

Mirza Rasheduzzaman, PhD, MIEEE

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IEEE Membership # 97984788



Associate Professor

Department of Electrical and Electronic Engineering

University of Liberal Arts Bangladesh (ULAB)

688 Beribadh Road, Mohammadpur, Dhaka, Bangladesh

SUMMARY

- Six years of teaching experience in broad range of courses.
- Seven years of research and industry experience.
- Coordinator of EEE and ETE programs for five years.
- Chair of ETE Self-Assessment Committee (HEQEP Project)
- Member of Department Curriculum Committee, ULAB e-learning Committee, Academic Council, Greening ULAB Committee
- IEB Program Evaluator, Board of Accreditation for Engineering and Technical Education (BAETE)
- PhD and MSc degrees from the University of Sheffield, United Kingdom
- Collaboration with researchers from local and international organizations and universities
- Received research grant of taka 3 lakh and 12 lakh from ICT Innovation Fund as Primary Investigator and Co-Investigator.
- Received taka 5 lakh from ULAB-UIU Institute for Advanced Research and GBP 5000 from QR Global Challenges Research Fund of University of Sheffield as Co-Investigator
- Served as technical program committee member, session chair and reviewer in international conferences

EDUCATION

PhD in Electronic and Electrical Engineering	Oct 2011 – Mar 2017
The University of Sheffield	Sheffield, UK
Thesis title: Contributing towards Improved Communication Systems for Future Cellular Networks.	
Supervisor: Professor Maria Merlyne De Souza	
MSc in Semiconductor Photonics and Engineering, Distinction	Sep 2010 – Sep 2011
The University of Sheffield	Sheffield, UK
BSc in Electronic and Telecommunication Engineering, 3.82/4.00	Jan 2005 – Dec 2008
North South University	Dhaka, Bangladesh
Higher Secondary Certificate Exam, 5.00/5.00 (without 4th Subject)	2003
Mirzapur Cadet College	Mirzapur, Bangladesh
Secondary School Certificate Exam, 4.88/5.00 (without 4th Subject)	2001
Mirzapur Cadet College	Mirzapur, Bangladesh

TEACHING AND PROFESSIONAL EXPERIENCE

- Assistant Professor** **University of Liberal Arts Bangladesh, Dhaka**
May 2017- to date
- Teaching undergraduate courses, supervising final year capstone projects, internships and theses, conducting research, developing curriculum, advising students on academic affairs, organizing departmental programs, seminars, and workshops.
- Lab Demonstrator** **The University of Sheffield, Sheffield, UK**
Sep 2016 – Dec 2016
- Demonstrating the use of equipment to second year undergraduate students so that they could perform the experiments following the instructions, and clearly understand what is being done.
- Software Quality Assurance Engineer** **Structured Data System Limited, Dhaka**
Dec 2009 – Aug 2010
- Preparing checklists, test plans and test cases based on specifications, testing the software accordingly and working closely with the development teams to resolve any bug found.
- Customer Support Engineer** **Augure Wireless Broadband Bangladesh Ltd, Dhaka**
Aug 2009 – Oct 2009
- Taking immediate and all possible measures to resolve customers' technical problem on priority basis per company policies
- Undergraduate Teaching Assistant** **North South University, Dhaka**
Jan 2007 – Dec 2008
- Assisting course instructors in various administrative work; and helping students regarding respective modules to help them understand the subject materials.

ADMINISTRATIVE EXPERIENCE

- Program Coordinator** **University of Liberal Arts Bangladesh, Dhaka**
Oct 2017- Jan 2023
- Serve as the Coordinator of the Electronics and Telecommunication Engineering (ETE) and Electrical and Electronic Engineering (EEE) programs at the University of Liberal Arts Bangladesh (ULAB).
 - Played a vital role in preparing the Self-Assessment Report (SAR) for IEB Accreditation
 - Conduct planning and academic calendar maintenance to ensure smooth and timely implementation of all events
 - Coordinate with other faculty members, staff, and students
 - Serve as webmaster to update department events and news on ULAB EEE homepage and social media
- Member, e-Learning Committee** **University of Liberal Arts Bangladesh, Dhaka**
Mar 2020 – to date
- Contributed to preparing hybrid teaching learning policies
 - Contributed to preparing online learning guidelines
 - Conducted training and follow-up sessions for the faculty members of SSE
 - Contributed to preparing awareness posters for students
- Member, Curriculum Committee** **University of Liberal Arts Bangladesh, Dhaka**
Oct 2017 – to date
- Made significant contributions in preparing the Outcome-based Education (OBE) curriculum
 - Designed the assessment rubrics for Complex Engineering Problem, open-ended experiments, lab final, group projects and presentation
 - Designed the Course Outcome (CO), Program Outcome (PO) attainment analysis form
 - Designed the Course Summary Form
- Member, Academic Council** **University of Liberal Arts Bangladesh, Dhaka**
Oct 2017 – to date
- Member of Academic Council of the University of Liberal Arts Bangladesh

Chair, Self-Assessment Committee

University of Liberal Arts Bangladesh, Dhaka

Sep 2017 – Sep 2018

- Served as the Chair of Self-Assessment Committee of ETE program at ULAB
- Organized training sessions, workshops, and meetings
- Prepared the Self-Assessment Report (SAR)
- Successfully completed the external peer review
- Prepared post self-assessment improvement plan

RESEARCH, GRANTS AND COLLABORATION

Grants

- **Project:** Feasibility Study on a Self-Assembled Digital Stethoscope for Automatic Detection of Pneumonia in Toddlers.
Primary Investigator: Dr. A B M Sayeed Ud Doulah (University of Liberal Arts Bangladesh)
Co-Investigators: Dr. Mirza Rasheduzzaman
Grant Amount: Taka 3,00,000 (Three Lakh).
Grant body: Information and Communication Technology (ICT) Division, Ministry of Posts, Telecommunications and Information Technology, Bangladesh Government.
- **Project:** Feasibility study of the effectiveness of AR technology in assisting children with autism spectrum disorder for literacy.
Primary Investigator: Dr. A B M Sayeed Ud Doulah (University of Liberal Arts Bangladesh)
Co-Investigators: Dr. Khondaker Abdullah Al Mamun (United International University), Dr. Abul Kalam al Azad, Dr. Mirza Rasheduzzaman, Dr. Farhana Sarker (ULAB)
Grant Amount: Taka 5,00,000 (Five Lakh).
Grant body: University of Liberal Arts Bangladesh (ULAB) and United International University Institute for Advanced Research (UIU - IAR).
- **Project:** Development of An IoT Based Intelligent Vaccine Carrier Monitoring Module for the Unreached
Primary Investigator: Dr. Mirza Rasheduzzaman (University of Liberal Arts Bangladesh)
Co-Investigators: Dr. Shahriar Rahman (United International University), Dr. Nabeel Mohammed (North South University), Dr. Nafees Mansoor (University of Liberal Arts Bangladesh)
Grant Amount: Taka 12,00,000 (Twelve Lakh).
Grant body: Information and Communication Technology (ICT) Division, Ministry of Posts, Telecommunications and Information Technology, Bangladesh Government
- **Project:** Understanding the indigenous and exogenous knowledge interactions within agricultural communities in rural Bangladesh, in collaboration with the University of Sheffield (UK) and North South University (Bangladesh).
Primary Investigator: Dr. Suvodeep Mazumdar (University of Sheffield, UK)
Co-Investigators: Dr. Sifat Momem (North South University), Dr. Mirza Rasheduzzaman (University of Liberal Arts Bangladesh)
Grant Amount: GBP 5,000 (Five Thousand).
Grant body: QR Global Challenges Research Fund (GCRF), University of Sheffield, United Kingdom.

Collaboration

- A Memorandum of Understanding (MoU) with the University of Sheffield, United Kingdom to collaborate in the project titled "Understanding indigenous and exogenous knowledge interactions within agricultural communities in rural Bangladesh". The project is funded by QR Global Challenges Research Fund (GCRF), University of Sheffield, United Kingdom.

Research

- Feasibility study of the effectiveness of AR technology in assisting children with autism spectrum disorder for literacy.
- Design and Implementation of an IoT-based Monitoring and Controlling System for Indoor Hydroponic Vertical Farm.
- Comparative study and analysis of semiconductor materials and devices for power transistors for electric vehicles.

- Predicted the CO₂ emissions from cars in Dhaka city considering the standard emission factors of different fossil fuels. The reduction of CO₂ emissions in Dhaka city is predicted if EVs are introduced phase-by-phase, considering the current primary energy mix for generating electricity in Bangladesh. The potential challenges of EVs adoption in Dhaka city and the impact on the national grid are also studied.
- Designed the power management for vaccine carrier and an IoT based real-time data-centric monitoring system for vaccine cold chain to monitor temperature, humidity, location, and all the information of a trip.
- Designed SENSEPACK: An IoT Based Mushroom Cultivation Monitoring System, a smart system to monitor room environment of mushroom cultivation farm that measures the temperature, humidity, light and CO₂ level with appropriate sensors. The obtained data is utilized to control the environment of the nursing room with the help of external devices such as water pump, exhaust fan, light bulb and air conditioner.
- Designed an autonomous wireless sensor node (WSN), compatible with European ZigBee recommendations with a minimum average current consumption of 2.88 μ A.
- Designed power management unit for the WSN with maximum power point tracking to harvest the indoor light energy using solar cell and rechargeable battery. Implemented a wake-up receiver to minimize the power consumption in low power down mode.
- Characterization of various photovoltaic cell technologies to determine the best option in indoor condition in terms of performance and cost.
- Device characterization (DC, S-parameter and pulsed I-V measurements) and parameter extraction, modelling and model optimization and verification of gallium nitride HEMT and silicon LDMOS devices with power rating of 2W-25W.
- Demonstrated of the accuracy of an analytic approach, developed by the University of Sheffield, through design and measurement of 25W radio frequency power amplifier (Class-AB) at a frequency of 3.25 GHz.
- Characterization, reliability and failure analysis of GaAs-based self-aligned window-structured superluminescent diodes via accelerated life testing.

PUBLICATIONS

Patent

1. M. Rasheduzzaman, N. Mansoor, N. Mohammed, S. Rahman, “A portable insulated container for storing and transporting vaccines”, Status: Filed. Country: Bangladesh. Number: P/BD/2020/000018 [Status: filed].

Journal

1. S. Mazumdar, S. Ehdeed, A. Jimenez, F. Ahmed, S. Momen, M. Rasheduzzaman, “Understanding the information landscape in Agricultural Communities in Rural Bangladesh”, *The Electronic Journal of Information Systems in Developing Countries*, 2022, e12245. doi: <https://doi.org/10.1002/isd2.12245>
2. RT Hasanat, N Mansoor, N Mohammed, MS Rahman, M Rasheduzzaman, “Development of a monitoring system and power management for an IoT based vaccine carrier”, *Journal of Physics: Conference Series* 1755 (1), 012023, 2021. doi: <https://doi.org/10.1088/1742-6596/1755/1/012023>.
3. RT Hasanat, N Mansoor, N Mohammed, MS Rahman, M Rasheduzzaman, “Design and Development of an IoT based Smart Vaccine Carrier and Real-Time Monitoring System Wireless”, Special Issue: Internet of Things, Artificial Intelligence and Machine Learning: Architecture, Algorithms, and Applications, *Wireless Communications and Mobile Computing* [Under review].
4. M. Rasheduzzaman, A.B.M Sayeed Ud Doulah, M. M. Hossain, “Design, Implementation and Assessment of Complex Engineering Problem for Undergraduate Engineering Program”, *Africa Education Review Journal*. [Under Review].

Book Chapter

1. S. Hasan, M. Rasheduzzaman, and M. M. Mofazzal Hossain, “Consequences of Lockdown due to COVID-19 on the Electricity Generation and Environment in South Asia”, *Electricity Access, Decarbonization and Integration of Renewables*, Springer VS, Wiesbaden, 03 November 2022. doi: https://doi.org/10.1007/978-3-658-38215-5_6.

Conference

1. K. M. Ashraful Hoque Fahim, Md. Jubair Hasan Khalid, Md Zesun Ahmed Mia, and M. Rasheduzzaman, "Study of 3-nm Cylindrical GAAFETs with Variations in High-k Dielectric Gate-oxide Materials", *2022 IEEE Symposium on Industrial Electronics & Applications (ISIEA 2022)*, 16-17 July, 2022, Malaysia. doi: 10.1109/ISIEA54517.2022.9873651.
2. S. Chowdhury, M. Rasheduzzaman, and ABM Sayeed Ud Doulah, "Quality Assessment of Respiratory Sounds Extracted from Self-Assembled Digital Stethoscopes", *2nd International Conference on Advancement in Electrical and Electronic Engineering (ICAEEE 2022)*, 24-26 Feb, 2022, Dhaka, Bangladesh. doi: 10.1109/ICAEEE54957.2022.9836502.
3. F. A. Akib, N. Shawn, S. Mostafa, M. Rasheduzzaman, and M. M. Hossain, "Impacts of Electric Vehicle on Sustainable Transportation in Dhaka City", *2nd International Conference on Advancement in Electrical and Electronic Engineering (ICAEEE 2022)*, Feb 24-26, 2022, Dhaka, Bangladesh. doi: 10.1109/ICAEEE54957.2022.9836421.
4. T. Rahman, M. M. Hossain, and M. Rasheduzzaman, "Effects of channel length and oxide layer modulation on the performance of Ga₂O₃ MOSFET" in *the International Conference on Power, Electrical, Electronics and Industrial Applications (PEEIACON 2021)*, 3-4 Dec 2021, Dhaka, Bangladesh. doi: 10.1109/PEEIACON54708.2021.9929981.
5. S. Hasan, M. Rasheduzzaman and M. M. Hossain, "Impacts of COVID-19 on the Electrical Power Dynamics and Environment of Bangladesh," *3rd International Youth Conference on Radio Electronics, Electrical and Power Engineering (REEPE)*, 2021, pp. 1-6, doi: 10.1109/REEPE51337.2021.9387990.
6. R. T. Hasanat, M. Arifur Rahman, N. Mansoor, N. Mohammed, M. S. Rahman and M. Rasheduzzaman, "An IoT based Real-time Data-centric Monitoring System for Vaccine Cold Chain", *2020 IEEE East-West Design & Test Symposium (EWDTS 2020)*, Varna, Bulgaria, 2020, pp. 1-5. doi: 10.1109/EWDTS50664.2020.9225047
7. A. A. Shakir, F. Hakim, M. Rasheduzzaman, S. Chakraborty, T. U. Ahmed and S. Hossain, "Design and Implementation of SENSEP ACK: An IoT Based Mushroom Cultivation Monitoring System," *2019 International Conference on Electrical, Computer and Communication Engineering (ECCE)*, Cox's Bazar, Bangladesh, 2019, pp. 1-6. doi: 10.1109/ECACE.2019.8679183.
8. M. Rasheduzzaman, N. Chevaux, M.M. De Souza, N. McEwan, R. Rayit, and J. Brunning, "Understanding the Response of GaN HEMT to Optimization Criteria in RF Power Amplifiers Using the Analytic Approach", IET Active and Passive RF Devices Seminar, London, 2016.
9. M. Rasheduzzaman, N. Poluri, and M.M. De Souza, "Evaluation of Analytic Approach for design of Deep Class-AB Power Amplifiers in GaN", in *UK Semiconductors 2016*, Sheffield, July 2016.
10. M. Rasheduzzaman, P. Balakrishna Pillai, A.N.C. Mendoza, and M.M. De Souza, "A Study of the Performance of Solar Cells for Indoor Autonomous Wireless Sensors", *10th International Symposium on Communication Systems, Networks and Digital Signal Processing CSNDSP 2016*, Prague, July 2016.
11. M. Rasheduzzaman, N. Chevaux, M.M. De Souza, "A study of the mechanism of the nonlinear input capacitance on the RF performance in GaN HEMT devices", *33rd Automated RF and Microwave Measurement Society (ARMMS) Conference*, Wyboston, 09 Nov 2015 - 10 Nov 2015.
12. M. M. De Souza, M. Rasheduzzaman, S.N. Kumar, "Designing high power RF amplifiers: An analytic approach", in *Proceedings, of 2014 International Caribbean Conference on Devices, Circuits and Systems, ICCDCS 2014 Conference*, Mexico, April 2014.
13. N. Chevaux, M. Rasheduzzaman and M.M. De Souza, "Progress of power devices in RF applications", in *Proceedings of 11th International Seminar on Power Semiconductors*, Prague, 2012.
14. M.M. De Souza, N. Chevaux, M. Rasheduzzaman, "RF Power Amplifier: Pushing the Boundaries of Performance versus Cost", in *Proceedings of 16th International Workshop on Physics of Semiconductor Devices (SPIE)*, October 2012.

PROFESSIONAL ACTIVITIES AND COMMUNITY SERVICE

Membership

- **Member**, Institute of Electrical and Electronic Engineers (IEEE), USA, Membership No. 97984788.

BAETE Program Evaluator

- New Program Evaluator. Nominated as an Observer for an upcoming BAETE program evaluation.

Reviewer

- 2021 International Conference on Robotics, Automation, Artificial-Intelligence and Internet-of-Things, 3-4 December 2021, Dhaka, Bangladesh.
- 2021 International Conference on Automation, Control and Mechatronics for Industry 4.0 (ACMI), 8-9 July 2021, Rajshahi, Bangladesh.
- 2020 2nd International Conference on Advanced Information and Communication Technology (ICAICT), 28-29 Nov. 2020, Dhaka, Bangladesh.
- IEEE Region 10 Symposium (TENSYP) 2020, 5 – 7 June 2020, Dhaka, Bangladesh.
- International Joint Conference on Computational Intelligence (IJCCI 2019), October 25-26, 2019. 25-26 October 2019.
- International Conference on Robotics, Electrical and Signal Processing Techniques 2019 (ICREST 2019), 10 -12 January 2019.

Technical Program Committee Member

- **TPC Member**, 2020 2nd International Conference on Advanced Information and Communication Technology (ICAICT), 28-29 Nov. 2020, Dhaka, Bangladesh.

Session Chair

- **Session Co-Chair on Power Electronics, Nano and Semiconductor Technology**, 2nd International Conference on Advanced Information and Communication Technology (ICAICT), 28-29 Nov. 2020, Dhaka, Bangladesh.

Training

- Workshop on “**Orientation and Discussion Session: Accreditation Evaluation by Program Evaluators**” organized by Board of Accreditation for Engineering and Technical Education (BAETE), The Institution of Engineers, Bangladesh (IEB), 8-11 March 2021.
- Hands-On orientation on Outcome-based Education (OBE), organized by Board of Accreditation for Engineering and Technical Education (BAETE), The Institution of Engineers, Bangladesh (IEB), 9 October 2019, Dhaka, Bangladesh.
- Workshop on “**Implementation of Complex Engineering Problem Solving and Complex Engineering Activities**”, organized by Board of Accreditation for Engineering and Technical Education (BAETE), The Institution of Engineers, Bangladesh (IEB), 18 June 2019, Dhaka, Bangladesh.

IMPORTANT CONTRIBUTIONS TO ULAB AND EEE DEPARTMENT

- As a member of **ULAB e-Learning Committee**, I have contributed to:
 - Prepare hybrid teaching learning policies
 - Prepare online learning guidelines
 - Conducted training and follow-up sessions for the faculty members of School of Science and Engineering
 - Prepare awareness posters for students
- As a faculty member of the EEE department, I have:
 - Played a vital role in preparing the Self-Assessment Report (SAR) for BAETE (IEB) Accreditation
 - Made significant contributions in preparing the Outcome-based Education (OBE) curriculum
 - Trained the faculty members on OBE
 - Designed the assessment rubrics for Complex Engineering Problem, open-ended experiments, lab final, group projects and presentation
 - Designed the Course Outcome (CO), Program Outcome (PO) attainment analysis form

- Designed the Course Summary Form
- As the **Chair of the ETE Self-Assessment Committee (SAC)**, I have:
 - Organized workshops and meetings
 - Prepared the Self-Assessment Report (SAR)
 - Successfully completed the external peer review
 - Prepared post self-assessment improvement plan
- As a member of the **ULAB Greening Committee**, I have:
 - Successfully campaigned to reduce energy and paper usage in the department
 - Planning to contribute to campus garden initiative

HONOURS AND AWARDS

- Paper, titled "An IoT based Real-time Data-centric Monitoring System for Vaccine Cold Chain", featured on the IEEE Xplore Innovation Spotlight which showcases articles on cutting-edge topics handpicked from the IEEE Xplore digital library of approximately 5 million technical documents.
- Best Paper Award for "Development of Monitoring System and Power Management for an IoT-based Vaccine Carrier" at 2020 International Conference of Electronic Design (ICED 2020), Perlis, Malaysia, 2020.
- Postgraduate Research Student Scholarship (2011-2014), The University of Sheffield.
- Awarded 75% tuition waiver for four years (2005-2008) from the North South University (NSU) during undergraduate study for academic excellence.
- Awarded scholarship by Ministry of Education, Bangladesh for achieving highest GPA in the Higher Secondary Public Examination in Bangladesh, 2003.

TAUGHT COURSES

- EEE 1101 (Electrical Circuit I), EEE 1102 (Lab)
- EEE 1203 (Electrical Circuit II), EEE 1204 (Lab)
- EEE 1301 (Electronic Device and Circuits I), EEE 1302 (Lab)
- EEE 2103 (Electronic Devices and Circuits II), EEE 2104 (Lab)
- EEE 211 (Electronic Measurements and Instrumentation)
- EEE 2301 (Digital Electronics), EEE 2302 (Lab)
- EEE 3311 (Microprocessor and Embedded Systems), EEE 3312 (Lab)
- EEE 4421 (Analog Integrated Circuits)
- EEE 4425 (VLSI I), EEE 4426 (VLSI I Lab)
- ETE 208 (Analog Communication), ETE 209 (Lab)
- ETE 307 (Digital Communication), ETE 308 (Lab)

NOTABLE PROJECTS AND THESES SUPERVISION

- Design and Implementation of an IoT-based Monitoring and Controlling System for Indoor Hydroponic Vertical Farm
- Comparative study and analysis of semiconductor materials and devices for power transistors for electric vehicles
- Impacts and Challenges of Electric Vehicle for Sustainable Transportation in Dhaka City
- Power Management and Monitoring Module for IoT-based Vaccine Carrier
- Dual Axis Solar Tracking System
- Low-Cost Solar Energy Harvesting System
- Comparative Study and Analysis of Power Devices for Electric Vehicles
- Low-Cost Photovoltaic Cell Analyzer
- Radio Frequency Energy Harvesting System

EXTRACURRICULAR ACTIVITIES

Member (Oct 2010 – Sept 2011)
Bangladesh Society

The University of Sheffield, Sheffield, UK

- Promotion and exchange of national and cultural activities with other societies.
- Planning and organizing social events.

Member, Vice-President (Jan 2005 – Dec 2008) North South University, Dhaka, Bangladesh
NSU Wireless Forum

- Liaison with general secretary and treasurer for budget.
- Planning and organization of events such as workshops, seminars, and competitions.

SKILLS

Computer Skills

- OS: Windows, Ubuntu, Red Hat Linux.
- Application Software: Agilent Advanced Design System, AWR Microwave Office, Proteus, LTspice, Microsoft Office, Open Office, Origin.
- Programming Language: MATLAB, C, C#.
- Learning Management System: Google Classroom, Moodle.

Communication and Interpersonal Skills

- Excellent written and verbal communication skills developed through writing reports, papers and presentations during my employment and experience in academia.
- Capable of planning and executing as an individual as well as a team member.

REFERENCES

Dr. M. Mofazzal Hossain

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