Converter and DC-DC Converter for Power Sharing Between Two Interconnected Microgrids," in 2023 10th IEEE International Conference on Power Systems (ICPS), 2023: IEEE, pp. 1-6.
25. T. J. Rumky, **T. Ahmed**, M. Ahmed, and S. Mekhilef, "Tri-Band Damping Controller for Low Frequency Oscillations in AC Microgrid System," in IEEE IAS Global Conference on Renewable Energy and Hydrogen Technologies (GlobConHT), 2023: IEEE, pp. 1-6.
26. M. N. Tasnim, **T. Ahmed**, S. Ahmad, and S. Mekhilef, "Hardware in The Loop Implementation of The Control Strategies for The AC-Microgrid in OPAL-RT Simulator," in IEEE IAS Global Conference on Renewable Energy and Hydrogen Technologies (GlobConHT), 2023: IEEE, pp. 1-6.

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27. **T. Ahmed**, S. Mekhilef, and R. Shah, "Benefit Based Transmission Expansion Planning for ASEAN Power Grid," in 31st Australasian Universities Power Engineering Conference (AUPEC), 2021: IEEE, pp. 1-6.
28. S.-B. Hannan, S. H. Siddiquee, **T. Ahmed**, S. Ahmad, Z. Hossain, and S. Mekhilef, "Optimal Placement Of Solar PV In Bangladesh Power System Network For Net Metering Using Artificial Bee Colony Algorithm," in 6th IEEE IAS International Conference on Computing, Communication and Automation (ICCCA), 2021: IEEE, pp. 555-560.
29. H. S. Roy, M. R. Sarker, and **T. Ahmed**, "Design and Analysis of Future Hybrid Micro Grid System for Matiranga," in IEEE Region 10 Symposium (TENSYP), 2020: IEEE, pp. 896-899.
30. F. Mahmud, R. Mowla, **T. Ahmed**, and M. Quamruzzaman, "Optimal Power Flow among the Nine Electrical Zones of Bangladesh: 2030 Scenarios," in 4th International Conference on Electrical Information and Communication Technology (EICT), 2019: IEEE, pp. 1-6.
31. M. M. Roni, I. U. Hoque, and **T. Ahmed**, "Comparative Study of Levelized Cost of Electricity (LCOE) for Concentrating Solar Power (CSP) and Photovoltaic (PV) Plant in the Southeastern Region of Bangladesh," in International Conference on Electrical, Computer and Communication Engineering (ECCE), 2019: IEEE, pp. 1-6.
32. **T. Ahmed**, S. Mekhilef, R. Shah, and T. Urmee, "Modelling of ASEAN Power Grid Using Publicly Available Data," in *IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC)*, 2018, pp. 411-416.
33. **T. Ahmed**, S. Mekhilef, and R. Shah, "Economic Appraisal of Transmission Options For Connecting Lao PDR, Thailand, Malaysia and Singapore Electric Grid," in *Saudi Arabia Smart Grid (SASG) Conference*, 2018.
34. F. M. Albatsh, S. Ahmad, **T. Ahmed**, F. Mahmood, A. Saha, M. Z. Chowdhury, *et al.*, "A Comparative analysis of line stability indices for dynamic voltage stability," in *International Conference on Engineering Technology and Technopreneurship (ICE2T)*, 2017, pp. 1-6.
35. S. Ahmad, **T. Ahmed**, S. Mekhilef, S. Saha, N. Al Islam, U. Arafat, *et al.*, "Hardware implementation of grid connected transformer-less semi-Z-source inverter topology to mitigate common mode leakage current and THD," in International Conference on Advances in Electrical Engineering (ICAEE), 2015, pp. 221-225.
36. **T. Ahmed**, S. Mekhilef, and M. Nakaoka, "Single Phase Transformerless Semi-Z-Source Inverter With Reduced Total Harmonic Distortion (THD) And DC Current Injection " in *IEEE ECCE Asia Downunder (ECCE Asia)*, Melbourne, VIC, 2013, pp. 1322 - 1327.
37. R. Shah, M. Nadarajah, and **T. Ahmed**, "Economic evaluation of a grid connected photovoltaic power system in Bangladesh," in *2nd International Conference on Engineering Education for Sustainable Development (ICEESD)*, 2009.

Professional Memberships

- Member of the **Institute of Engineers, Bangladesh (IEB)**

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Technical Proficiency in Power & Energy System:

- MATLAB/Simulink
- MATPOWER
- HOMER
- SAM (System Advisor Model)
- PowerWorld Simulator
- dSPACE
- RT-LAB

Referees

1. Prof. Dr. Saad Mekhilef, CEng (UK), SMIEEE(USA), FIET(UK)
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University of Malaya, 50603 Kuala Lumpur, Malaysia
E-mail: saad@um.edu.my or mekhilef@yahoo.com