ULAB
UNIVERSITY OF LIBERAL ARTS
BANGLADESH

COMPUTER
SCIENCE
AND
ENGINEERING
(CSE)

Bachelor of Science in Computer Science and Engineering

Computer Science and Engineering (CSE) department is the largest engineering department of the University of Liberal Arts Bangladesh (ULAB). CSE specializes in all major areas of computational problem-solving. It is committed to producing graduates who are true engineers and systematic problem solvers capable of solving real life problems.

CSE is the best-placed department to take advantage of the IT boom in Bangladesh and around the world. We contribute to the development of cutting-edge technology that has a positive social impact. We endorse a curriculum based on theoretical knowledge as well as research and project-oriented applied skills that have close ties to social welfare and industries. The department offers a platform for fundamental knowledge generation relevant to information technologies. As a pragmatic department, we practice active learning as we believe that this discipline cannot be excelled in just by mare theoretical understanding. This aim is to produce creative thinkers who are apt to bridging the gap between society and technology disseminating the liberal arts values of ULAB.

Vision

- To produce highly competent graduates who will become leaders in Computer Science and Engineering.

Mission

- To prepare our students to meet high standard of excellence for professional career advancement.
- To create and disseminate new knowledge through basic and applied research in the field of Computer Science and Engineering.

Program Educational Objectives (PEO)

- Possess theoretical and practical knowledge of Computer Science and Engineering blended with multi-disciplinary knowledge to establish successful computing or engineering careers.
- Enhance skills and creativity, and embrace new computing technologies through self-driven life-long learning.
- Apply professional, ethical, and social aspects of modern computing technology for analyzing and solving national and global problems.

Goals

Long Range Goals

- Quality teaching and learning environment
- Industry Academia Collaborations
- Incubation of real-life developments with ICT industries
- Partnership with ICT Leaders both at home and abroad
- Research and developments ICT4D activities

Short Range Goals

- Develop course curriculum based on industry requirements
- Deliver course lessens with industry focus
- Nurture creativity and innovations
- Joint research initiatives with the ICT industry

Message from the Dean of School of Science and Engineering

I welcome you all to the greeneries of the ULAB campus. I do believe the natural beauty of our campus will impress you. The ULAB School of Science and Engineering is rich in terms competent faculty, modern lab facilities, OBE (outcome-based education) curriculum, physical academic resources, IT supports, and industry-academia collaboration. For the soft-skills development of the students, ULAB always emphasizes extra- and co-curricular activities besides the classroom teaching-learning. Internships, industry visits, and workshops/seminars conducted by industry experts are parts of our regular activities of industry-academia interaction. We are proud of our alumni working in industry and academia at home and abroad.

Professor M. Mofazzal Hossain, PhD, SMIEEE

Message from the Head of the CSE Department

The Fourth Industrial Revolution (4IR) will change how we believe and work. Critical thinking, creativity, complex problem solving, and emotional intelligence are the key requirements to prepare the skilled workforce to face the challenges of the 4IR. Keep in mind these requirements, Department of Computer Science and Engineering (CSE) at the University of Liberal Arts Bangladesh (ULAB) focuses on outcome-based education through active teaching-learning methods, project-based learning, complex engineering problem solving, industry-academia collaborative research works, etc.

Besides the academic curricular activities, the Department of CSE at ULAB engages students in several co/extra-curricular activities including participating in and organizing different National and International events, Programming Contests, Hack-a-Thons, International Conferences, etc. The department is empowered by several ULAB clubs and professional clubs including IEEE ULAB Student Branch.

Over the years the CSE department has grown with proud Alumni serving top companies at home and abroad. Many graduates are pursuing higher studies abroad and serving as faculty members.

I welcome you all to the Department of CSE to explore the opportunities and embrace the challenge of being part of this journey of excellence.

Professor Muhammad Golam Kibria, PhD, SMIEEE

Highlights of the Department of CSE

- Implementation of an Outcome-based Education (OBE) curriculum.
- Faculty members with expertise and qualifications from renowned universities worldwide.
- The first university in Bangladesh to establish a state-of-the-art Internet of Things (IoT) laboratory.
- Notable presence of alumni in prestigious IT companies and universities both domestically and internationally.
- Demonstrating one of the highest female-to-male student ratios among CSE departments in Bangladesh.
- Strong industry advisory panel supporting the department.
- Faculty experts and extensive research networks in high-demand areas including Artificial Intelligence, Data Science, Machine Learning, IoT, Blockchain, Cybersecurity, Bioinformatics, and Mobile App Development, empowering students with industry-relevant skills and facilitating job placement opportunities.
- Winner of National Hackathon for Women.
- Successful participation and achievement in the IEEE Region 10 (Asia Pacific) HTC Hackathon.
- Research projects funded by the European Union (EU) and the Ministry of ICT, Bangladesh.

Degree Requirement for BSc in CSE

Total course requirements for degree program are as follows:

Course Category	Courses	Credits
General Education Courses (GED)	5 Core + 3 Elective	24
Major Core Courses	16 Theory + 14 Lab + 4 Credit Capstone Project + 1 credit Internship	67
Major Elective Courses	4 Theory + 1 Lab	13
Other Engineering	2 Theory + 2 EEE Lab	8
Optional/Minor*	3 Theory	9
Basic Science	2 Theory + 1 Lab	7
Mathematics	4 Theory	12
Total		140

Students willing to do a minor must take a total of 5 courses (15 credits).

4-Year Distribution of Courses

	Course Code	Course Title	Credits	Remarks/Prerequisite
Term – 1	CSE1102	Introduction to Programming	1	
	GEF1101	Academic English I	3	GED Core 1
	MAT1101	Differential and Integral Calculus	3	
	PHY1101 & PHY1102	Physics I & LAB	3+1	
		Total Credits	**11**	
Term – 2	CSE1201 & CSE1202	Structured Programming & LAB	3+1	CSE1102
	CSE1203	Discrete Mathematics	3	
	UCC1101	Bangla Bhasa	3	GED Core 2
	MAT1201	Coordinate Geometry and Linear Algebra	3	
	ESK1110	Study Skills		GED Core 6
		Total Credits	**13**	
Term – 3	PHY1301	Physics II	3	
	CSE1301 & CSE1302	Data Structures & LAB	3+1	CSE1201 & CSE1202
	EEE1101 & EEE1102	Electrical Circuit 1 & LAB	3+1	
	UCC1201 (ULAB Core Course)	History of the Emergence of Independent Bangladesh	3	GED Core 3
	ESK1111	Healthy Life Skills		GED Core 6
		Total Credits	**14**	
Term – 4	MAT2101	Differential Equations and Numerical Analysis	3	
	GEF1201	English II	3	GED Core 4
	CSE2101 & CSE2102	Digital Logic Design & Lab	3+1	
	CSE2103 & CSE2104	Object Oriented Programming & LAB	3+1	CSE1201 & CSE1202
	ESK1112	Social Skills		GED Core 6
		Total Credits	**14**	

Term − 5	CSE2201 & CSE2202	Algorithms & LAB	3+1	CSE1203, CSE1201, CSE1202
	CSE2203	Computer Organization and Architecture	3	CSE2101
	STA2101	Statistics and Probability	3	
	EEE1301 & EEE1302	Electronic Device and circuits 1 & LAB	3+1	
	CSE2200	Design Project-I	1	CSE2103, CSE2104
	ESK1113	Professional Skills		GED Core 6
		Total Credits	**15**	
Term − 6	CSE2301 & CSE2302	Database Management System & Lab	3+1	
	CSE2303	Automata and Theory of Computation	3	CSE2201
	CSE2305 & CSE2306	Operating Systems & Lab	3+1	CSE2203
	GED2159	Professional Ethics (GED 5)	3	GED Core 5
		Total Credits	**14**	
Term − 7	CSE3101 & CSE3102	Microprocessor and Microcontroller & Lab	3+1	CSE2203
	GEDXXXX	GED Elective 3	3	GED Elective from Social Science
	CSE3103	System Analysis and Design	3	CSE2103
	GED 2243	Environment and Sustainability (GED 7)	3	Mandatory for CSE GED Tier 3
	CSE3120	Web Programming	1	CSE2103 & CSE2104
		Total Credits	**14**	
Term − 8	CSE3201 & CSE3202	Artificial Intelligence & Machine Learning & Lab	3+1	CSE2201, CSE2202, STA2101, MAT1201
	CSE3203	Software Engineering	3	CSE3103
	CSE3200	Design Project-II	1	CSE2301, CSE2302, CSE3103, CSE2200
	CSE3205 & CSE3206	Computer Networks & Lab	3+1	
	GED 2248	Industrial Management (GED 6)	3	Mandatory for CSE GED Tier 2
		Total Credits	**15**	

Term – 9	CSEXXXX	Major Elective 1	3	
	CSE3301	Cyber Security	3	CSE2305, CSE2306, CSE3205, CSE3206
		Optional/Minor 1	3	
	CSE4098A	Capstone Project 1	1	
		Total Credits	**10**	
Term – 10	CSEXXXX & CSEXXXX	Major Elective 2 + Lab	3+1	
	CSEXXXX	Major Elective 3	3	
		Optional/Minor 2	3	
	CSE4098B	Capstone Project 2	1	
		Total Credits	**11**	
Term – 11	CSEXXXX	Major Elective 4	3	
		Optional/Minor 3	3	
	CSE4098C	Capstone Project 3	2	
		Total Credits	**8**	
Term – 12	CSE4099	Internship / Thesis	1	
		Total Credits	**1**	

CSE Concentration Group

The students will choose a concentration group consisting of four elective courses.

I. Computational Theory Group

Course Code	Course Title	Credits
CSE4401	Computer Graphics	3
CSE4402	Computer Graphics Lab	1
CSE4403	Advanced Algorithm	3
CSE4405	Compiler Design	3
CSE4406	Compiler Design Lab	1
CSE4407	Basic Graph Theory	3
CSE4409	Mathematical Analysis for Computer Science	3
CSE4411	Computational Geometry	3
CSE4413	Topics of Current Interest	3

II: Network and Communications Group

Course Code	Course Title	Credits
CSE4415	Data Communication	3
CSE4416	Data Communication Lab	1
CSE4417	Internet of Things	3
CSE4418	Internet of Things Lab	1
CSE4419	Network Security	3
CSE4420	Network Security Lab	1
CSE4421	Wireless and Cellular Communication	3
CSE4423	Digital Signal Processing	3
CSE4425	Advanced Network Services and Management	3
CSE4427	Topics of Current Interest	3

III: Security Group

Course Code	Course Title	Credits
CSE4419	Network Security	3
CSE4420	Network Security Lab	1
CSE4429	Software Security	3
CSE4430	Software Security Lab	1
CSE4431	Blockchain	3
CSE4433	Cryptography	3
CSE4435	ICT Law, Policy, and Ethics	3
CSE4437	Digital Forensics and Incident Response	3
CSE4439	Topics of Current Interest	3

IV: Computer Systems Group

Course Code	Course Title	Credits
CSE4441	Real-time Embedded Systems	3
CSE4442	Real-time Embedded Systems Lab	1
CSE4443	Distributed Systems	3
CSE4445	Simulation and Modeling	3
CSE4446	Simulation and Modeling Lab	1
CSE4447	Introduction to Robotics	3
CSE4449	Cloud Computing	3
CSE4451	Advanced Database Management Systems	3
CSE4453	Topics of Current Interest	3

V: Data Science Group

Course Code	Course Title	Credits
CSE4455	Data Mining	3
CSE4457	Data Science	3
CSE4458	Data Science Lab	1
CSE4459	Big Data Analytics	3
CSE4460	Big Data Analytics Lab	1
CSE4461	Digital Image Processing	3
CSE4462	Digital Image Processing Lab	1
CSE4463	Introduction to Bioinformatics	3
CSE4465	Natural Language Processing	3
CSE4467	Topics of Current Interest	3

VI: Software Engineering Group

Course Code	Course Title	Credits
CSE4469	Software Requirements Specification and Analysis	3
CSE4471	Design Patterns	3
CSE4473	Software Testing and Quality Assurance	3
CSE4474	Software Testing and Quality Assurance Lab	1
CSE4475	Mobile Application Development	3
CSE4477	Advanced Programming	3
CSE4478	Advanced Programming Lab	1
CSE4479	Human Computer Interaction	3
CSE4481	Topics of Current Interest	3

VII: Information and Communication Technology Group

Course Code	Course Title	Credits
CSE4483	Enterprise Systems: Concepts and Practice	3
CSE4484	Enterprise Systems: Concepts and Practice Lab	1
CSE4485	Electronic Business	3
CSE4473	Software Testing and Quality Assurance	3
CSE4474	Software Testing and Quality Assurance Lab	1
CSE4475	Mobile Application Development	3
CSE4487	UI: Concepts and Design	3
CSE4489	IT Audit: Concepts and Practice	3
CSE4449	Cloud Computing	3
CSE4491	ICT for Development	3
CSE4493	Topics of Current Interest	3

Faculty Profile

Professor M. Mofazzal Hossain, PhD, SMIEEE
Education: PhD in Electrical and Electronic Engineering, Kanazawa University, Japan
Position: Professor and Dean of the School of Science and Engineering and Head of the Department of Electrical and Electronic Engineering
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 lecturer 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 82 articles in international conferences and peer reviewed journal.

Professor Muhammad Golam Kibria, PhD, SMIEEE
Education: PhD in Computer and Information Communication Engineering, Hankuk University of Foreign Studies, South Korea.
Position: Professor and Head (Acting), Department of Computer Science and Engineering
Research Interest: Internet of Things (IoT)

Short Biography: Professor Dr. Muhammad Golam Kibria has more than 19 years of academic, research and industry experiences. He achieved PhD in 2018 in South Korea and MSc in 2008 in the United Kingdom. His research interest includes Internet of Things (IoT). He has numerous internationally peer-reviewed indexed articles, contributed to several projects including Erasmus+, and standardization works at the International Telecommunication Union (ITU-T) under the United Nations (UN). He attended several international conferences in Austria, Japan, Singapore, South Korea, Vietnam, and Bangladesh. Prof. Kibria is an enlisted BAETE, IEB Program Evaluation Team Member. He is a senior member of IEEE, USA.

T. M. Abul Kalam Azad, PhD
Education: PhD in Mathematics (Jahangirnagar University, Bangladesh)
Position: Associate Professor
Research Interest: Computational Fluid Dynamics
Short Biography: Dr. T. M. Abul Kalam Azad received a PhD degree on Applied Mathematics from the Department of Mathematics, JU. His research interest is Computational Fluid Dynamics and research work concentrated on the study of the pollutant behavior in the fluid media. He has more than 25 years teaching experience at home and abroad. He has published several papers in peer-reviewed international and national journals. He is a life member of Bangladesh Mathematical Society.

Nafees Mansoor, PhD, SMIEEE

Education: PhD (Universiti Teknologi Malaysia, Malaysia)
Position: Associate Professor
Research Interest: Wireless Communications, Ubiquitous Networks, Blockchain, Graph Theory
Short Biography: Dr. Nafees Mansoor is a dedicated researcher specializing in Communication Systems and Networks. He obtained his PhD from Universiti Teknologi Malaysia (UTM) in 2016, focusing on cognitive radio networks and next-generation systems. With a passion for excellence, his research has received multiple Best Paper Awards at prestigious conferences. Dr. Mansoor actively serves as a reviewer for renowned conferences and journals, ensuring the quality of research contributions. Additionally, he holds the role of Associate Editor for IEEE Access Journal, contributing to the advancement of scholarly publications in the field.

Mohammad Ashikur Rahman, PhD

Education: PhD in CSE (International Islamic University Malaysia, Malaysia)
Position: Assistant Professor and Course Coordinator of the Department of Computer Science and Engineering
Research Interest: Machine Learning, Wireless Sensor Network, Data Analytics
Short Biography: Dr. Mohammed Ashikur Rahman has joined University of Liberal Arts Bangladesh (ULAB) as Assistant Professor in the Department of Computer Science and Engineering. The area of his research is Machine Learning that is, developing a predicting model using simplified Multilayer Perceptron Network in particular. In addition to that he is also doing research in the area of Internet of Things and explainable Artificial Intelligence.

Shohag Barman, PhD

Education: PhD in Computer Engineering (University of Ulsan, South Korea)
Position: Assistant Professor
Research Interest: Bioinformatics and Computational Biology
Short Biography: Dr. Shohag Barman obtained BS in Computer Science and Engineering from the University of Chittagong, Bangladesh, and obtained PhD in Computer Engineering from the University of Ulsan, South Korea on August 16, 2019. He also worked as a postdoc at SciLifeLab, Stockholm University, Sweden. His research interests lie in Bioinformatics and Computational Biology. Before joining ULAB, he served as an Assistant Professor for three years and a half in the Department of Computer Science at American International University, Bangladesh (AIUB), Dhaka, Bangladesh.

Bijan Paul

Education: MSc in CSE (Shahjalal University of Science and Technology, Bangladesh)

Position: Senior Lecturer

Research Interest: Software Engineering, Machine Learning, Vehicular Adhoc Network

Short Biography: Bijan Paul has over 8 years of teaching and research experience, within both academia and industry. Moreover, he has served as a consultant in multinational companies. He was awarded for Mongol Dip (A Bilingual Screen Reading Software for Visually Impaired People) from the Govt. of the People's Republic of Bangladesh. His research interest includes Software Engineering, Human-Computer Interaction, Internet of Things, Vehicular Adhoc Network and Wireless Sensor Network.

Khan Raqib Mahmud

Education: MSc in Computer Simulation (KTH Royal Institute of Technology, Sweden)

Position: Senior Lecturer

Research Interest: Image Analysis and Computer Vision, Machine Learning, Computer Simulation and Modeling

Short Biography: Mr. Khan Raqib Mahmud completed his B.Sc. (Honors) and M.Sc. in Mathematics from Shah Jalal University of Science and Technology, Bangladesh. After that, he went to the University of Erlangen, Germany, and KTH, Sweden for his second Master's degree in Computer Simulation for Science and Engineering. His areas of interest are Computer Vision and Image Analysis, Human-Computer Interaction, Artificial Intelligence, and Machine Learning.

Niaz Ashraf Khan

Education: MS in CSE (North South University, Bangladesh)

Position: Lecturer

Research Interest: Machine Learning, Image Processing, Computer Vision & Natural Language Processing

Short Biography: Niaz Ashraf Khan is serving as a Lecturer for the Department of Computer Science and Engineering at University of Liberal Arts Bangladesh. He has completed his Bachelor's and Master's from North South University (NSU). He also worked as a Full-time Lecturer at Northern University Bangladesh from January, 2019 to September, 2021. His research interests lie in Machine Learning, Data Science, Computer Vision and Image Processing.
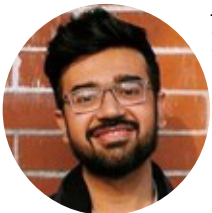
Ahmed Al Hasan

Education: MS in Mathematics (University of Dhaka, Bangladesh)
Position: Lecturer
Research Interest: Option Pricing, Stochastic Differential Equation, Financial Mathematics, Operations Research, MHD Conjugate Natural Convection

Short Biography: Ahmed Al Hasan has recently joined University of Liberal Arts Bangladesh (ULAB) as Lecturer in the Department of Computer Science and Engineering. He did his MS (Thesis) & BS in Mathematics from University of Dhaka. Having started his teaching career from Uttara University in 2019, he later joined Southeast University, Dhaka, and he worked for approximately 2.5 years there. His research work concentrated on the study of the Numerical Simulation of Stochastic Differential Equation and its Implementation in Financial Models. Apart from teaching, he enjoys music, cinema, sports and traveling.

Rubaiya Hafiz, MIEEE

Education: MSc in CSE (Jahangirnagar University, Bangladesh)
Position: Lecturer
Research Interest: Computer Vision, Machine Learning, Digital Image processing, Medical Imaging
Short Biography: Rubaiya Hafiz has more than five years of academic experience. She joined ULAB in July, 2022. Her research interests include computer vision, machine learning, digital image processing, and medical imaging. Her educational degrees include a Bachelor's and a Master's degrees in Computer Science & Engineering from Jahangirnagar University. She has several publications in renowned national and international journals and conferences.

Suravi Akhter

Education: MSc in Software Engineering (IIT, University of Dhaka, Bangladesh)
Position: Lecturer
Research Interest: Machine Learning, Deep Learning, Natural Language Processing

Short Biography: Suravi Akhter has recently joined University of Liberal Arts Bangladesh as a Lecturer in the Department of Computer Science and Engineering She completed B.Sc. in Software Engineering from the Institute of Information Technology, University of Dhaka, Bangladesh, in 2019 and M.Sc. in Software Engineering from the same institution, in 2021 (held in 2022). Before joining the University of Liberal Arts (ULAB), She worked as an adjunct lecturer in the Department of Computer Science and Engineering at the Ahsanullah University of Science and Technology. Her research interests include Machine Learning, Data Science and Natural Language Processing.

Md. Ferdous Bin Hafiz

Education: MSc in IT (Charles Sturt University, Australia)
Position: Lecturer
Research Interest: Data Science, Cyber Security and Machine Learning,
Short Biography: Md. Ferdous Bin Hafiz has recently joined University of Liberal Arts Bangladesh as a Lecturer in the Department of Computer Science and Engineering. He completed his BSc. in Computer Science and Information Technology from Islamic University of Technology (IUT), Bangladesh. He obtained Master of Information Technology degree from Charles Sturt University, Australia. He has worked as a full-time lecturer for almost four years (two years at Northern University Bangladesh, one year and eight months in East Delta University, Chattogram). His research interests lie in the area of data science, machine learning and cyber security.

Md. Asadujjaman Milon

Education: MSc in Computer Science (Jahangirnagar University, Bangladesh)
Position: Lecturer
Research Interest: Artificial Intelligence, Machine Learning, Natural Language Processing
Short Biography: Md. Asadujjaman Milon joined ULAB in May, 2023.
His research interests include Artificial Intelligence, Machine Learning and Natural Language Processing. He holds a Bachelor's degree in CSE from Ahsanullah University of Science and Technology as well as a Master's degree in CS from Jahangirnagar University. Previously, He worked as a full-time Lecturer at Northern University Bangladesh.

Lab Facilities

The Computer Science and Engineering (CSE) department of the university boasts state-of-the-art laboratory facilities that provide students with a hands-on learning experience. Equipped with the latest hardware and software, the labs offer students access to a wide range of technologies including networking, artificial intelligence, and data analytics. The CSE department has multiple specialized labs including a Competitive Programming lab, a Natural Language Processing (NLP) lab, and a Robotics lab. These labs provide students with the opportunity to conduct research, test theories, and develop innovative solutions to real-world problems. Additionally, the CSE department regularly updates its lab facilities to keep pace with the latest technological advancements, ensuring that students are exposed to cutting-edge technologies and stay up-to-date with the ever-evolving field of computer science and engineering.

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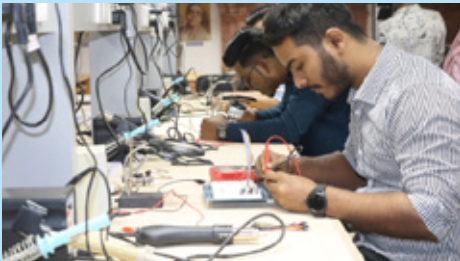
As part of the World Bank Project, IoT Lab has been installed at ULAB at a cost of around BDT 4 Crore and implemented by Bangladesh Hi-Tech Park Authority of ICT Division. ULAB is the first private university in Bangladesh where this kind of specialized Lab has been implemented. The lab is well furnished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

CSE Research Lab

There are two dedicated research labs with highly configured PCs. Research students have flexible access to these labs. Microcontroller instruments such as Raspberry pi, Arduino and others are available for student projects. All required and up to date software is installed for research.

Electrical and Electronic Circuit Lab

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

Physics Lab

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

Natural Language Processing (NLP) Lab

NLP lab provides state-of-the-art facilities to the students so that they can research on the diverse area of Natural Language Processing. The lab is well-equipped with top-end CPUs and GPUs as required to provide heavy computational support in their research.

Competitive Programming Lab

Competitive Programming lab serves the requirements of the students who are interested in the competitive programming culture. This lab is also well-equipped with high-end CPUs and GPUs as required. Students can use the lab in their free time to practice intense coding.

Communication Lab

The communication lab has an excellent collection of training kits and modules to analog and digital communication. The lab also has the necessary tools for providing technical knowledge on mobile phone technology.

Computer Simulation and VLSI Lab

The lab provides computers equipped with industry-level electrical and electronics circuit 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.

Machine Learning Lab

Machine Learning lab provides state-of-the-art tech support to the students and faculties of the department to help them to research in the field of Machine Learning and Data Science. The lab serves the necessity of heavy computational support of the students. The students and the faculties of the department conducted some impactful research projects with the help of the Machine Learning lab.

Microprocessor and Microcontroller Lab

The Microprocessor & Microcontroller Lab has various interfacing equipment to facilitate the experiments exhibiting computer control over industrial processes. It has a range of microprocessor trainer kits and trainer boards with software including data input simulator and terminal.

Digital Systems Lab

The Digital Systems Lab exposes the students to basic digital circuits 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 focuses of this lab is to connect the theoretical background taught in the 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.

Library

ULAB library is located in the Permanent Campus at Mohammadpur.

Opening Hours

The Central Library opening hour is from 8:30 AM to 9:30 PM. The Library remains open 13 hours (on average) every day.

Resources

The ULAB Library is enriched with various types of resources that include textbooks, reference books, e-books, national and international journals (print and online), magazines (print and online), reports, newspapers (national and international), audio -visual materials and maps and atlases. ULAB Library is a member of a variety of online archives such as JSTOR (Business Collections and Language and Literature Collections), AMIC (Asian Media Information and Communication Center), ICA (International Communication Association), Chronicle of Higher Education, CEP Online (Country Education Profiles Online), The New Yorker, Business Week, IAMCR international Association for Media and Communication Research), Harvard Business Review (HBR), South Asia Journal (SAJ), Global Alliance for Public Relations and Communication Management (GAPRCM), World Bank E-Library, Intellect Journal, AGORA, HINARI, OARE, Ecch (Cases Archive), Journal of Bangladesh Studies (JBS), Oxford Open Access Journals, Journals of Public Relations, Directory of Open Access Journals, Eifl.net (Electronic Information for Library Users), Bangladesh Journals Online. Online Public Access Catalog (OPAC) The ULAB Library maintains databases of library holdings. Users can easily find resources with the help of OPAC (Online Public Access Catalog).

Industry Academia Collaboration

The CSE department at ULAB fosters a strong industry-academia collaboration to enhance the practical knowledge and employability of its students. One of the notable initiatives is the capstone project, where students are encouraged to work on real-life industry projects in collaboration with renowned industry partners. The department also organizes industry visits, career/job placement fairs, and project showcasing events to provide students with exposure to the industry and networking opportunities. Additionally, industry funding for student projects and internship opportunities in renowned industry companies are also available. The department of CSE has an Industry Advisory Panel (IAP), a group of employers from public and renowned leading technology-oriented companies in Bangladesh. The panel members include Mr. Ratan-Hasan Rahman, Managing Director of Datasoft Manufacturing and Assembling Inc. Ltd, Mr. Syed Almas Kabir, CEO of MetroNet Bangladesh Ltd., Yoriko Ueda, Founder, CEO of Venturas Ltd. in Japan, etc.

Co-Curricular and Extra Curricular Activities

CSE Hackathon

The CSE Hackathon is one of the most anticipated regular events organized by the CSE department. Engineering students enthusiastically participate and showcase various projects on Machine Learning, Blockchain, Robotics, IoT, and other technologies. The winners are awarded Crests and Certificates at the Prize Giving Ceremony.

Math Olympiad

CSE department places great emphasis on encouraging students to develop their mathematical abilities by organizing Math Olympiads and Workshops on a regular basis. To celebrate the International Day of Mathematics (March 14), CSE department organizes

Math Olympiads regularly. Students participated with enthusiasm, and winners are awarded crests while all participants receive certificates.

Programming Contest

Every trimester, the CSE department organizes programming contests to improve students' problem-solving abilities and enhance their critical thinking skills. Students participate in the contests with great enthusiasm. The top three contestants are awarded crests during the prize-giving ceremony.

ITEE Training Program

To create global work opportunities for computer science and engineering graduates, a national level Information Technology Engineers Examination (ITEE) is conducted by IPA, Japan. ITEE certified engineers will get work permit in China, Japan, Korea and many more Asian countries. To increase the pass rate in ITEE exam and uphold the image of ULAB CSE graduates, CSE department of ULAB and Bangladesh computer council (BCC) organize a training program.

Seminar on 'Research Opportunities at University of Malay'

The Department of CSE organized a seminar on higher studies at the University of Malaya (UM). Prof. Dr. Hendrik Simon Cornelis Metselaar, Dr. Zati Hakim Azizul Hasan, Ms. Tuty Haryati Kassim and Muhammad Irsyad Bin Zainiwere from UM conducted the seminar. Prof. Hendrik, in his speech, focused on several research opportunities, faculty and student exchange program, Master's and PhD opportunities at the UM. Students of the CSE department were very keen to attend the session. The CSE department organizes these sorts of events in a frequent manner.

Seminar on 'Intelligent Virtual Agents for Education, Training, and Health'

The School of Science and Engineering at ULAB organized a talk on "Intelligent Virtual Agents for Education, Training, and Health" featuring Professor Deborah Richards from Professor, School of Computing, Macquarie University, Australia. Following this event, there was another talk on "Road to Research Success: Publishing in Q1 Journals" by Dr. Nazmul Huda from the same university. The speakers discussed potential research collaborations and opportunities for post-graduation at Macquarie University.

Seminar on 'IT career opportunities in Japan'

CSE department organized an informative seminar entitled "IT Careers Opportunities in Japan". Yoriko Ueda, the CEO and founder of VENTURAS LTD, who has been running an HR and education institute specializing in IT professionals in Bangladesh since 2015, conducted the seminar. In 2019, VENTURAS has successfully placed eleven ULAB-CSE graduates in various Japanese companies.

Sports and Recreational Facilities

The CSE department at ULAB promotes sports and physical activities alongside academic excellence, organizing various sports events throughout the year and providing a well-equipped gymnasium and sports ground for students. The department encourages participation in inter-university sports competitions and promotes gender equality in sports to create a healthy and balanced environment that fosters the holistic development of its students.

CSE Annual Sports

CSE department organizes an annual sports event where students, alumni and faculty members of the department participate in various indoor and outdoor events including Cricket, Football, Badminton, Table Tennis, etc. Medals and trophies are awarded to the winners at the prize giving ceremony.

CSE Vs EEE Friendly Cricket Match

A friendly cricket match between CSE students and EEE students was held at the ULAB playground. The CSE team won the 14 overs match and lifted the trophy.

Outdoor games and sports facilities

ULAB is the private university in Bangladesh, that has a tournament-standard playground, located in Ramchandrapur (Mohammadpur), Dhaka. Every year since 2006, ULAB has hosted the Fair Play Cup – a T-20 cricket tournament, in which other private universities have participated. The cricketers have also played against Indian and Pakistani cricket teams. An annual inter-university football match is also held on the playground.

Indoor games and recreational facilities

Indoor facilities are available for a variety of games including table tennis, carom, and chess.

Student clubs and activities

The mainstay of co-curricular life at the university is its clubs. The clubs maintain regular weekly activities to enhance skills and learning, including educational field trips, workshops, seminars, games, concerts, intra- and inter-university competitions or tournaments, etc. The Co-Curricular Office will organize all-club activities, such as Club Days, BoishakhiMelas, etc. Clubs vary from term-to-term.

Official ULAB clubs:

- **ULAB Computer Programming Club:** UCPC is a club of IT-savvy ULABians. It hopes to be a club, where students interested about technologies can share their knowledge and benefit from each other by collaboration. UCPC is also keen to provide a platform for developing leadership skills. UCPC arranges various workshops, training sessions, and seminars based on digital technology. Those workshops and seminars focus on new technologies and their impacts. These activities hopefully make its members smarter and enable them to remain updated and prepare them for future responsibilities. UCPC organizes programming contests, gaming contests, math Olympiad; participate in cultural programs like club day.

- **Debating Club:** The activity of this club aims to enhance the intellectual capacity of the club members through making them gather information, develop better understanding of the society and civilization; exchange organized views in personal and collective levels in the modes of public speaking, dialogues and debates of various formats. The club will train up the members to improve their faculties of logical thinking and critical reasoning as well as to sharpen the skills of presentation and communication.

- **Electronics Club:** The mission of the club is to bring the students out of their rooms and to expose them to the challenges awaiting them in the field of circuit design and hardware analysis. We not only aim at providing you with the basic knowledge of electronics but also help you to use the basic concepts to come up with something constructive and useful for the society. With this aim, we conduct lecture series, workshops and also assign projects to students.

- **Field Sports Club:** The main activities of the Field Sports Club are to field football and cricket teams, as well as women's sports teams, conduct coach-supervised practice, and hold intra- and inter-university sporting events at the university's sports ground in Ramchandrapur, Mohammadpur. Other activities include participation in local and international tournaments. Duties include promoting health and sports on campus, maintaining good relationships with other sports teams, overseeing field and equipment maintenance, scheduling, publicity, and fundraising. ULAB Field Sports Club hosts the annual ULAB Fair Play Cup Inter-Private University Cricket Tournament. The objective of the ULAB Fair Play Cup is to establish good relations among private universities and to create an atmosphere of enjoyment and fairness in competition.

- **Indoor Games Club:** Indoor Games Club continuously improves and coordinates the state of all types of indoor games at ULAB: Table Tennis, Carom, Ludo, Chess, Checkers, Computer Gaming, Basketball, Volleyball, Badminton, Uno, Monopoly, Skipping, Indoor Football, Indoor Cricket, etc.

- **Adventure Club:** This club provides a platform for ULAB communities to get together and engage themselves with challenging activities which will help them to 30 know about tourism status of Bangladesh and instill skills among themselves for their personal and professional life.

- **Art Club:** ULAB Art Club will arrange art workshops, art talks/seminars, creative works such as Alpana during 21 February or PohelaBoishakh, Art exhibitions at ULAB and/or out of ULAB premises, as well as arrange inter-University art exhibitions/competitions and invite famous artists at ULAB during events.

- **Business Club:** This club provides a platform for business communities and professionals to get together and to provide support and guidance to ULAB students in various aspects related to studying, grooming and doing business in Bangladesh.

- **Film Club:** ULAB Film Club is devoted to developing a true cinematic culture at the university premise. It provides a platform to the ULABians to learn how to understand film and sometimes the crafts of filmmaking. It also provides students an opportunity to exhibit their own film. UFC seeks to promote dialogue between/among the film practitioners and scholars. UFC organizes regular screening (weekly), film festival & competition, seminars and workshops. Through these activities the club hopes that it can instill a sense of cinematic culture into the mind of the ULABians.

- **The Media Club:** The ULAB Media Club is an organization where students who are interested in mass media can experience and learn about the fascinating world of media. A ULAB Media Club member gets the opportunities to become aware of and get involved with mass communication. The vision of ULAB Media Club is to stimulate student interest in mass media or mass communication. The mission of ULAB Media Club is to provide students with opportunities to develop their leadership skills and to foster a spirit of cooperation and unity among students, faculty, and others. Besides, there are other active clubs, such as, Nutrition Club, ShangkritiShangshad, Social Welfare club, and Theater Club.

Professional Clubs at ULAB:

- **IEEE ULAB Student Branch:** The IEEE ULAB Student Branch is a student-run organization affiliated with the Institute of Electrical and Electronics Engineers (IEEE), which is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity. The IEEE ULAB Student Branch aims to provide a platform for students to enhance their technical and professional skills through various activities, events, and programs related to electrical, electronics, and computer engineering. The branch organizes technical workshops, seminars,

hackathons, competitions, and other events to foster learning and skill development among its members. The IEEE ULAB Student Branch also encourages research and innovation among its members and provides opportunities for networking, collaboration, and professional development. The branch collaborates with industry professionals, academia, and other IEEE chapters to facilitate knowledge exchange and create real-world learning experiences for its members.

The IEEE ULAB Student Branch is committed to promoting diversity, inclusivity, and community engagement. It encourages participation from students of all disciplines, genders, and backgrounds, and aims to contribute positively to the local and global engineering community. Overall, the IEEE ULAB Student Branch serves as a vibrant platform for students to explore, learn, and grow in the field of electrical, electronics, and computer engineering, and fosters a culture of technical excellence, innovation, and professional development.

- **IEEE ULAB Computer Society student branch Chapter:** The IEEE ULAB Computer Society student branch Chapter is a student-run organization affiliated with the Institute of Electrical and Electronics Engineers (IEEE). The chapter aims to promote the advancement of computer science and engineering, as well as the professional development of its members.

  The chapter offers a variety of activities and events, such as technical talks, workshops, hackathons, and networking opportunities. It also provides a platform for students to share their ideas and collaborate on projects related to computer science and engineering.

- **IEEE ULAB Woman in Engineering (WIE)**: The IEEE ULAB Woman in Engineering (WIE) Affinity Group is a chapter of the Institute of Electrical and Electronics Engineers (IEEE) dedicated to promoting and empowering women in the field of engineering at the University of Liberal Arts Bangladesh (ULAB) and beyond. The IEEE ULAB WIE Affinity Group promotes initiatives to inspire young girls and women to pursue engineering and STEM fields. The group organizes outreach programs such as STEM workshops, coding competitions, etc to engage and encourage young girls to develop an interest in engineering and technology.

  The IEEE ULAB WIE Affinity Group is committed to promoting diversity and inclusivity in engineering and creating a supportive environment for women engineers to thrive. The group provides a platform for networking, professional development, and leadership opportunities, helping to empower women in engineering and foster positive change in the field.

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 (CSO) organizes internship orientation to disseminate detailed information on doing internship/ Capstone Project.

Usually, students arrange internship organizations of their own. However, CSE Department and ULAB CSO 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 IT and software companies, BTCL, Satellite Earth Station, Private Banks.

Job Placement

ULAB 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 job internships. Usually, most of the organizations offer confirmed opportunities to students due to the skills and dedication the ULAB students possess. However, if any student fails to join in a organization, he/she has been given guidance from ULAB CSO with the help of career fairs, corporate contacts and ULAB Alumni Association.

CSE Alumni in Academy and Industry

Scholarships and Financial Aids

Scholarships Policy for CSE Undergraduate Admission:

- 100% tuition scholarship for students with GPA 5.0 in SSC and HSC without 4th Subject
- 100% tuition scholarship for 5 A's in O-Level in one sitting and 2 A's in A-Level in one sitting
- 40% tuition scholarship for students with GPA 5.0 in SSC and HSC
- 40% additional tuition scholarship for siblings/spouse
- 40% additional tuition scholarship for ULAB/GEMCON employee ward/spouse
- Up to 20% additional tuition scholarship for English medium background students
- 20% tuition scholarship on average GPA 4.50-4.99 in SSC and HSC
- 15% tuition scholarship on average GPA 4.00-4.49 in SSC and HSC
- 10% tuition scholarship on average GPA 3.50-3.99 in SSC and HSC
- 10% additional tuition scholarship for female students

Other Scholarship Programs:

- To encourage the students for academic and non-academic achievements, ULAB provides different types of financial aid and scholarships. These scholarships and aid are managed centrally by the Office of the Registrar.
- ULAB offers three named scholarships which cover full tuition, and individual students are given a stipend of Tk. 2,000/- per month during the regular term.
- Tuition scholarships are based on semester performance and financial needs of the parent/guardian.
- Dean's Honor List.
- Vice-Chancellor's Honor List.
- Children of Freedom Fighters Scholarship.
- Students from Remote Areas Scholarship.
- Sportspersons performing at national or competitive level.
- Artists, performers, and musicians with proven abilities.

Minimum Qualification 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 an aggregate GPA of 6.00 in SSC and 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'Levels 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 a 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 the 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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