ULAB
UNIVERSITY OF LIBERAL ARTS BANGLADESH

ELECTRICAL AND ELECTRONIC ENGINEERING (EEE)

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The Department of Electrical and Electronic Engineering is focused on producing high-quality graduates with a broad spectrum of innovative and sustainable engineering knowledge and skills motivated by liberal arts aspects such that they become globally competent both in industry and academia. To achieve this goal, the undergraduate EEE program is designed to develop well-rounded professionals with excellent engineering and analytical skills as well as social and ethical values to access a diverse range of engineering professions at local and global arena.

By offering high-quality education through updated curriculum, the undergraduate EEE program aims to provide the students with the core principles of Electrical and Electronic Engineering built on a solid foundation of mathematics and natural sciences, as well as help students to develop necessary skills on specific topics of interest on major areas including Power, Electronics, Communication and Computer. To achieve goals in course and program level, the EEE curriculum incorporates the Outcome-Based Education (OBE) as a foundational structure and it has set twelve Program Outcomes (POs), which have been defined by Board of Accreditation for Engineering and Technical Education (BAETE) of the Institution of Engineers, Bangladesh (IEB).

The graduates develop proficiency not only to manage, implement, and deploy engineering technologies, but also to develop and invent new technologies to handle real-life challenges and to become enthusiastic for life-long learning. Besides classroom teaching, students are encouraged to gain hand-on experience by conducting experimental work in state-of-the-art laboratories, solving real-life problems in projects, participating in seminar and workshop, going on study tour and through industry attachments. The students are encouraged to actively participate in cutting edge research with the highly research-oriented faculty members of the department.

The engineering knowledge and skills are complemented with several courses from diverse areas like social sciences, psychology, arts, language, business and sustainable development through the liberal arts curriculum. These allow our graduates to contribute to the engineering profession as well as to devote to the welfare of society by adopting an array of contemporary and innovative service activities through liberal arts perspective.

VISION

The Department of Electrical and Electronic Engineering is focused on producing high-quality graduates and researchers with excellent analytical skills and social values to become globally competitive.

MISSION

Offer high-quality education through updated curriculum and state-of-the-art laboratory facilities in Electrical and Electronic Engineering on major areas including Electronics, Power, Communication and Computer with a view to producing competent graduates for both industry and academia.

Contribute to the engineering profession and devote to the welfare of society by adopting an array of contemporary and innovative activities through liberal arts perspective.

GOAL

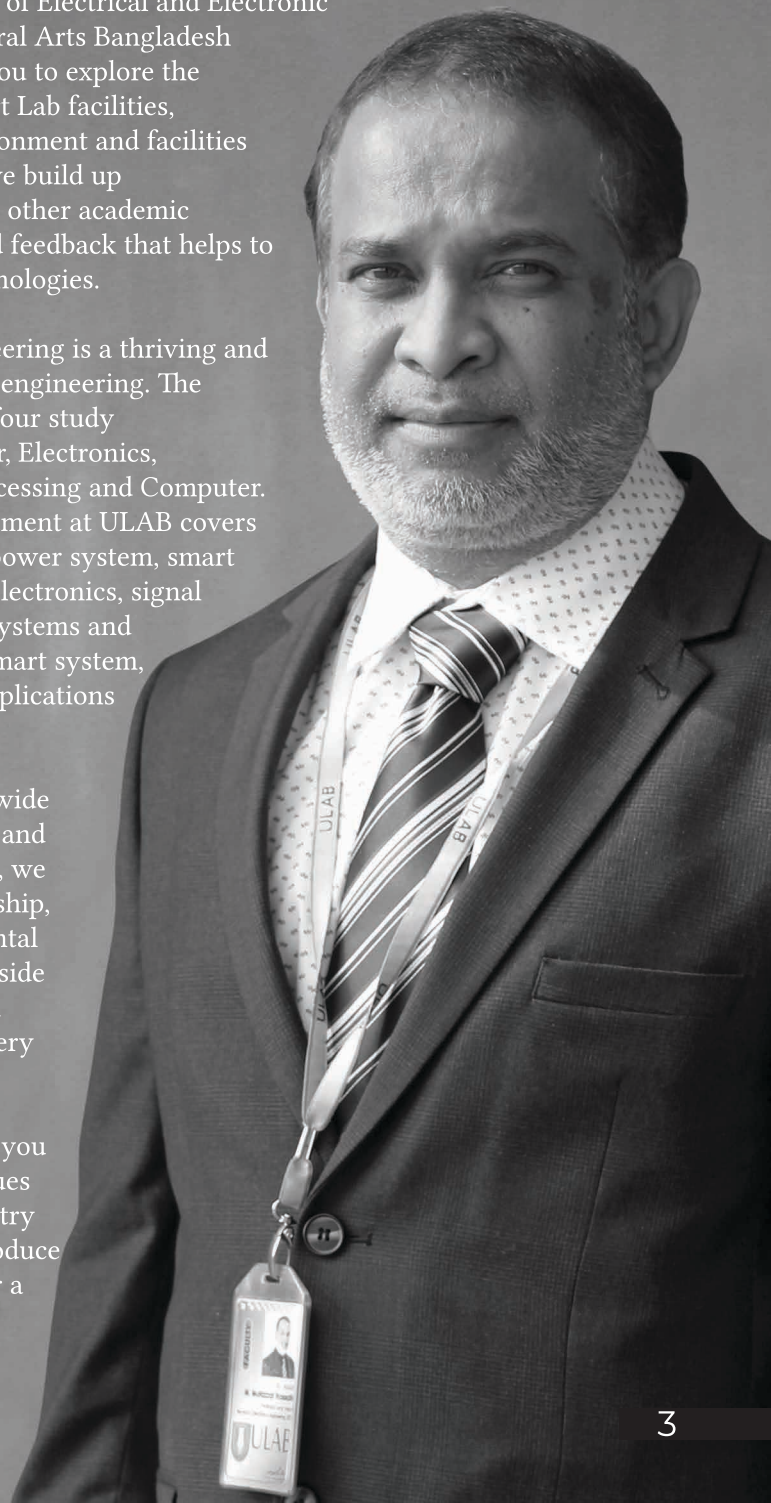
The goal of the Department of Electrical and Electronic Engineering is to produce graduates with a broad spectrum of innovative and sustainable technical knowledge motivated by liberal arts aspects such that they become competent both in industry and academia to handle real life challenges and become enthusiastic for lifelong learning.

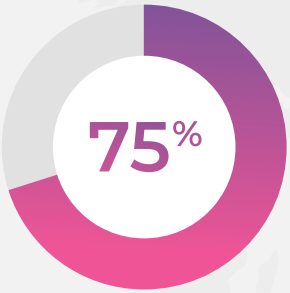
MESSAGE FROM THE HEAD OF THE DEPARTMENT

Greetings from the Department of Electrical and Electronic Engineering, University of Liberal Arts Bangladesh (ULAB). I welcome and invite you to explore the excellent faculty, state-of-the-art Lab facilities, interdisciplinary research environment and facilities we have to offer. Reciprocally we build up collaboration with industry and other academic institutions to have support and feedback that helps to hang into the cutting edge technologies.

Electrical and Electronic Engineering is a thriving and exciting rapid changing field in engineering. The undergraduate curriculum has four study concentrations: Electrical Power, Electronics, Communication and Signal Processing and Computer. The core strength of EEE department at ULAB covers renewable energy, sustainable power system, smart grid, machine learning, power electronics, signal and image processing, control systems and robotics engineering, IoT and smart system, wireless communication and applications of AI in electrical engineering.

To prepare our graduates for a wide spectrum of global competition and contributing in achieving SDGs, we emphasis on innovation, leadership, ethical, societal and environmental aspects and lifelong learning. Aside from the academic and research activities, the department has very strong focus on extra- and co-curricular activities.
I look forward to working with you all - students, academic colleagues around the globe, alumni, industry and government agencies to produce conversant skilled engineers for a sustainable society.





FACULTY WITH PHD AND FOREIGN DEGREE (75%)

HIGHLIGHTS OF THE EEE DEPARTMENT

- About 75% Faculty members are PhD holders.
- Faculty expertise and research networks in the field of Power System and Smart Grid, Renewable Energy, Electric Vehicles, Machine Learning, Internet of Things (IoT), Signal and Image Processing, VLSI, Electronics and Antenna Engineering.
- Ministry of ICT funded research projects.
- State-of-the-art Laboratory including government funded IoT Lab (1st independent IoT Lab among all private universities).
- Strong industry-academia collaboration.
- Regular workshops, seminars, and technical talks by industry and academic experts from home and abroad.
- Regular industry visits and internships at renowned public and private organizations.
- Research collaborations with foreign universities.
- Teaching and Research assistantships for senior undergraduate students and graduates.
- Credit transfer facilities to foreign universities.
- Female hostel for female students.

SUMMARY OF COURSE DISTRIBUTION

Degree Requirements for Bachelor of Science in EEE:

To obtain the B.Sc. degree in EEE, students will have to successfully complete minimum 140 credits. The credit and course requirement for the EEE degree program is shown in the table below.

Course Category	Course	Credit
General Education (GED) Courses	8	24
Essential Skills	4	Non Credit
Major Core	17	66
Basic Science	02	08
Mathematics and Statistics	05	15
Major Concentration	04	14
Minor / Optional	03	09
Final Year Capstone Project	01	04
Total	**44**	**140**

LIST OF COURSES

A. EEE/BASIC SCIENCE/MAT/STA CORE COURSES:

24 theory and 17 lab courses +capstone project (93 credits)

EEE

Course Code	Course Title	Credit
EEE 1101	Electrical Circuits I	3
EEE 1102	Electrical Circuits I Lab	1
EEE 1203	Electrical Circuits II	3
EEE 1204	Electrical Circuits II Lab	1
CSE 1203	Structured Programming	3
CSE 1204	Structured Programming Lab	1
EEE 1301	Electronic Circuits I	3
EEE 1302	Electronic Circuits I Lab	1
EEE 2103	Electronic Circuits II	3
EEE 2104	Electronic Circuits II Lab	1
EEE 2205	Electrical Machines I	3
EEE 2309	Electrical Machines II	3
EEE 2310	Electrical Machines Lab	1
EEE 2313	Signals and Systems	3
EEE 2216	Numerical Techniques Simulation Lab	1
EEE 2301	Digital Electronics	3
EEE 2302	Digital Electronics Lab	1
EEE 3103	Digital Signal Processing	3
EEE 3104	Digital Signal Processing Lab	1
EEE 3105	Electrical Properties of Materials	3
EEE 3109	Communication Systems	3
EEE 3110	Communication Systems Lab	1

Course Code	Course Title	Credit
EEE 3207	Power System I	3
EEE 3208	Power System I Lab	1
CSE 3209	Data Communication and Computer Networks	3
CSE 3210	Data Communication and Computer Networks Lab	1
EEE 3311	Microprocessors and Embedded Systems	3
EEE 3312	Microprocessors and Embedded Systems Lab	1
EEE 3313	Electromagnetic Fields and Waves	3
EEE 3316	Electrical Service Design Lab	1
EEE 4103	Control System I	3
EEE 4104	Control System I Lab	1
EEE 4196	Final Year Capstone Project	4

BASIC SCIENCE

Course Code	Course Title	Credit
PHY 1101	Physics	3
PHY 1102	Physics Lab	1
CHEM 1301	Chemistry	3
CHEM 1302	Chemistry Lab	1

MATHEMATICS & STATISTICS

Course Code	Course Title	Credit
MAT 1101	Differential and Integral Calculus	3
MAT 1201	Co-ordinate Geometry and Linear Algebra	3
MAT 2101	Differential Equations and Numerical Analysis	3
MAT 2203	Complex Variable and Mathematical Methods	3
STA 2101	Probability and Statistics	3
TOTAL CREDITS		93

B. EEE CONCENTRATION GROUP:

4 theory and 2 lab courses (14 credits)

I. ELECTRONICS GROUP

Course Code	Course Title	Credit
EEE 4401	Solid State Devices	3
EEE 4421	Analog Integrated Circuits	3
EEE 4423	Processing and Fabrication Technology	3
EEE 4425	VLSI I	3
EEE 4426	VLSI I Lab	1
EEE 4427	VLSI II	3
EEE 4428	VLSI II Lab	1
EEE 4429	Compound Semiconductor and Hetero-Junction Devices	3
EEE 4430	Optoelectronics	3
EEE 4431	Biomedical Instrumentation	3
EEE 4432	Biomedical Instrumentation Lab	1
EEE 4433	Power Electronics	3
EEE 4434	Power Electronics Lab	1
EEE 4435	Semiconductor Physics	3
EEE 4437	Introduction to Nanotechnology	3

II. COMMUNICATION AND SIGNAL PROCESSING GROUP

Course Code	Course Title	Credit
EEE 4441	Random Signals and Processes	3
EEE 4443	Information and Coding Theory	3
EEE 4445	Microwave Engineering	3
EEE 4446	Microwave Engineering Lab	1
EEE 4447	Digital Communication	3
EEE 4448	Digital Communication Lab	1

Course Code	Course Title	Credit
EEE 4449	Optical Fiber Communication	3
EEE 4450	Optical Fiber Communication Lab	1
EEE 4451	Wireless and Cellular Communication	3
EEE 4452	Wireless and Cellular Communication Lab	1
EEE 4453	Satellite Communication	3
EEE 4455	Digital Image Processing	3

III. POWER GROUP

Course Code	Course Title	Credit
EEE 4461	Power System II	3
EEE 4463	Electrical Machines III	3
EEE 4465	Power Plant Engineering	3
EEE 4467	Power System Protection	3
EEE 4468	Power System Protection Lab	1
EEE 4469	Power System Reliability	3
EEE 4471	Power System Operation and Control	3
EEE 4473	High Voltage Engineering	3
EEE 4474	High Voltage Engineering Lab	1
EEE 4475	Control System II	3
EEE 4476	Control System II Lab	1
EEE 4477	Renewable Energy Technology	3
EEE 4478	Basic Mechanical Engineering	3

IV. COMPUTER GROUP

Course Code	Course Title	Credit
EEE 4479	Data Structure and Algorithm	3
EEE 4480	Data Structure and Algorithm Lab	1
EEE 4481	Artificial Intelligence	3

Course Code	Course Title	Credit
EEE 4483	Internet of Things	3
EEE 4484	Internet of Things Lab	1
EEE 4485	Numerical Methods	3
EEE 4486	Numerical Methods Lab	1
EEE 4487	Computer Architecture	3
EEE 4489	Cloud Computing	3
EEE 4491	Multimedia Communication	3
EEE 4492	Network Programming	3
EEE 4493	Neural Networks and Applications	3
EEE 4495	Object Oriented Programming	3
EEE 4490	Big Data Analytics	3

V. THESIS/INTERNSHIP

Course Code	Course Title	Credit
EEE 4497	Thesis	3
EEE 4499	Internship	3

C. MINOR/OPTIONAL/ELECTIVE (3 COURSES/09 CREDITS)

EEE students have to complete three (03) courses offered by any department other than EEE as elective courses. If a particular student from EEE wants to do minor, then the student has to take five (05) courses from a single degree-granting department (as per the guidance of that particular department).

D. CAPSTONE PROJECT

The Department of EEE requires that each graduating student of B.Sc. in EEE program complete EEE 4196, a three-term-long final year capstone project (4 credits). Students must register for the capstone project in Term 10 and complete the project in term 12. The distribution of credits will be 1+1+2 = 4. Students will have to submit a project report and present their project work before a panel of examiners by the end of term 12. Grading will be done based on the report, presentation, and continuous assessment through 3 terms. This project is intended to provide a culminating experience that allows a student to demonstrate proficiency in several of the learning outcomes that are stated by his or her degree program.

In capstone project, basically students will apply their cumulative knowledge, skills and experiences that they gathered through theory and lab courses in their previous academic activities. For this reason, each approved capstone project should include and properly address the following components: Contemporary Issues, Requirements Analysis, Project Management and Financial Analysis, Modern Tools Usage, Design and Implementation, Ethics, Societal and Environmental Impacts, Teamwork, Communication and Lifelong Learning.

GENERAL EDUCATION (GED) COURSES

A. GED Core Courses (5 Courses/15 Credits)

Course Code	Course Title	Credit
GEF 1101	Academic English I	3
GEF 1102	Academic English II	3
UCC 1101	Bangla Bhasha	3
UCC 1102	Emergence of Independent Bangladesh	3
GED 2159	Professional Ethics	3

B. GED Electives (3 courses /9 credits)

GED Electives course offerings will vary from term to term. GED 2248 and GED 2243 courses must be taken by students of EEE department.

Course Code	Course Title	Credit
GED Tier 1	Social Sciences	3
GED Tier 2	GED 2248: Industrial Management	3
GED Tier 3	GED 2243: Environment and Sustainability	3

C. Essential Skills (4 courses)

Course Code	Course Title	Credit
ESK 1110	Study Skills	Non Credit
ESK 1111	Healthy Life Skills	Non Credit
ESK 1112	Social Skills	Non Credit
ESK 1113	Professional Skills	Non Credit

OUTCOME-BASED EDUCATION (OBE) CURRICULUM

Outcome-Based Education (OBE) curriculum is designed to achieve goals in course level and program level. The curriculum design has been emphasized with utmost importance so that the designed curriculum can work for a long duration to achieve the defined program objectives. Conceptualizing this OBE theory as a foundational structure EEE program of ULAB has set twelve Program Outcomes (POs) which have been defined by Board of Accreditation for Engineering and Technical Education (BAETE) of the Institution of Engineers, Bangladesh (IEB).

PROGRAM OUTCOMES (POs)

- **Engineering Knowledge –** Apply knowledge of mathematics, sciences, engineering fundamentals and manufacturing engineering to the solution of complex engineering problems.
- **Problem Analysis –** Identify, formulate, research relevant literature and analyze complex engineering problems, and reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- **Design/Development of Solutions –** Design solutions, exhibiting innovativeness, for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, economical, ethical, environmental and sustainability issues.
- **Investigation –** Conduct investigation into complex problems, displaying creativeness, using research-based knowledge, and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
- **Modern Tool Usage –** Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations.
- **The Engineer and Society –** Apply reasoning based on contextual knowledge to assess societal, health, safety, legal, cultural, contemporary issues, and the consequent responsibilities relevant to professional engineering practices.
- **Environment and Sustainability –** Understand the impact of professional engineering solutions in societal, global, and environmental contexts and demonstrate knowledge of and need for sustainable development.
- **Ethics –** Apply professional ethics and commit to responsibilities and norms of professional engineering code of practices.
- **Communication –** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **Individual and Teamwork –** Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
- **Project Management and Finance –** Demonstrate knowledge and understanding of engineering management and financial principles and apply these to one's own work, as a member and/or leader in a team, to manage projects in multidisciplinary settings, and identify opportunities of entrepreneurship.
- **Lifelong Learning –** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

FACULTY PROFILES

Professor Dr. H.M. Jahirul Haque

EDUCATION: PhD (National University of Kharkiv, Ukraine)
POSITION: Professor and Vice-Chancellor
RESEARCH INTEREST: Education Management

SHORT BIOGRAPHY:

Prof. Dr. H. M. Jahirul Haque is currently the Vice Chancellor and Professor of CSE. He has more than 20 years of teaching, research and administrative experience. At ULAB, Prof. Haque has worked as the Pro Vice-Chancellor, the Dean of the School of Science and Engineering and the Head of the Computer Science and Engineering and Electrical and Telecommunications Engineering departments. His current research interest includes education management, technology and teaching and learning pedagogy.

Professor Dr. Mohammad Rezwan Khan

EDUCATION: Ph.D., University College London, United Kingdom, M.Sc., University College London, United Kingdom, B.Sc., Bangladesh University of Engineering and Technology (BUET)
POSITION: Honorary Advisor, School of Science and Ergineering
RESEARCH INTEREST: Renewable Energy, Microelectronics, Power Electronics, Digital Signal Processing, Electromagnetics, Communication

SHORT BIOGRAPHY:

Prof. Dr. Mohammad Rezwan Khan has been working as honorary advisor in the school of science and engineering, ULAB. He is also a professor and executive director of Institute for Advanced Research (IAR) at United International University (UIU). He was the former vice-chancellor of UIU. He is a senior member of IEEE and distinguished lecturer of IEEE (2017-2018) and a Fellow of Bangladesh Academy of Sciences. Prof Khan is a former Professor of Department of EEE, BUET. He received the Prime Minister's Award and Bangladesh Academy of Sciences Gold Medal in 2005. He published more than 100 articles in international peer-reviewed journals and conferences.

Professor Dr. M. Mofazzal Hossain

EDUCATION: Ph.D., in Electrical & Electronic Engineering, Kanazawa University, Japan, M.Sc., Kanazawa University, Japan B.Sc., Bangladesh University of Engineering and Technology (BUET)

POSITION: Professor & Head

RESEARCH INTEREST: Renewable Energy, Electric Vehicles and Environment, IoT.

SHORT BIOGRAPHY:

Prof Hossain has been working at EEE Department, ULAB since January 2019. He started his career as a Lecture at Chittagong University of Engineering and Technology in 1994, and served there as Head of the EEE Department. He also served at East West University, Dhaka in the capacity of Chairperson of ECE Department and Dean of FSE. Prof Hossain worked at Tokyo Institute of Technology (Japan) as a postdoctoral research fellow. He published 76 articles in international conferences and peer reviewed international journals. Prof Hossain is a member of IEEE, USA and IEB.

Dr. Tama Fouzder

EDUCATION: Ph.D., City University of Hong Kong, Hong Kong B.Sc., Khulna University, Bangladesh

POSITION: Assistant Professor

RESEARCH INTEREST: Electronic Product Reliability, Electronic Packeging.

SHORT BIOGRAPHY:

Dr. Tama has been working at EEE Department, ULAB since January 2017. She worked as a research assistant in the EPA center, Electronic Engineering Department of City University of Hong Kong. She has around nine years teaching experience as a Lecturer in the Electronic and Telecommunication Engineering Department, University of Development Alternative, Bangladesh. She published ten international journal papers and ten peered reviewed international conference papers. She has been serving as reviewer for international journals and conferences. She is a member of IEEE, USA.

Dr. Mirza Rasheduzzaman

EDUCATION: Ph.D., The University of Sheffield, United Kingdom, M.Sc., The University of Sheffield, United Kingdom, B.Sc., North South University, Bangladesh

POSITION: Assistant Professor & Program Coordinator

RESEARCH INTEREST: Device Characterization and Modelling, Radio Frequency Power Amplifier, Embedded Systems, Renewable Energy, Internet of Thing.

SHORT BIOGRAPHY:

Dr. Rasheduzzaman has been working at EEE Department, ULAB since May 2017. He has been collaborating actively with researchers from local and international universities and organizations. One of his on-going projects titled "Development of an IoT Based Intelligent Vaccine Carrier Monitoring Module for the Unreached" is funded by ICT Division, Ministry of Posts, Telecommunications and Information Technology, Government of Bangladesh. He has a number of publications in international conferences. He served as a reviewer, technical program committee member and co-track chair at international conferences.

Dr. Abul Barkat Mollah Sayeed Ud Doulah

EDUCATION: Ph.D., The University of Alabama, Tuscaloosa, Alabama, United States of America., M.Sc., Bangladesh University of Engineering and Technology (BUET)., B.Sc., Military Institute of Science and Technology (MIST), Bangladesh.

POSITION: Assistant Professor

RESEARCH INTEREST: Biomedical Signal Processing, Machine Learning, Patterm Recognition, Computer Vision.

SHORT BIOGRAPHY:

Dr. Sayeed has been working at EEE Department, ULAB since January 2019. He was a Lecturer with the Department of Electrical Electronics and Communication Engineering, Military Institute of Science and Technology. He has several publications in international journals, including prestigious Nature, Scientific report, IEEE transactions and national/international conferences. He is a member of IEEE, USA.

Mr. Shameem Hasan

EDUCATION: M.Sc. in EEE, Islamic University of Technology (IUT), Bangladesh., B.Sc. in EEE, Islamic University of Technology (IUT), Bangladesh.

POSITION: Lecturer

RESEARCH INTEREST: Power and Energy Systems, Power Electronics, Machine Learning, Control System and Plasmonics.

SHORT BIOGRAPHY:

Shameem Hasan has been working as a Lecturer, Department of EEE, ULAB since June 2019. He has 5 years of teaching experience and supervised around twenty projects, theses and internships. He has several publications in international peer-reviewed journals and conferences. He was a contributing member of IUT International Mars Rover Team 2015. He is currently working as the Advisor of ULAB Electronics and Robotics Club (UERC). He is a member of IEEE, USA.

Md. Zesun Ahmed Mia

EDUCATION: B.Sc. Eng in EEE (BUET), M.Sc Eng. (pursuing) (BUET)

POSITION: Lecturer

RESEARCH INTEREST: 2D materials, Nanoelectronics, Electronic Devices, Robotics and Machine Learning.

SHORT BIOGRAPHY:

Md. Zesun Ahmed Mia completed B.Sc. in EEE from Bangladesh University of Engineering and Technology (BUET), Dhaka in 2019. He served as a lecturer in the department of EEE of Bangladesh University of Engineering and Technology (BUET) from February, 2020 to January 2021. He also served as a Lecturer at Prime University, Dhaka. He is a member of IEEE and won various Robotics competitions from 2016 to 2018.

Mr. Ashfaque E Alam

EDUCATION: Ph.D. (on going), Sheffield Hallam University, United Kingdom., M.Sc., De Montfort University, Leicester, United Kingdom., B.Eng.(Hons), De Montfort University, Leicester, United Kingdom.

POSITION: Lecturer (on-leave)

RESEARCH INTEREST: Thin Film solar cell technology.

SHORT BIOGRAPHY:

Ashfaque E Alam is currently pursuing his Doctoral research in Sheffield Hallam University, UK on Thin-film solar cells technology. He has been working in academia for the last 6 years in different positions such as a Lecturer, Researcher, an Instrumentation Engineer. He has published several high-quality research articles in reputed international journals including Nature Scientific Reports.

Mr. Rabiul Islam Jony

EDUCATION: B.Sc. in EEE, IUT, MSc, Aalto University, Finland, Ph.D, QUT, Australia (on going).

POSITION: Senior Lecturer (on-leave)

RESEARCH INTEREST: Multimodal Big Data Fusion for Environmental Monitoring

SHORT BIOGRAPHY:

Mr. Rabiul Islam Jony is a senior Lecture at ULAB. He has over five years of active teaching experience at the university level and working experience as an RF Engineer in industry. His PhD research focuses on fusing remote sensing and social media data under data science discipline.

Mr. Faysal Hakim

EDUCATION: B.Sc in EEE, BUET, M.Sc in EEE, BUET, PhD (ongoing), University of Florida, USA

POSITION: Lecturer (on-leave)

RESEARCH INTEREST: Electronics, 3D nano-electromechanical resonators.

SHORT BIOGRAPHY:

Faysal Hakim is a Lecturer at EEE Department of ULAB. Currently he is pursuing doctoral studies at University of Florida, USA. He is working as a graduate research assistant at Department of ECE, University of Florida.

Mr. Bashirul Azam Biswas

EDUCATION: B.Sc. in EEE, BUET, PhD (on going) Renseselaer Polytechnic Institute, USA

POSITION: Lecturer (on-leave)

RESEARCH INTEREST: Graphical model, Computer Vision, Machine Learning

SHORT BIOGRAPHY:

Mr. Bashirul Azam Biswas is a Lecturer in EEE Department. Mr. Biswas has two years of industrial experience in the ASIC design area and He has joined ULAB in September 2017.

LAB FACILITIES

The EEE department emphasizes on students to gain hands-on experience to facilitate industry exposure, and to understand the demand of real life and possess the ability to tackle real life problems through the knowledge acquired at ULAB. The department has enriched laboratory facilities equipped with modern hardware and software facilities.

Communication Lab

The communication lab has an excellent collection of training kits and modules to enable students to get acquainted with various modulation. Schemes and transmission in

analog and digital communication. The lab has also the necessary tools for providing technical knowledge on mobile phone technology.

The Optical Fiber Communication lab is equipped with Fiber Optic Communication Trainer to conduct experiments that cover a wide range of topics related to optical fiber communication system.

The Microwave lab supports the courses in Electromagnetics and Microwave and Radar Engineering. Students conduct experiments on antennas and microwave circuit components to learn the basic principles of generation, characteristics and transmission of microwaves.

Switchgear and Protection Lab

The Switchgear and Protection Lab is equipped with modern facilities to give the students real life exposure of power system protection. Students can develop skills on operating under current/over current relay, under voltage/over voltage relay, under frequency/over frequency relay, auto recloser and transformer overheating protection.

Computer Simulation and VLSI Lab

The lab provides computers equipped with industry-level electrical and electronics circuits simulation software, MATLAB for digital signal processing and control systems and robotics, CST simulation software for antenna design, VLSI design simulation software for digital and mixed-signal VLSI circuits design and computer networking.

Physics Lab

The lab provides the necessary equipment to conduct experiment to verity the fundamental concepts in elementary physics such as mechanics, heat, light and sound.

Electrical and Electronic Circuit Lab

This lab is well equipped with modern instruments such as oscilloscope, signal generator, power supply for circuit analysis and design. Students get to experiment and learn on different aspects of DC, AC and electronic circuits.

Power System Lab

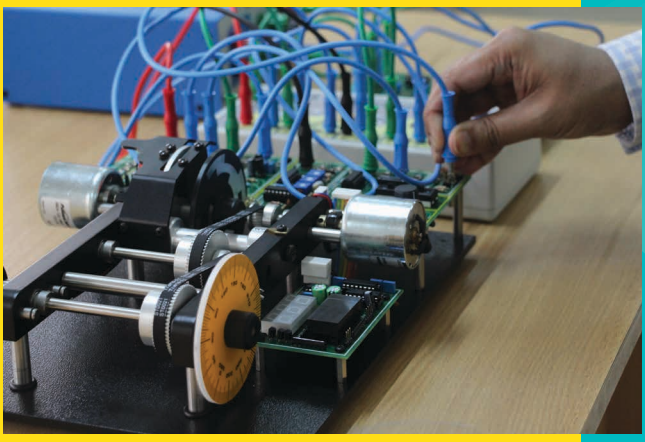
The Power System Lab is well equipped with modules and software (MATLAB and PSAF) to conduct experiments and get hands-on experience in power factor improvement, virtual transmission line modeling, load flow study and fault analysis.

Machine Lab

The Machine Lab is equipped with modules, trainer boards and machines to conduct experiments on transformer, DC motor/generator and induction/synchronous motor.

Digital Systems Lab

The Digital Systems Lab exposes the students to basic digital circuit and logic design. The lab is also equipped with Microprocessor trainer board and Programmable logic control (PLC) trainer which allow the students to program circuits and introduce them to assembly language programming and microprocessor interfacing techniques.



Control Systems and Robotics Lab

One of the main focus of this lab is to connect the theoretical background taught in Control System course with the realities of physical hardware and simulation. The laboratory is well equipped with digital oscilloscopes, LabVIEW, MATLAB/Simulink software and a LJ MS15 DC Motor Control Module.

Internet of Things (IoT) Lab

As part of the World Bank Project, IoT Lab has been installed at ULAB at a cost of around BDT 4 Crore and implemented by Bangladesh Hi-Tech Park Authority of ICT Division. ULAB is the First Private University in Bangladesh where this kind of specialized Lab has been implemented. The lab is well furnished with advanced IoT related equipment. International companies who want to operate in Bangladesh can train local employees using the lab's e-Learning system.

LIBRARY

The libraries in Campus A and permanent campus at ULAB are the centers to faclitate knowledge acquisition by providing books, journals, proceedings, magazines, periodicals, reports, map and atlas, audio-visual materials to ULAB students and faculty members. The rapidly expanding collections are caretully maintained with computerized catalog access to serve the vibrant community of ULAB since its establishment. In addition, the libraries provide access to e-books, online journals, and databases and archives. ULAB libraries also provide remote/off-campus access to online resources. The libraries include silent reading room and group study room.

Both the libraries are air-conditioned and provide pigeonhole services, photocopy and printout, and WiFi facilities. The libraries at ULAB have affiliation and membership with other resourceful libraries in the country.

Industry Academia Collaboration

The department of EEE has an Industry Advisory Panel (IAP), a group of employers from public and renowned leading technology-oriented companies in Bangladesh.

The panel members are Engr. Md. Ali Zulquarnain (Former Chairman, Bangladesh Atomic Energy Commission (BAEC)), Engr. Md. Shahjahan (Deputy Managing Director (Corporate Affairs), BTCL), Engr. Md. Badrul Alam (Superintending Engineer, Dhaka Power Distribution Company),

Engr Mohammed Nurul Absar (Superintendent Engineer Bangladesh Power Development Board, Engineering Academy, Kaptai, Rangamati.),

Tofael Ahmed (Managing Director, Bangladesh & South East Asia O & M Solutions), Engr. Md. Ariful Hoque (Managing Director, Reverie Power and Automation Engineering Ltd.), Engr. Md. Shakhawat Hossain (Chief Operating Officer, Neural Semiconductor), Dr. Reduan Hasan Khan (Head of IoT, Grameenphone Ltd.), Engr. Mohammad Mynul Islam (Director and COO, Energypac Wires &amp, Cables Ltd.), Md. Ismail Hossain (Manager, Hiring and Business Development, Ulkasemi Limited), Engr. Mohammad Jamal Uddin (DGM Teletalk Bangladesh Ltd.), Engr Md. Anamul Hasan (Deputy Executive Director Head of R&D (Television) Walton Hi-Tech Industries Ltd). The IAP meets twice every year to provide feedback and possible integration of curriculum with industry.

Co-curricular and Extra-curricular Activities

The Department provides a platform for the students of department of EEE to nourish their co-curricular and extra-curricular excellence regularly by organizing project showcase and EEE fest to encourage them to enrich their depth of knowledge and enhance their technical skills. The students also participate in numerous national competitions and events organized by other universities.

Seminar on Machine Learning

Seminar on Robotics

ULAB Electronics and Robotics Club creates an environment of interaction among the students of different terms and the faculties of the department. Along with various non-academic events such as study tours tour and departmental picnics, this club organizes workshops on different hardware and software simulation tools to introduce the students of EEE with the modern technology. Project competitions, Olympiads on circuits and technical festivals are also organized by this club where the students can demonstrate their ability to apply engineering knowledge in real life scenarios. Besides, the Electronics Club, the students can also join any of the 23 clubs such as the ULAB Shangskriti Shangsad, Adventure Club, Indoor Games Club, Art and Photography Club.

EEE Fest

Indoor Games

Picnic at Nandan

Industrial visit at DPDC

CAREER COUNSELING

ULAB CSO (Career Services Office) provides all sorts of services related to the future career of our graduates. CSO staffs meet one-to-one with students to learn about their interests and future plans. This personal contact enables the office to understand individual students' needs. CSO offers specialized hands-on workshops on CV writing, career planning, interpersonal skills, leadership, motivation, personal and professional development. Some of the regularly organized career related workshops and events are Career Planning, Goal Setting, Motivation and Team Building. CSO also organizes seminars/workshops on Networking Skills, Realities of the job, Internet Etiquette and Interview Skills.

INTERNSHIP PLACEMENT

Students of the Undergraduate Programs, in their final term at ULAB are placed in an organization as an intern to appreciate and experience the dynamics of working in a real organization. In addition to carry out activities required by the organization, students are required to complete a report which is assigned either by the organization or by the student internship supervisor at ULAB. Each term, ULAB Career Services Office organizes internship orientation to disseminate detailed information on doing internship/ Project/Thesis.

Usually students arrange internship organizations of their own. However, EEE Department and the Career Services Office assist in finding internship organizations for those students who have been unable to arrange one. It is observed that students have been doing internships in Power Plants, Power Distribution Companies, BTCL, Satellite Earth Station, Private Banks, IT farms.

JOB PLACEMENT

The Career Services Office (CSO) assists eligible students to find jobs. Local, national and international job opportunities are advertised on its Job Board. Students are also notified the job openings through ULAB group email.

Many of our graduates get absorbed by the organizations where they have been doing internships. Usually, most of the organizations offer confirmed job opportunities to students due to the skills and dedication the ULAB students possess. However, if any student fails to join in any organization, he/she has been given full guidance from ULAB CSO with the help of career fairs, corporate contacts, network and ULAB Alumni Association.

SCHOLARSHIPS AND FINANCIAL AID

ULAB provides different kinds of scholarships to the students i.e., Named Scholarships, Vice-Chancellor's Honors List, Dean's Honors List, Merit Scholarships, Freedom Fighters Scholarships and Scholarships to the poor and meritorious students from remote area. The university also awards a number of special, non-academic scholarships.

MINIMUM QUALIFICATIONS FOR UNDERGRADUATE ADMISSION

- A minimum GPA 2.50 both in SSC and HSC examinations or equivalent, or
- At least one GPA of 2.00 but aggregate GPA of 6.00 in SSC & HSC, or
- Sons/daughters of freedom fighters with an aggregate GPA of 5.00 in SSC &HSC,or
- O'Levels in 5 subjects with a minimum GPA of 2.50 & A'Level in 2 Subjects with a minimum GPA of 2.00 (scale A=5, B=4, C=3, D=2,E=1), or
- International Baccalaureate/American High School Diploma.
- Students with science background in HSC or equivalent Examinations are allowed to get admission in science, technology and engineering programs.
- Acceptable score in the ULAB Admission Test.

Note: Admission test is waived for candidates with a minimum score of 1100 in SAT (Math + Critical Reading). However, they may have to face an interview.

Transfer of credits from comparable educational institutions may be considered after admission. Rules on credit transfer are available from the Admissions Office.

REQUIRED DOCUMENTS FOR FORM SUBMISSION:

- Four copies of recent colored passport sized photographs.
- Photocopies of all Board Mark-sheets and Certificates.
- Photocopy of NID of the student and one of the parents.
- Applicants in Freedom Fighter category are requested to submit relevant documents.

ADMISSION TEST

ULAB will call applicants who meet the minimum eligibility requirements for an Admission Test, which will comprise of a written test and, in some cases, a departmental interview. The written test has two parts:

- Part 1 contains multiple-choice questions covering English language, mathematics and physics.
- Part 2 is a test of written English where students have to write a short essay.

ULAB ADMISSION OFFICE

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ULAB

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