

AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH (AIUB)
Faculty of Engineering



INTERNSHIP AFFILIATION REPORT ON

A Comprehensive Analysis of (BPDB) Ghorashal power station, Power Generation, Maintenance and Working Principles.

An Internship Report Presented to the

DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING (EEE)

In Partial Fulfillment of the Requirements for the Degree

B.Sc. Electrical & Electronic Engineering (EEE)

Submitted By

Shilamoni Shaha Neir

20-43640-2

B.Sc. in Electrical & Electronic Engineering (EEE)

Supervised To

1. Prof. Dr. Mohammad Abdul Mannan (supervisor)

Associate Dean

Faculty of Engineering (AIUB)

2.Nafiz Ahmed Chisty (External supervisor)

Associate Professor & Head,

Department of EEE (AIUB)

Date of Submission: **29-09-24**

LETTER OF SUBMITTAL

29-09-24

To

Prof. Dr. Mohammad Abdul Mannan

Associate Dean,

Faculty of Engineering, (AIUB)

Subject: Letter of Submittal.

Dear Sir,

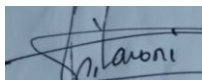
I extend my sincere regards as a student of the Electrical and Electronic Engineering (EEE) department at American International University Bangladesh (AIUB). Enclosed herewith is my report titled "A Comprehensive Analysis of Ghorashal power station, Maintenance, and Working Principles," submitted in fulfillment of the requirements for my undergraduate program.

The information presented in this study is the outcome of my visit and learning conducted at the Ghorashal power station. As an aspiring professional in the field, this report aims to provide a broad understanding of the Generation, Transmission, Distribution system, thermal diagram of 210 MW unit of GPS, Boiler, Types of turbine, Transformer coupled with fundamental technical insights into GPS. Additionally, it encompasses insights gained during my internship, covering aspects such as new and practical knowledge about Power system, Power generation, and the new technology

Undertaking an internship in Ghorashal power station has been an invaluable real-life experience for me. I would like to express my heartfelt gratitude to Course Director and Course Co-Ordinator and the entire team of engineers at GPS for their unwavering support throughout my internship.

I trust that the content of my report meets the required standards and proves satisfactory for your consideration.

Yours Sincere,



SHILAMONI SHAHA NEIR

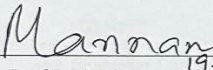
20-43640-2

Letter of Endorsement

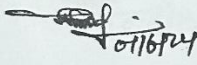
Letter of Endorsement

The Internship Affiliation Report entitled "*Analysis of Ghorashal power station, power generation, maintenance, working principle*", has been submitted to the **Ghorashal Training Center (GTC)** and Department of Electrical & Electronic Engineering (EEE), Faculty of Engineering (FE) in partial fulfillment of the requirements for the degree of **BSc. in Electrical & Electronic Engineering** by **Shilamoni Shaha Neir & 20-43640-2**. This report is presented to the Internship Committee for evaluation and has been accepted.

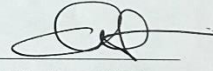
(Any opinions, suggestions made in this report are entirely that of the author of the report. The University does not condone nor reject any of these opinions or suggestions.)


19-9-24
Prof. Dr. Mohammad Abdul Mannan

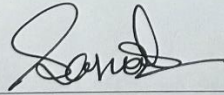
Supervisor (Academic)
Associate Dean
Faculty of Engineering
American International
University-Bangladesh


01/10/24
Engr. Mohammad Ali Firoz

Supervisor (Industry)
XEN
Ghorashal Training Center,
BPDB, Palash, Narsingdi


Nafiz Ahmed Chisty

External (Academic)
Associate Professor &
Head
Department of EEE
Faculty of Engineering
American International
University-Bangladesh



Dr. Md. Saniat Rahman Zishan
Director
Faculty of Engineering
American International University-Bangladesh

Acknowledgement

Firstly, I would like to express my sincere gratitude to GOD for giving me opportunity, ability and strength to complete this report on time.

My sincere gratitude is extended to my academic supervisor, Prof. Dr. Mohammad Abdul Mannan , **Associate Dean**, Faculty of Engineering, (American International University Bangladesh) and to my department for all his insightful recommendations, counsel, encouragement, and support during the report-writing process.

My external supervisor, Nafiz Ahmed Chisty, Associate Professor & Head, Department of Electrical & Electronic Engineering; Faculty of Engineering (American International University Bangladesh), is also someone I would want to thank for his advice and assistance during my internship. I express my gratitude to the Training & Development Center of GPS (Internship Committee) for furnishing American International University-Bangladesh interns with all the required paperwork and assistance before to, during, and following their internships.

Finally, I would like to thank everyone who has shared their views on my work, provided me with the necessary information and congratulate me. I cannot express in words how important their feedback for me in this report and how indebted I am to them.

Table of Contents

TOPICS	<i>Page no.</i>
I. Title Page	1
II. Letter of Submittal	2
III. Letter of Endorsement	3
IV. Acknowledgement	4
IV. Table of Content	5
V. List of Tables & Figures	6

1. Introduction	7
1.1. Organization Profile	7
1.2. Rationale for Internship	10
1.3. Objectives of Report	10
2. Organizational Endeavors	11
2.1. Organization Affiliations	11
2.2. Technical Information of Associated Department	12
2.3. Other Relevant Activities	13
3. Allocated Tasks	14
3.1. Intern's Assignment	14
3.2. Technological Attributes	15
3.3. Challenges Encountered	16
3.4. Norms of Engineering Practice	17
3.5. Etiquettes and Ethics while doing Internship	18

4. Acquired Knowledge	19
4.1. Technological Learnings	19
4.2. Professional Skills	20-23
5. Conclusion	24
5.1. Internship Review	
5.2. Impact on Career Planning	
5.3. University-Organizational Affiliation	24
5.4. Recommendations for Future Strategic Action	25
6.Recommendation Letter/Completion Certificate	26
7.References	27
8.Appendices	28-36

List of Tables & Figures

TITLES	Page no. Figure	Fig-01:
Logo of Organization	7	
Fig-02: Organogram of BPDB.	9	
Fig-03: Board of directors of BPDB.	9	
Fig-03: Steam Turbine at GPS	15	
Fig-04: GAS TURBINE	15	
Fig-05: Mechanical/Sand Filter	16	

1. INTRODUCTION

1.1 Organization Profile

Ghorashal Power Station (BPDB):

Ghorasal power station is an operating power station of 1385 -megawatts (MW) in Palash, Narsingdi, Dhaka, Bangladesh Ghorashal power station is called as power hub. Ghorashal power station (GPS) which is managed by Bangladesh Power Development Board. It is a thermal power plant.

The power station was established on 1974. It has total 7 unit. Unit 1, 2 and 6 are not working now.

Unit 3,4,5 7 are still running.



Fig-01: LOGO of BPDB

Vision:

The goal of the project was to enhance both the generation capacity and efficiency of the Ghorashal Power Station (GPS). The main activity involved converting one of the four 210 MW gas-fired steam units at the plant into a combined cycle unit, aiming for a total upgraded capacity of approximately 400 MW, with a tolerance of +/-10%.

Mission:

1. To increase efficiency and produced more power from a unit .
- 2.To ensure sustainable development and customer satisfaction by maintaining
- 3.To make electricity available to all citizens on demand within the geographical area

Structure of Ghorashal power station:

The Ghorasal Power Station, located in Palash, Narsingdi, Dhaka, Bangladesh, has an operational capacity of at least 1045 megawatts (MW) and comprises multiple units, though some of these units are not in use at the moment. It is also referred to as Ghorashal. Ghorasal Power Station has seen several upgrades over the years. A 55 MW unit was added in 1974, another in 1976, a 201 MW unit in 1989, and a 210 MW unit in 1999. In December 2015, the World Bank funded a US \$217 million project to upgrade one of the 210 MW units to a combined cycle unit, aiming to boost its capacity to around 400 MW and improve efficiency from 31% to 54%. This upgrade was expected to cut fuel use and emissions. General Electric was hired in September 2016 to supply gas turbines for this project. By 2018, a 365 MW unit was added, and in 2021-22, a 409 MW unit and a 260 MW unit came online. A new 225 MW unit is expected to start in 2025. However, the project faced delays, leading to an extra cost of Tk 4.39 billion (US \$46.3 million) by December 2019.

Corporate Motto:

Dependable Power – Delighted Customer.

Commitment:

- To be engaged in the implementation of government development activities in the electricity sector.
- To adopt modern technology and ensure the maximum use of primary and alternative fuels for the sustainable development of power generation projects.
- To purchase electricity from power-generating entities as a single buyer.
- To ensure reliable electricity supply to customers for socio-economic development.
- To foster team spirit, innovation, and work culture to tackle challenges.
- To encourage employees' ideas, talents, and values.

Core Objectives:

- For the customers:

Rendering reliable and uninterrupted power supply with customer care.

- For the owner and shareholders:

Financial sustainability of the Company.

- For the society:

Strengthening social values and undertaking corporate social responsibility.

- For the nation:

Taking an all-out effort to achieve national growth and economic prosperity.

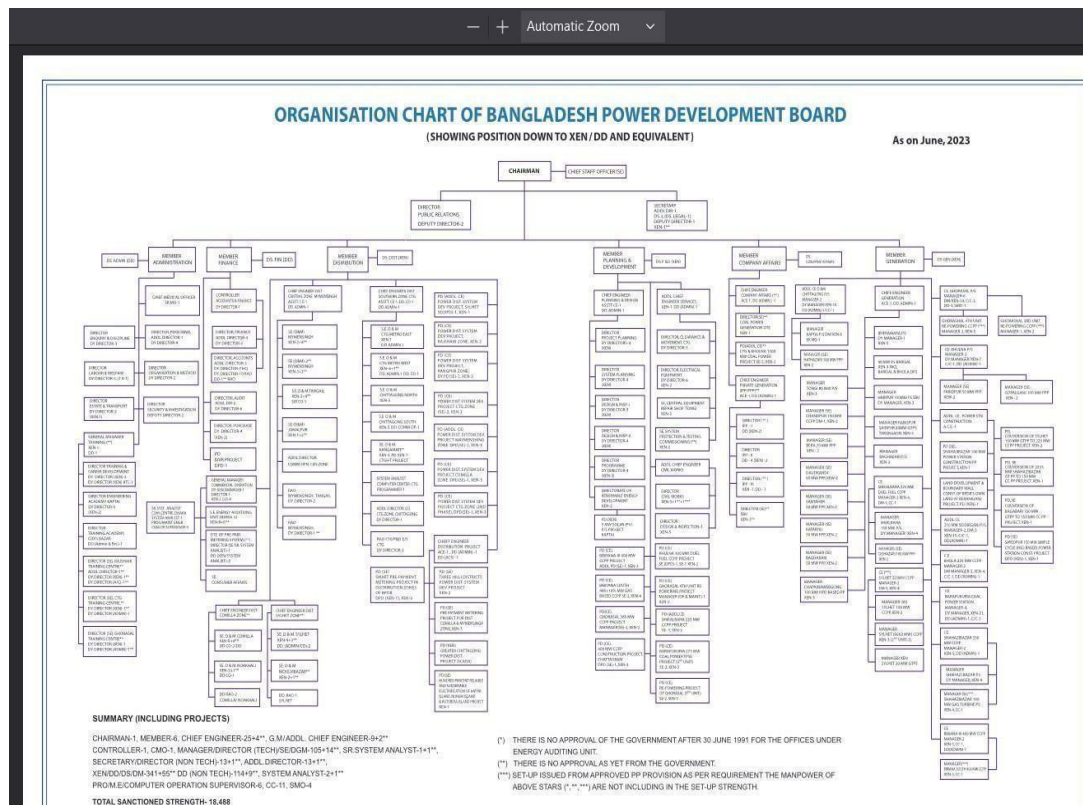


Fig-02: Organogram of BPDB.

চেয়ারম্যান ও বোর্ড সদস্যবৃন্দ

১		<p>নাম: মোঃ রেজাউল করিম</p> <p>পদবী: চেয়ারম্যান</p> <p>অফিস: চেয়ারম্যান দপ্তর, বিউবো, ঢাকা।</p> <p>ইমেইল: chairman@bpdb.gov.bd</p>	<p>Download Vcard</p> <p>ফোন (অফিস): ০২-২২৩৩৮২১৫৪</p> <p>মোবাইল: ০১৮১৯-২২৯৮০৩</p> <p>ফ্যাক্স: ০২-২২৩৩৮৪৭৬৫</p>
২		<p>নাম: অফনা খান মজলিশ</p> <p>পদবী: সদস্য, অর্থ (বুখসচিব)</p> <p>অফিস: সদস্য, অর্থ-এর দপ্তর, বিউবো, ঢাকা।</p> <p>ইমেইল: member.finance@bpdb.gov.bd</p>	<p>Download Vcard</p> <p>ফোন (অফিস): ০২-২২৩৩৮৪৩৭৪</p> <p>মোবাইল: ০১৮১৯-২২৯৮০০</p> <p>ফ্যাক্স: ০২-২২৩৩৮০৩৭৬</p>
৩		<p>নাম: শব্দকর মোকাম্মেল হোসেন</p> <p>পদবী: সদস্য, উৎপাদন</p> <p>অফিস: সদস্য, উৎপাদন-এর দপ্তর, বিউবো, ঢাকা।</p> <p>ইমেইল: member.generation@bpdb.gov.bd</p>	<p>Download Vcard</p> <p>ফোন (অফিস): ০২-২২৩৩৮৪৩৬৭</p> <p>মোবাইল: ০১৮১৯-২২৯৮০৪</p>
৪		<p>নাম: মোঃ শামসুল আলম</p> <p>পদবী: সদস্য, কোম্পানী এ্যাক্সেসার্স</p> <p>অফিস: সদস্য, কোম্পানী এ্যাক্সেসার্স এর দপ্তর, বিউবো, ঢাকা।</p>	<p>Download Vcard</p> <p>ফোন (অফিস): ০২-২২৩৩৮৪৩৬৮</p> <p>মোবাইল: ০১৮৪১-৫৫৭৫৫৭</p>

Fig-03: Board of directors of BPDB

1.2 Rational for Internship

Early on, there were several problems with Bangladesh's power sector. But as the country develops, Bangladesh's power industry is likewise seeing tremendous breakthroughs. An internship at Ghorashal Power Station offers a valuable opportunity to learn about the day-to-day operations of a major power plant. I gain hands-on experience in how electricity is generated, including the processes and technologies involved. This experience is crucial for understanding how theoretical concepts are applied in real-world scenarios.

Additionally, the internship provides insights into the safety measures and maintenance practices essential for running a power station efficiently. By working directly with experienced professionals, I developed practical skills and gain a deeper understanding of the power industry, which will be beneficial for my future career. It was for all these reasons that motivated me to finish my internship here.

1.3 Objectives of Report

The main aim of this internship is to gain practical knowledge and experience in power station operations. This report focuses on the power generation process, protection measures, and maintenance practices across different sections and control units at Ghorashal Power Station Company Ltd. Our objective is to deliver a thorough overview of Ghorashal Power Station Company Ltd. through this report. GPS provides internships and industrial training to undergraduate students. Together with references, the report discusses the programs and activities from the internship. The main objectives of this report are to talk about:

- Regarding the GPS's overarching concept.
- Regarding, generation, distribution, transmission transformers.
- Activities at substations.
- Technology education during an internship.
- Overall gain

2. ORGANIZATIONAL ENDEAVORS

2.1. Organization Affiliations

Ongoing Projects

Repowering is the process of replacing older power stations, or units at power stations, with newer ones that either have greater capacity or more efficiency, resulting in a net increase of power generated. Few ongoing projects Discuss below:

1. **Modernization of Power Generation Units:** Ghorashal Power Station is upgrading its existing power generation units to improve efficiency and reliability. This includes replacing outdated equipment, enhancing control systems, and incorporating advanced technologies to boost overall performance.
2. **Expansion of Generation Capacity:** To meet the growing energy demands, there are ongoing projects aimed at increasing the station's generation capacity. This involves the construction of new power units and the expansion of existing facilities to produce more electricity.
3. **Smart Grid Implementation:** The station is working on integrating smart grid technology to enhance the management and distribution of electricity. This project focuses on automating the grid, improving energy efficiency, and integrating renewable energy sources.
4. **Environmental Improvement Initiatives:** Ghorashal Power Station is undertaking projects to reduce its environmental impact. This includes installing systems for better emission control, improving waste management processes, and enhancing water treatment facilities.
5. **Upgrading Cooling Systems:** The station is modernizing its cooling systems to increase efficiency and reduce water consumption. This project aims to implement more advanced cooling technologies that are both environmentally friendly and cost-effective.
6. **Training and Development Programs:** Ongoing projects also include initiatives to enhance the skills and knowledge of the staff. This involves setting up new training programs, workshops,

and technical seminars to keep employees updated with the latest industry practices and technologies.

11 of 34

7. Infrastructure Enhancement: There are ongoing efforts to improve the overall infrastructure of the power station. This includes upgrading support facilities, enhancing safety measures, and maintaining the reliability of power distribution networks.

Target Source and People:

Bangladesh's urban areas are home to the people and provide the Ghorashal power station with the majority of its revenue. Such as the Bangladesh Ministry of Energy, for information on compliance and industry standards. The development and modernization of the metropolitan generation, distribution & transmission system is the primary objective.

2.2. Technical Information of Associated Department

The Ghorashal power station's(GPS) technical department is in charge of keeping an eye on the project's or the consumer's technical elements as well as the caliber of the technical equipment used. The project component and its design are under the technical department's supervision. This department collaborates closely with purchasing departments that are in charge of component acquisition. The system's design is then assessed by engineering professionalsThe actions of the technical department can be summed up as follows:

1.Generation Department: Manages the operation and maintenance of generators and turbines, focusing on fuel types and energy conversion.

2.Transmission and Distribution Department: Handles the transmission lines, substations, and transformers to ensure efficient power distribution.

3.Maintenance Department: Performs routine inspections, repairs, and maintenance of machinery to keep equipment in good condition.

4.Control and Instrumentation Department: Oversees control systems and instrumentation for monitoring and regulating operations.

5. Environmental and Safety Department: Ensures compliance with environmental regulations and implements safety protocols.

2.3. Other Relevant Activities

In addition to its ongoing planings , Ghorashal power station is also involved in a few other activities that are relevant to the power sector in Bangladesh. These activities include:

1.Community Engagement: The station often participates in local community programs and initiatives, providing support and education on energy conservation and sustainability.

2. Research and Development: Involves exploring new technologies and innovations to improve power generation efficiency and reduce environmental impact.

3.Emergency Response Drills: Regularly conducts drills and simulations to prepare staff for emergency situations, ensuring safety and preparedness.

4.Public Tours and Educational Programs: Offers tours and educational sessions to the public and students to raise awareness about power generation and the station's operations.

3. Allocated Tasks

3.1. Intern's Assignment

During this work, interns received a full explanation of the mechanisms behind the development of smart grids, boilers, combined cycle unit, steam and gas turbines , uninterruptible power supplies, smart control rooms and renewable energy. In addition to learning about how energy is generating from temperature, protections, attendees also learned about the government's participation in the market, pricing strategies, and industry structure. Funds collection, the anticipated financial model, and the accomplishment of customer service improvement training initiatives. The main duties of the interns include.

- To get a clear idea of Bangladesh's electricity industry.
- To learn about GPS and its operations.
- To learn about the task of a BPDB.
- To get a practical knowledge of load management.
- To learn about distribution transformers.
- To learn about and observe their overall operation of grid and distribution Sub-Station. •

Observe 210 MW unit

- Testing of the distribution transformer in the testing and repairing section.
- Learn about HT and LT meters. .
- To learn about the task of the Store.
- To learn about the task of Grid Substation and Substation.
- To learn about the transformer failure.
- To learn about the task of Planning and Design.
- To learn about the task of the meter testing lab.
- To learn about the solar.

3.2. Technological Attributes

During my internship, I learned various technical aspects in practical. Most of them were related to my course.

In this report, the new technical attributes were briefly described below.

Steam turbine power plant:

Ghorashal Power Station Company Ltd. (GPS) uses gas as fuel to produce heat. This heat is used to warm water and generate steam. The steam then flows through a turbine, which converts the thermal energy into mechanical energy. This mechanical energy is transferred to a generator rotor, which then converts it into electrical energy. GPS operates five steam turbine power plants at unit 7, with a total installed capacity of 578 MW.

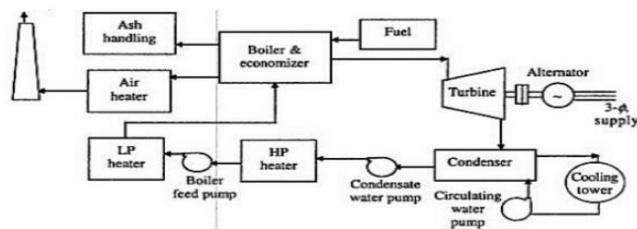


Fig-03: Steam Turbine at GPS

Gas Turbine power plant:

A gas turbine, also called a combustion turbine, is a type of internal combustion engine. • It has an upstream rotating compressor coupled to a downstream turbine, and a combustion chamber in between. • The gas turbine is the heart of the power plant.

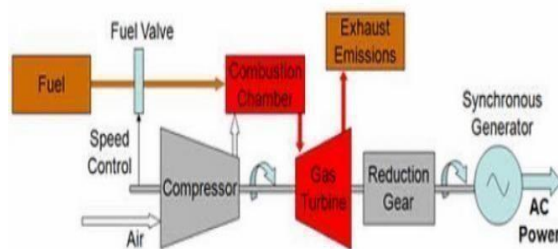


Fig-04: GAS TURBINE

Chemical Plant

Chemical Plant is that where water is chemically treated. The Clarifier or Rectifier is a device by which suspended matter of water is removed. The clarification process is pre-treatment of water. In clarifier the chemical process occur is known as coagulation.

Mechanical/Sand Filter is a device by which water is filtering by mechanical process. The filter contains anthracite or sandstone. When coagulated water passes through the filter than all the floating particle are adsorbing by the anthracite or sandstone. After mechanical/sand filter the water is very clear & transparent. The water is known as clarified water or filter water.



Fig-05: Mechanical/Sand Filter

3.3. Challenges Encountered

In my internship, Theoretical and practical knowledge have been found to differ significantly from one another. While at the substation, a great deal of equipment and its functioning outcomes were seen. A few of these were unidentified. Inside the testing and maintenance section, I discovered a wealth of fresh power generation related knowledge. Also witnessed were testing, assembly, and maintenance. While there, we ran across a few problems that needed to be resolved. Challenges are listed below:

- **Technical Complexity:** Understanding the complicated machinery and systems used to generate power was tough. It took a lot of effort to learn how everything works together.
- **Problem-Solving Under Pressure:** Sometimes, we had to fix problems quickly, which meant making fast decisions with not always complete information.

- **Adapting to Real-World Conditions:** Working in the power station was different from what we learned in school. It was challenging to adjust to the real-life situations and unexpected issues that came up.
- **Communication and Coordination:** With many teams working together, clear and timely communication was essential. Keeping everyone informed and working well together was sometimes difficult.
- **Strict Safety Protocols:** Safety was a big concern because of the potential dangers in the power station. Following all the safety rules carefully while doing our tasks was very important and sometimes challenging.
- **Handling Heavy Workloads:** Managing several tasks at once, like observing, reporting, and documenting, was demanding. It was important to stay organized and accurate despite the busy workload.

3.4. Norms of Engineering Practice

The field of engineering is important and heavily investigated. As members of our profession, engineers are expected to uphold the highest moral and ethical standards. Engineering has a significant and immediate impact on everyone's standard of living. As a result, engineers have a responsibility to operate in a way that promotes environmental preservation, security, and welfare while also being honorable, equitable, and equal. The highest ethical standards are outlined in a code of ethics that engineers must abide by. Since we are all engineers, it is imperative that we are all familiar with technology standards. This internship followed engineering standards to the letter.

3.4.1 Practical Engineering Problem

Solving technical problems is a key part of engineering. During my internship, I worked on various issues and learned a lot. One project we worked on was a smart grid system designed to provide electricity efficiently and safely. Smart grids use technology to manage and meet a community's energy needs, making the system more efficient by automating energy use and integrating renewable energy sources.

We had to look at where to place transformers to avoid damage and ensure they could be maintained. To prevent power outages and improve safety, we decided to bury the cables underground. All the work was done according to the guidelines set by Bangladesh's Ministry of Energy. My supervisor managed the training and project tasks, and it was a great experience working with the team. We also had meetings with the project manager to understand each

part of the installation. After showing us a completed project, our project manager gave us assignments to complete and submit for review.

3.4.2 Individual Responsibilities in Teamwork

During my internship, we were divided into six groups, and one group focused specifically on a GPS division. We spent 14 days at their training center, where I had my first chance to tour a substation. The tour was well-organized to help us understand the different roles and aspects of the facility. We also took pictures of various devices for reporting purposes. During a visit to the testing and maintenance department, we inspected a transformer and monitored the current draw during tests. We were assigned group tasks and had to give presentations based on our site visit.

Most tasks were completed successfully, with only a few needing the supervisor's assistance.

3.4.3 Individual Responsibilities based on norms of engineering practice in

Teamwork

We visited numerous substations and tested and fixed sections while we were interns. There were signs of electrical and fire hazards everywhere. Moreover, there is a chance of electric shock because all equipment is linked to high-voltage power cables. Standards of engineering practice to provide safe working conditions should be adhered to to prevent all hazards, including:

- Keep a safe distance from high-voltage power lines.
- Maintain proper insulation of equipment and wiring.
- Post and obey warning signs.
- Personal protective equipment is used properly.
- Avoid acoustic instruments to avoid accidents.
- Precautions during testing.

3.5. Etiquettes and Ethics while doing Internship.

Ethics play a crucial role in the workplace, and it's essential for everyone to live with integrity. Moral concerns are key to achieving success, and students must be prepared for the realities of the business world before starting an internship. Interns will likely face various challenges, but with proper preparation and the right mindset, they can build lasting professional relationships.

My internship marked the end of my academic journey and the beginning of my professional career. Throughout the internship, I focused on growing professionally while upholding strong ethical standards. The internship was conducted on-site, so the company's manager was often present. I made sure to be punctual and communicated any scheduling issues promptly. I dressed in a professional yet comfortable manner and showed respect and courtesy to my boss and colleagues. Additionally, I maintained confidentiality regarding organizational information and avoided unethical behavior.

4.ACQUIRED KNOWLEDGE

4.1. Technological Learnings

One goal of the internship is to come up with new ideas and apply what you've learned. In the lab, you might do small experiments that show what you've learned in university courses. However, real-world situations are quite different and need different approaches. This is why internships are important—they help you understand how things work in a real job setting. This part of the report explains what technical skills and knowledge were gained during the internship.

OBSERVATION:

During my internship, I mainly watched and learned about the technical issues the organization faced and thought of ways to fix them. I was also very interested in how the organization was set up and how it operated. As interns, we need to look at different factors like budget, revenue, how efficiently things are run, and creativity. Exploring these topics provided valuable insights that will be useful for my future work in engineering and my career overall

Mode of Operation:

The foundation of this complete industrial attachment training programmed is the ghorashal power station. Here we learned about the boiler, working principle of gas turbine & steam turbine, generation of power, transformer and the overall. Technical aspects included the operation of transformers, digital control rooms, , and sub stations. understanding the importance of each system component to functioning. We also get to know about the safety protections , DCS (Distributed control system), water treatment.

Hard Skills and Soft Skills:

Internships are the finest approach to acquire the hard and soft skills required for future career advancement. Hard talents are observable, measurable skills acquired through formal education, work-related training, or other experiences. Hard skills can be learned or acquired quite often. Conversely, soft skills are non-technical competencies that characterize an individual's communication style and interpersonal interactions. Unlike hard skills, they are not always taught in the classroom. Rather, they give us an opportunity to evaluate our work, communication, and work ethic.

4.2. Professional Skills

Professionalism plays a major role in job searching. Programmed for internships offer students a quick taste of the working world while assisting in the development of professional skills necessary for entry level employment. The report's section on professional talents is this one.

4.2.1. How to maintain hierarchy

A hierarchy is a system of authority and significance-based classification and organization. The understanding expressed orally or implicitly, of what or who is most important is called hierarchy. For any company, maintaining a hierarchy is essential. Hierarchies show the top positions at different levels in different business divisions. Expanding the organization under them at successive phases is limited to a small group of qualified and experienced executives. Officers and workers who are competent in every capacity are employed. Hierarchy is always upheld to guarantee that the intern receives the proper guidance and completes the internship successfully

4.2.2. Intern's interaction with his reporting manager and co-workers

I tried to stay in contact with my training supervisor during my internship. Everyone at work, including co-ordinator and the other engineers, was incredibly kind, modest, and at ease. The organization's supervisor was a fantastic mentor to me during my internship and always encouraged me to ask questions. He was delighted to assist me with any problems I encountered.

4.2.3. Presentations and assignments

Numerous units were visited during the internship. Each time we paid a visit, our supervisor gave us a fresh task to concentrate on so we could keep growing as professionals. After the trip, we had to give an executive summary of the site. We were then split up into groups and given a final viva and exam by our training coordinator.

4.2.4. Time management

Effective time management is essential to finishing any assignment successfully. Everyone kept to the reporting time during the internship and showed up at the appointed spot-on time.. There were also daily updates on the location and reporting time. It was essential for us to arrive on time because the internship programmed lasts for 14 days 9 to 5 and we get to visit all the sites in this tight schedule .

Effective time management allowed me to learn most of the content within this period.

4.2.5. Recognizing the need for professional skills

To progress in one's career, one must possess professional competence. An internship is a great way to advance your professional abilities. This report's section will discuss how interns honed their professional skills.

4.2.5.1. Motivation for Professional Development:

Everyone who wishes to progress in their career after securing a job needs to pursue professional improvement. It is essential for everyone to be up to date in order to compete for the job. Acquiring knowledge through training and continued practice makes it easier to get a promotion and to land a steady job within an organization. For everyone to advance in their career, they must fulfil certain obligations, like

—

- Ensuring equality in work performance.
- having good communication skills.
- Improving communication with coworkers.

4.2.5.2. Recognizing the need for professional skills:

An individual's professional career is greatly influenced by their professional skills. The success of the organization is highly correlated with the professionalism displayed by its staff. Among the professional skills are:

- How much expertise an individual has in their line of employment.
- The capacity to collaborate with others on any endeavor.
- Imagination and coming up with solutions to pressing issues at work.
- The worker's capacity for leadership.

4.2.6. Participation in professional societies and meetings

In order to conduct business, one needs to attend meetings and professional groups. Participating in corporate gatherings and associations can boost employee and company morale and productivity. An workplace where employees actively participate is psychologically stimulating.

4.2.6.1. Participation in Team Meetings:

The Ghorashal poer station (GPS) had an internship programmed on-site. Professors of EEE department they convened the first meeting on may 3, 2024, to talk about the range of learning opportunities at GPS. The official internship started on may 19, 2024, after that. During the programmed, there were daily theory discussions and site visits.

4.2.6.2. Participation in Professional Societies:

1.Participated a seminar titled, ‘Analog Circuit Design, Design Out of Passion’, organized by the Faculty of Engineering (FE) of American International University-Bangladesh (AIUB), conducted by Dr Anwarul Abedin Lecture Series, which was started at 3.00 PM on Wednesday, October 25, 2023, at the Auditorium, Building D, American International University-Bangladesh (AIUB).

2.Participated a seminar titled, “Making Future Engineers through Research & Industry Engagement,” organized by the Department of Industrial & Production Engineering (IPE), Faculty of Engineering, AIUB, conducted by the AIUB Community of Engineering Students (ACES), which was started at 11.00 AM on Thursday, August 10, 2023, at the Multipurpose Hall, Building-D, American International University-Bangladesh (AIUB).

3.Participated a seminar titled, “Progress and Stability Enhancement of Hybrid Perovskite Solar Cells: Opportunities and Challenges” organized by the Department of Electrical & Electronic Engineering

(EEE), Faculty of Engineering (FE), AIUB, conducted by the Engineering Students Association of Bangladesh (ESAB), which was started at 9.00 AM on Wednesday, August 9, 2023, at the Multipurpose Hall, Building-D, American International University-Bangladesh (AIUB). 5.

5.CONCLUSION

5.1. Internship Review

The trainee and development internship were successfully completed by the Ghorashal power station (GPS) in compliance with all regulations. I have a ton of real-world experience dealing with technology issues, workplace productivity, and interdisciplinary issues thanks to my internship. Throughout my undergraduate courses, I picked up a lot of technical skills that helped me with problem- solving and critical thinking. My internship allowed me to-

- Discover more about Bangladesh's power industry.
- Generation of electricity
- Improve professional abilities.
- Improving relationships with coworkers.
- A taste of a real-world scenario at work.
- The capacity to identify and address pressing issues.

5.2. Impact on Career Planning

Through an internship, a student can learn more about this field and make decisions about where and how to enter it. It also gives a flavor of what a formal office setting is like. I've learned a lot from my internship that will be useful to me later. This is what I now know:

- Adapt to a new setting.
- Develop your own abilities.
- Deal with awkward professional situations and adjust your work.
- Analyze and resolve pressing issues.
- How to pick and become ready for a job.

5.3. University-Organizational Affiliation


A successful partnership between a university and a company relies on mutual cooperation and enthusiasm. Both the university and the company benefit from internships. Students gain valuable academic and hands-on experience through their college studies, while businesses can provide practical, real-world training. If students perform well during their internships, companies may consider hiring them, as they have already proven their skills and knowledge.

AIUB, one of the top private universities in the country, offers excellent support for students in their academic, social, and personal development. However, not everything can be taught in a classroom. Thanks to the BPDB, I've been able to learn many practical skills. If AIUB students had the chance to intern at GPS, it would be a fantastic experience for them.

5.4. Recommendations for Future strategic actions

The internship was held in-person, but there were still many accessibility issues that made it challenging to get the full engineering experience. It was difficult to fully benefit from the internship and gain as much knowledge and experience as possible. If the internship had given complete access to all parts of the course, I could have learned much more and developed better professional skills. If I were to do it again, I would be more involved and choose a time when I had fewer other commitments. Also, I would like to learn more about how power calculations and load demands are managed, especially by observing the generator in action at the off

6. Internship Completion Form



American International University-Bangladesh
 Department of Electrical and Electronic Engineering (EEE) and
 Department of Computer Engineering (CoE)

INTERNSHIP COMPLETION FORM

Information of Student	
Student Name: <u>Shilamoni Shaha Neir</u>	Student ID: <u>20-42640-2</u>
Department: <u>EEE</u>	Date: _____
Name of Academic Supervisor: <u>Prof. Dr. Mohammad Abdul Mannan</u>	
Information Regarding the Company where you worked	
Name: <u>Ghorashal Training Center</u>	Contact Number: <u>01718780095</u>
Address: <u>Ghorashal, Palash, Narsingdi</u>	Email: <u>dir.gte@bapb.gov.bd</u>
Information Regarding the Professional Supervisor	
Name: <u>Engr. Mohammad Ali Firoz</u>	Contact Number: <u>01709641977</u>
Designation: <u>XEN</u>	Email: _____

CHECKLIST			
	Yes	No	N/A
Have you worked minimum 160 hours as Intern?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you collected the letter of recommendation on the letter head of the organization from your organization (professional) Supervisor? (Not Mandatory)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have your organization (professional) Supervisor returned the Supervisor feedback?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have you submitted the Internship Report to the academic Supervisor?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I hereby certify that the above statements are true and correct to the best of my knowledge. I also understand that a false statement may disqualify me from continuing this internship.

Shilamoni
Shilamoni Shaha Neir
 Name & Signature of the Intern

Checked by:
Mannan
 Academic Supervisor

Approved by:

 Internship Committee Member

Submit the completed and signed completion form with all the required documents to the academic Supervisor.

Results

- If all answers to the questions above are "yes" then you are ready to submit this checklist. Once you submit the checklist, the internship committee will verify all answers.
- If the verification is successful, you will receive a notification from a member of internship committee regarding the schedule of your Viva Voce.
- If any answer to any question is "n/a" then you are advised to contact any member of internship committee.
- If any answer to any question is No that means you are not allowed to submit this form yet. In that case, contact your academic Supervisor.

6. REFERENCES

- [1] <https://www.bpdb.gov.bd/>
- [2] https://web.archive.org/web/20220622091704/http://bpdb.gov.bd/bpdb_new/index.php/site/daily_generation_report. Archived from [the original](#) on 22 June 2022.
- [3] <https://web.archive.org/web/20221201061403/https://www.worldbank.org/en/news/loanscredits/2015/12/21/bangladesh-ghorashal-repowering-unit-4-project>. Archived from [the original](#) on 01 December 2022.
- [4] <https://www.google.com/maps/place/Ghorashal+Power+Station/@23.9809021,90.6359973,1444m/data=!3m1!1e3!4m5!3m4!1s0x37542d0a39b6cbe5:0xf0af8014e0cb2d15!8m2!3d23.>

APPENDCES














Internship Attendance sheet

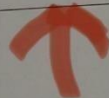
Ghorasal Training Center
BPDB, Palash, Narshingdi.

American International University of Bangladesh (AIUB)
এর "Industrial Training" কোর্সের প্রশিক্ষার্থীদের হাজিরা বিবরণীঃ

Date : 26/05/2024 Session : 1st & 2nd

Sl. No.	Name	University ID No.	Department	GTC ID NO	Signature
1.	Nazmus Sakib Nihal	20-44102-2	EEE		Nihal
2.	Simanta Saha	20-43652-2	EEE		Simanta
3.	Imran Ahamed Dipu	20-42660-1	EEE		Dipu
4.	Md. Mantaka Rahman	20-42533-1	EEE		Mantaka
5.	Md. Sakilur Rahman Roky	20-43846-2	EEE		Roky
6.	Naimur Rahman Nahid	20-43904-2	EEE		Nahid
7.	Rashadhul Hasan Joy	20-44199-2	EEE		Joy
8.	Sumon Hossain	20-43689-2	EEE		Sumon
9.	Md. Imtiaz Hossain Akash	19-39390-1	EEE		Akash
10.	Md. Obaidul Haque Nabil	18-38967-3	EEE		Nabil
11.	Sarker Nahid Shahrier	20-42334-1	EEE		Nahid
12.	Naimul Hasan Uday	20-43262-1	EEE		Uday
13.	Shahin Alam	20-44056-2	EEE		shahin
14.	Antu Das	20-44112-2	EEE		Antu
15.	Sajjam Hossain Safat	20-43653-2	EEE		Sajat
16.	Iftikhar Ahamed Ifti	20-44368-3	EEE		Ifti
17.	Mahabub Hassan Souad	20-44008-2	EEE		Souad

Sl. No.	Name	University ID No.	Department	GTC ID NO	Signature
18.	Tontu Saha	20-43762-2	EEE		
19.	Zayed Musfique	20-43754-2	EEE		
20.	Md. Minuddin	19-41603-3	EEE		
21.	Md. Sakibur Rahman Sowad	20-43756-2	EEE		
22.	Md. Sibgatullah Riduwan	21-44439-1	EEE		
23.	S. M. Faysal Mahmud	19-40315-1	EEE		
24.	Sheikh Mohammad Saif	20-43485-1	EEE		
25.	Murshida Rahman	20-43532-1	EEE		
26.	Mahmuda Akter Monalisa	19-40980-2	EEE		
27.	Md. Sazzad Bin Firoz	20-43811-2	EEE		
28.	Samia Rahman	20-43264-1	EEE		
29.	Nazmun Nahar Karima	20-42805-1	EEE		
30.	Shila Moni Shaha Neir	20-43640-2	EEE		



Signature

Approved Internship Commencement Form

FE/IN/03

	Marginal (1)	Below Average (2)	Average (3)	Very Good (4)	Outstanding (5)
Skills on modern engineering techniques and tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ability to identify, formulate, and solve engineering problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ability to manage task completion deadlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Dependability, attendance, and punctuality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Maintenance of confidentiality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Professionalism during communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Level of up-to-date theoretical and practical knowledge necessary for their work at the beginning of internship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Development of up-to-date theoretical and practical knowledge necessary during internship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Technological skills of the intern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Overall Performance as an intern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Please evaluate yourself for the following aspects of the internship on *individual responsibilities based on norms of engineering practice* by marking in the box of corresponding column according to the scale given.

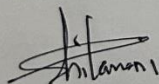
Maintenance of professional etiquette and followings of company rules and regulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Eagerness for solving practical engineering problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Maintenance of cultural values and social etiquettes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Dependability, attendance, and punctuality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Maintenance of individual responsibilities while doing team works	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Following the engineering ethics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Please evaluate yourself for the following aspects of the internship on *Recognizing the need for professional skills* by marking in the box of corresponding column according to the scale given.

Interests for learning new skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Motivation to remain updated in their professional career	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Please evaluate yourself for the following aspects of the internship on *Participation in professional societies and meetings* by marking in the box of corresponding column according to the scale given.

Participated in meeting with supervisor and team-meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Participated in professional societies or bodies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>



Name and Signature of the Intern

17-09-24
Date

Organizational Supervisor's Feedback



American International University-Bangladesh (AIUB)

Faculty of Engineering

Department of Electrical and Electronics Engineering (EEE)

Department of Computer Engineering (CoE) and

Department of Industrial & Production Engineering (IPE)



Feedback from the Supervisor (Organization)

Greetings from the Faculty of Engineering of American International University-Bangladesh (AIUB). We thank you for providing internship opportunity to our student named Shilamoni Shaha Neir ID... 20-42640-2. We request you to assess the performance of the intern by filling in this form.

Supervisor's Name	<u>Engr. Mohammad Ali Firoz</u>
Supervisor's Designation	<u>XEN</u>
Name of Organization	<u>Ghorashal Training Center</u>
Address	<u>Palash, Narasingdi</u>
Website	<u>www.bpdcb.gov.bd</u>
Contact Number	<u>01300641052</u>
Email	

Please evaluate the intern on the scale of 1 to 5. [1 represents the worst and 5 represents the best]

1. Did the intern follow general engineering practices (e.g. health and safety, punctuality, honesty) during the Internship period?	<u>4.8</u>
2. Was the intern an effective team member?	<u>4.3</u>
3. Mark the intern's overall performance.	<u>4.4</u>

Please write remarks and/or suggestions (if any) in the following space.

Respect your Parents, Not to be selfish,
stay healthy.

Name & Signature of the Supervisor

Engr. Mohammad Ali Firoz
ID No.-1-01663
Deputy Director (XEN)
Ghorashal Training Center
BPDB, Palash, Narasingdi

01/06/2024

Date

Self-Evaluation



American International University-Bangladesh (AIUB)
Faculty of Engineering
Department of Electrical and Electronics Engineering (EEE)
Department of Computer Engineering (CoE)
Department of Industrial & Production Engineering (IPE)

FE/IN/03



Self-Evaluation Form

Name	Shilamoni Shaha Neir
ID	20 - 42640 - 2
Department	EEE
Section	A1
Academic Supervisor	Prof. Dr. Mohammad Abdul Mannan
Organizational Supervisor	Engr. Mohammad Ali Firoz

Evaluate yourself for the following aspects of the internship by marking in the box of corresponding column according to the scale given.

A. Did you work for minimum 160 hours as an intern?

☒ Yes

☐ No



Shilamoni Shaha Neir

- House No: G-34, Sahapara, Joydebpur, Gazipur, Dhaka
- Present Address: 165/C, Road-7, Block-C, Bashundhara-R/A
- Contact: +8801329520869
- E-mail: niirsaha05@gmail.com

SKILLS:

- C
- C++
- MATLAB
- Simulink Software
- Microsoft Word
- Microsoft Powerpoint
- Basic Microsoft Excel
- Microsoft power point.
- AutoCAD 2D & 3D
- VLSI
- FMCW Radar analysis

LANGUAGES:

- Bangla
- English

HOBBIES:

- Reading
- Content Writing
- Making Handcrafts
- Travelling
- Trekking
- Designing
- Exploring new things

Career Objective: To work in any engineering or corporate company. I want to use my skills to help solve problems, contributing to impactful projects and work with different teams.

Educational Background:

B.Sc. in Electrical and Electronic Engineering (EEE)

- CGPA: 3.46
- Department of Electrical and Electronic Engineering.
- University: American International University Bangladesh (AIUB).

Publications:

- “Contactless Human Vital Sign Monitoring System Using Millimeter Wave FMCW Radar for Healthcare Applications” at 3rd IEEE ICBECEI.

Work Experience:

- Completed internship “Ghorashal Power Station”.
- Work as a host and Chief Operating officer at a Travel Agency “Bengal Trekkers”.
- Work at E-Tourism Association Of Bangladesh.

Leadership and Extra curriculum

Activities:

- Research Advocacy Lead at “ESAB AIUB Unit Face”.
(Since July 2023 to Present)
- Strategic Member at “ESAB AIUB Unit Face” (Former).
- volunteer at ICREST help in AIUB.
- Volunteer at Grameen shakti’s Event.
- Team Leader at Shoktikonna Wepower event held in Westin, Dhaka.

Awards:

- Dean award for best capstone project 2024.
- First runner up at project idea contest of ICCIT-2023.
- Winner at Science Fair at Lalmatia Mohila College 2019.

Training and Workshop:

- Industrial Automation and career guideline form Ulterior Engineering Intel.
- Professional training from “Ghorashal Training Center”(BPDB), Ghorashal, Palash,Narshindi , Dhaka
- WePOWER Networks Shoktikonna Women’s Leadership Programme 2022,2023
- Practice of self promotion for women with I am remarkable.
- Workshop by “Grameen shakti” about renewable energy and solar.

Projects:

- 2WD ROS Robot with Arduino Uno and raspberry Pi
- Vital sign monitoring system using FMCW radar
- Health Monitoring system using Arduino Uno
- Water level detector
- 4 Bit ALU
- Traffic Light Monitoring system

Personal Information:

Name: Shilamoni Shaha Neir
Father’s name: Shankar Shaha
Mother’s name: Keya Shaha
Nationality: Bangladeshi
Religion: Hindu
Date of birth: 5th July, 2000
Group Of Blood: O+
Marital Status: Unmarried

Referee:

Prof. Dr. Mohammad Abdul Mannan

Associate Dean,
Faculty of Engineering, AIUB
mdmannan@aiub.edu

DR. SHAMEEM AHMAD

Assistant Professor
Faculty, Department of EEE, AIUB
ahmad.shamem@aiub.edu

MD SHAHARIAR PARVEZ

Assistant Professor,
Special Assistant(OSA)
Department of CE,AIUB
shahariar.parvez@aiub.edu