

INTERNSHIP REPORT
ON
SUBSTATIONS EQUIPMENTS & LOAD DISTRIBUTION SYSTEM
OF
DHAKA PALLI BIDYUT SAMITY-01

By
NOWRIN SHANTIA KHANOM (2008-2-80-030)

&
MUNTAHA KARIM (2008-2-80-047)

Submitted to the
Department of Electrical and Electronic Engineering
Faculty of Sciences and Engineering
East West University

Spring, 2012

Approved By

Academic Advisor

Sohana Tanzeem

Department Chairperson

Dr. Khairul Alam

Approval Letter



ঢাকা পল্লী বিদ্যুৎ সমিতি-১

পলাশবাড়ী, নবীনগর,
সাভার, ঢাকা।

দুরালাপনী : ৭৭৯১৬১০
ফ্যাক্স : ৮৮০২-৭৭৯১৯৯০
e-mail : dhakapbs1@yahoo.com

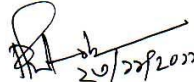
স্মারক নং-ঢাকাপবিস-১/নিপৱ/১০০.১৮৭/ ২০১১/৮-২ ৫৫

তারিখঃ-২৩/১১/২০১১ ইং

✓
ধরাবর,
এডভাইজার
স্টুডেন্ট ওয়েল ফেয়ার এন্ড হেড
কারিয়ার কাউন্সিলিং সেন্টার
ইস্ট ওয়েস্ট ইউনিভার্সিটি, ঢাকা।

বিষয়ঃ- ইস্ট ওয়েস্ট ইউনিভার্সিটির ০৪ জন ছাত্র/ছাত্রীর Internshipকরন প্রসংগে।
সূত্রঃ-EWU(CCC)01/11/Spring-12/60,Date-22/11/2011

উপরোক্ত বিষয় ও সূত্রের আলোকে আপনার অবগতির জন্য জানানো যাইতেছে যে, সূত্রে বর্ণিত প্রস্তাব অনুযায়ী ০৪(চার)জন ছাত্র/ছাত্রী কে অত্র সমিতিতে Internship করনের জন্য প্রেরণ করেছেন। তাহাদেরকে Internship এর বিষয়ে সার্বিক সহযোগিতা করা হবে।


(প্রশান্ত কুমার সূত্রধর)
এজিএম(নিপৱ)

অনুলিপিঃ-

- ০১। জেনারেল ম্যানেজার, ঢাকা পবিস-১, সদয় অবগতির জন্য।
- ০২। নির্বাহী প্রকৌশলী, সিস্টেম অপারেশন (আঃ অঃ), পবিবো, সাভার।
- ০৩। এজিএম(ইঞ্জিঃ),/এসএস/জিএস/অর্থ(রাজস্ব, হিসাব), নিপৱ(সিআর/গ্রীড) ঢাকা পবিস-১।
- ০৪। রিটেইনার প্রকৌশলী, টিএসএল, ঢাকা পবিস-১।
- ০৫। অফিস/মাস্টার কপি।

এজিএম(নিপৱ)

Certificate



ঢাকা পল্লী বিদ্যুৎ সমিতি-১

পলাশবাড়ী, নবীনগর,
সাভার, ঢাকা।

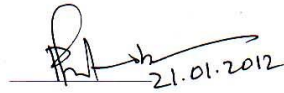
দুরালাপনী : ৭৭৯১৬১০
ফ্যাক্স : ৮৮০২-৭৭৯১৯৯০
e-mail : dhakapbs1@yahoo.com

TO WHOM IT MAY CONCERN

This is to certify that Md.Saiful Islam, SID 2007-1-80-007, Md. Mushfiqul Arefin Chowdhury, SID 2007-1-80-023, Nowrin Shantia Khanom, SID 2008-2-80-030, Muntaha Karim, SID 2008-2-80-047 have successfully completed their internship from Dhaka Palli Bidyut Somity-1. (DPBS-1) from 24th December 2011 to 11th January 2012. They have completed 106 hours of their internship on power generation, transmission, distribution and protection system of the various sub-station equipments of Dhaka Palli Bidyut Samity -1, Summit Power Generation and United Power Generation and Distribution Company Ltd. During the tenure of their training with us all the students put their best effort to comprehend the overall of Power Distribution system.

The undersigned on behalf of Dhaka Palli Bidyut Samity-1.(DPBS-1), recommending this work as the fulfilment of the requirements of EEE 499(Industrial training) of the East West University,Dhaka.

I wish their success in life.


21.01.2012

Engr. Prasanta Kumar Sutradhar
Assistant general manager
Construction, Operation & Maintenance
Dhaka Palli Bidyut Samity-1

Acknowledgment

It was very remarkable and memorable time during our internship at Dhaka Palli Bidyut Samity-01. The encouragement and assistance, which was given us by the instructor and every worker especially of construction, Operation and Maintains (CO&M) department at PBS-1 is unforgettable. We are very thankful to Dhaka Palli Bidyut Samity-1 for giving us the opportunity to complete our internship in their organization.

Here we specially mention Mr.Prashanta Kumar Sutradhar, who is an AGM of construction, Operation and Maintains (CO&M) department of DPS-1. His support, guidance and lesson helped us to complete our internship at PSB-1. We gather practical knowledge about the entire substation parts from him which will help us in our whole carrier.

We are grateful to our honorable supervisor Sohana Tanzeem, Lecturer, Department of Electrical & Electronic Engineering, East West University (EWU) for providing us much needed assistance and time constraints and also to encouraging us to prepare the internship report on “Sub-Station equipment and load distribution system of Dhaka Palli Bidyut Samity-1”

We would also like to mention the name of Dr. Khairul Alam, Chairperson and Professor of the Department of Electrical & Electronic Engineering, and East West University (EWU) for being so kind during the period of my internship. Finally, we would like to thank some persons who had given us appointment from their precious time to collect related data of our report and also helped us to understand many related matters and gave their precious time to us more than once, they are

But the most of all, we would like thank the omnipotent Allah for giving the chance to complete my internship and preparing the internship report.

Executive Summary

To be a B.Sc Engineer from East West University, we have to take a four credit course as EEE-498/499 (project/internship). For our graduation we took EEE-499 which is industrial training or internee. We did our internship at Dhaka Palli Bidyut Samity-1. Our internship title is “Sub-Station Equipment and Load Distribution System of Dhaka Palli Bidyut Samity-1”

At PBS-1 we have gathered practical knowledge about Power transformer, Distribution transformer, Instrument transformer (both CT and PT), Isolator, Breaker, relay AVR, ACR, ABS etc. Before doing this internship we had theoretical knowledge about Transformer and Switchgear. But now we feel that we have gathered strong knowledge about this Equipments comparing to before. In transformer section we saw the whole process step by step. We learnt how to test a transformer, what the difference are between transformer and instrument transformer we have also learnt the uses of CT and PT and the reasons of using CT and PT at high voltage range. At switchgear part LT panel and HT panel and learnt about types of breaker used for LT and HT panel. We have learnt why power factor is important and how we can improve power factor by using PFI panel. We have also gathered practical knowledge about the use of Circuit Breaker, especially Vacuum Circuit Breaker (VCB).

Undergraduate Internship Report



Chronology

The duration of our internship was 17 days starting from 9am till 5pm.

Table 1: DETAILS OF TRAINING SCHEDULE

ঢাকা পলী বিদ্যুৎ সমিতি-১
পলাশবাড়ী, সাভার, ঢাকা।

স্মারকনং-ঢাকা পবিস-১/নিপস/১০০.১৮৭/২০১১/০১৬-২ তারিখ: ১২/১২/২০১১ ইং

বিষয়ঃ- ইন্ট ওয়েস্ট ইউনিভার্সিটির ০৪ জন ছাত্রের (Internship)করন প্রসংগে।
সূত্রঃ-EWU(CCC)01/11/Spring-12/60,Date-22/11/2011

উপরোক্ত বিষয়ের প্রেক্ষিতে সংশ্লিষ্ট সকলের অবগতি ও প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য নিম্নোক্ত মতে ইন্ট ওয়েস্ট ইউনিভার্সিটির ০৪ জন ছাত্র/ছাত্রীর Internship করন বিষয়ে সহযোগিতার জন্য অনুরোধ করা হল।

ক্রমিক নং	তারিখ	বিষয়	সংযুক্ত দপ্তর	মোট ঘণ্টা
০১	২৪/১২/২০১১, ২৬/১২/২০১১	বিদ্যুতের ইতিহাস (EPWAPD, WAPDA,BPDB,REB,PGCB, DPDC,DESCO,WZPDCL, NZPDCL,EGCB,IPP ও CAPTIVE POWER সম্পর্কে ধারণা ও নিপস বিভাগের কার্যবলী।	নিপস বিভাগ ,সদর দপ্তর	০৯:০০- ১৩:০০ এবং ১৪:০০- ১৭:০০
০২	২৭/১২/২০১১	সদস্য সেবা বিভাগের কার্যবলী	সদস্য সেবা বিভাগ	ঐ
০৩	২৮/১২/২০১১	সাধারণ সেবা বিভাগের কার্যবলী	সাধারণ সেবা বিভাগ	ঐ
০৪	২৯/১২/২০১১	প্রকৌশল বিভাগের কার্যবলী ও ওয়ার্কশপ	প্রকৌশল বিভাগ	ঐ
০৫	৩১/১২/২০১১	অর্থ বিভাগ(রাজস্ব/হিসাব) বিভাগের কার্যবলী	অর্থ বিভাগ(রাজস্ব/হিসাব)	ঐ
০৬	০১/০১/২০১২, ০২/০১/২০১২	উপকেন্দ্র সম্পর্কে জ্ঞানার্জন,লাইন রক্ষনাবেক্ষন কাজ পরিদর্শন,উপকেন্দ্রপরিদর্শন হাতে কলমে প্রশিক্ষন।	নিপস বিভাগ সদর দপ্তর	ঐ
০৭	০৩/০১/২০১২	গ্রীড উপকেন্দ্র সম্পর্কে জানা, ডিজাইন, কানেকশন সম্পর্কে প্রশিক্ষন গ্রহন।	উপকেন্দ্রের দায়িত্ব প্রাপ্ত এজিএম (নিপস) ,১৩২/৩৩ কেভি গ্রীড উপকেন্দ্র	ঐ
০৮	০৪/০১/২০১২	৩৩ কেভি ব্রেকার ও ১১ কেভি ব্রেকার সম্পর্কে জ্ঞানার্জন।	এজিএম (নিপস) ,সিআর	ঐ
০৯	০৫/০১/২০১২	স্টেপিং ও ডিজাইন সম্পর্কে ধারণা	রিটেইনার প্রকৌশলীর দপ্তর	ঐ
১০	০৭/০১/২০১২	সামিট জেনারেশন প্লান্ট পরিচালন ও কার্যক্রম সম্পর্কে জ্ঞানার্জন	নিপস বিভাগ ,সদর দপ্তর	ঐ
১১	০৮/০১/২০১২	ইউনাইটেড জেনারেশন পরিচালন	নিপস বিভাগ ,সদর দপ্তর	ঐ
১২	০৯/০১/২০১২	সিংগেল লাইন ডায়গ্রাম ও ভোল্টেজ ড্রপ ক্যালকুলেশন	রিটেইনার প্রকৌশলীর দপ্তর	ঐ
১৩	১০/০১/২০১২	সকল বিভাগ সম্পর্কে পর্যালোচনা ও প্রশ্নোত্তর	নিপস বিভাগ ,সদর দপ্তর	ঐ
১৪	১১/০১/২০১২	মূল্যায়ন	এজিএম (নিপস),সদর দপ্তর	১০.০০- ১১.০০

(প্রশান্ত কুমার সূত্রধর)
এজিএম(নিপস)

অনুগিপিঃ-

- ০১। জেনারেল ম্যানেজার, ঢাকা পবিস-১,সদয় অবগতির জন্য।
- ০২। নির্বাহী প্রকৌশলী,সিষ্টেম অপারেশন (আঃ অঃ),পবিবো ,সাভার।
- ০৩। এজিএম(ইঞ্জিঃ),/এমএস/জিএস/অর্থ(রাজস্ব,হিসাব),নিপস(সিআর/গ্রীড) ঢাকা পবিস-১।
- ০৪। রিটেইনার প্রকৌশলী, টিএসএল ,ঢাকা পবিস-১।
- ০৫। অফিস/মাস্টার কপি।

এজিএম(নিপস)

TABLE OF CONTENTS

1. INTRODUCTION.....	11
1.1 HISTORY OF ELECTRICITY.....	11
1.2 System Loss (Power Factor Loss).....	12
1.3 RURAL ELECTRIC BOARD (REB).	13
1.4 Palli Bidyut Samity (PBS).....	13
1.5 Objective of the Internship.....	14
1.6 Scope and Methodology	14
1.7 Process of Generation to Distribution	15
2. TRANSFORMER.....	16
2.1 BASIC PRINCIPLE OF TRANSFORMER..	16
2.2 Main Parts of Transformer.....	17
2.3 LIST OF RAW MATERIALS OF TRANSFORMER.....	17
2.4 Transformer Coil.....	18
2.5 Power Transformer.	19
2.5.1 Current Transformer (CT).....	19
2.5.2 Potential Transformer (PT).....	20
2.5.3 Coil Winding.....	22
2.5.4 Cooling System of Transformer	23
2.5.5 Tap Changing	23
2.5.6 Protection	24
2.5.7 Oiling System	24
2.5.8 Oil Level Indicator	25
2.5.9 Insulation	25
2.5.10 Insulation Paper	25
2.5.11 Core Assembles	26
3. SERVICE DEPARTMENT	27
3.1 MEMBER SERVICE DEPARTMENT.	27
3.2 General Service Department	29
3.3 Finance Department	30

3.4 Construction, Operation and Maintenance Department	30
4. SUB STATIONS	31
4.1 GRID SUB-STATION.....	31
4.2 33/11KV Circuit Breaker	34
5. DESIGNING SECTION	35
5.1 STAKING	35
5.2 Designing	36
5.3 SUMMIT POWER LIMITED	37
5.4 United Power Generation & Distribution Company Limited	38
5.5 VOLTAGE DROP CALCULATIONS AND DRAW THE SINGLE LINE DIAGRAM	38
5.5.1 Single Line Diagram	38
5.5.2 Voltage Drop Calculation	39
Problems and Recommendation	41
Conclusion	42
Reference	43
Appendix	44

LIST OF FIGURES

Figure 1.1: Nameplate of the PBS	13
Figure 1.2: Flow Chart of Our Electric supply system	15
Figure 2.1: Power Transformer.....	19
Figure 2.2: Current Transformer.....	20
Figure 2.3: Δ connection.....	21
Figure 2.4: Y- Connection	21
Figure 2.5: Testing.....	23
Figure 2.6: Testing.....	24
Figure 2.7: Transformer with cooling system.....	25
Figure 2.8: Insulation Paper.....	26
Figure 2.9: Core Assemble	26
Figure 3.1: Procedure of giving Connection in DPBS-1	27
Figure 3.2: Block Diagram of One Point Service	28
Figure 4.1: Organo gram of DPBS-1	30
Figure 4.2: Grid Sub-Station.....	32
Figure 4.3: Single Line Diagram of 132/33kv Grid Sub-Station.....	32
Figure 4.4: Input of Grid Sub-Station.....	33
Figure 4.5: Control Panel.....	35
Figure 4.6: Batteries.....	34
Figure 5.1:33/11KV Circuit Breaker	34
Figure 5.2: Staking Book.....	35
Figure 5.3: Single line Diagram of the Summit System	37
Figure 5.4: Graphical Symbols for Single Line Diagrams	39
Figure 5.5: Voltage drop profile (voltage vs. distance)	40

LIST OF TABLES

Table 1: DETAILS OF TRAINING SCHEDULE 6

Chapter 1

1. Introduction

In the spring semester of 2012 we got an opportunity to complete the industrial training in Dhaka Palli Bityut Samity-1. PBS is one of the biggest power distribution companies in Bangladesh. It covers approximately whole rural area of Bangladesh. They introduce electricity among the illiterate or village people and encourage them for using electricity with appropriate way (without any miss use).

1.1 History of Electricity

Dhaka is the capital city of Bangladesh but before 1900 there was no electricity. According to the people saying the 1st generation of electricity started at “Ahsan Manjil”. Nawab of Dhaka installed a small generator in his residence and started generating power on 7th of December 1901, which is considered as the introduction of electricity in the Dhaka city but it was not for public use. After that in around 1930 M/S. DEVCO developed 400v level electricity distribution system for public use. In the year 1933 a power generation station was established named “Dhanmondi Power House”. It generated 1500KW power and they are the 1st commercial seller of the distribution system among the public.

In the year 1947, power generation, transmission and distribution authority in the then East Pakistan region was confined within some private companies. The electricity supply in the 17 districts were limited to the township areas only for a limited time except Dhaka city area. At that time other than some private companies, power was used to be generated by some isolated industries like tea, sugar, textiles and railway workshops. In aggregate, the generation capacity of this region was about 21 MW at that time.

To cope up with the growing power demand of this region, the Govt. of Pakistan created Electricity Directorate in 1948 to plan and improve power supply. In 1957 the Govt. took over

the private owned companies in Dhaka and placed them under the Electricity Directorate for power generation and distribution.

In 1959, East Pakistan Water and Power Development Authority (EPWAPDA) was established to look after generation, transmission, distribution and sale of electricity throughout the province of the then East Pakistan. After the independence of Bangladesh in 1972, Bangladesh Power Development Board (BPDB) was created to look after the same function. And for rural area distribution they introduce Rural Electric Board (REB) in 1978. Dhaka Electric Supply, headed by a Chief Engineer under BPDB used to control the electricity distribution and sales in Greater Dhaka District area up to September 1991.

To improve services to the consumers and to enhance revenue collection by reducing the prevailing high system loss, Dhaka Electric Supply Authority (DESA) was created by an ordinance promulgated by the President of the Peoples Republic of Bangladesh in 1990.

1.2 System Loss (Power Factor Loss)

The power factor is defined as subject to the usual distributed losses in the production and transmission processes. We can calculate system loss,

$$\text{System loss} = \frac{(\text{Total generations} - \text{total distribution})}{\text{total generations}} * 100\%$$

At the first stage of generations and distributions there were a lot of power factor loss or system loss in our system. For reducing these losses a team was built up for training at united state of America. They thought that because of the wire we used before, there were a lot of losses and for reducing that they were learning about the American wiring system. At that time we used covered wire to distribute electricity, the cover of the wire made the losses. Engineers saw that in America they use open wire and for that there would be a low system loss. The team came back and through that knowledge they started supplying electricity at rural areas. And they named that section Rural Electric Board (REB). (1)

1.3 Rural Electric Board (REB)

It constituted under a government ordinance of 1977 and started functioning in 1978. It implements the program of distribution of power in rural areas and constructs power distribution line and power Sub-Stations through rural electric societies which is Palli Bidyut Samity (PBS) on the principal of co-operative. (1)

1.4 Palli Bidyut Samity (PBS)

Company profile: Dhaka Palli Bidyut Samity (DPBS)



Figure 1.1: Nameplate of the PBS

Based on the universal principle of cooperative, Palli Bidyut Samities (PBS) of REB are formed as democratic, decentralised and autonomous organisations where the member consumer enjoy equal opportunities and are entitled to exercise equal rights. Continuous support from the government and donor agencies and the people associated with the programme and comparative transparent and accountable system of the PBS has helped to set a high standard of performance of the organisation. The owners of PBSs are its customer members and PBS management is accountable to a locally elected Board of Directors and the overall performances of the PBSs are controlled by REB.

REB is basically running on funding from the government and development partners. Some of the PBSs are still not financially self reliant as most of their consumers are residential connection holders. A 'PBS Revolving Fund' was established with the help of financially sound Samities for the PBSs which are yet to be self reliant to reduce their dependence on government and development partners. (1)

Strategy

Its main ethics is no loss no profit.

1.5 Objective of Internship

1. To compare our theoretical knowledge with the practical work
2. To see the practical equipments those are being used in power generation, transmission and distribution system.
3. To gather idea about the company
4. To gather the idea about the distribution of PBS 1
5. Risks related during the distribution process.
6. Various problems related to this company and distribution system.

1.6 Scope and Methodology

This report is based on the internship program where we reviewed about Generator and the basic making process of a transformer and establishment of switchgear, current transformer, and potential transformer. We also reviewed the operation of Generator and testing process of these components. The report contains relevant information about a sub-station as was observed during the internship program.

1.7 Process of generation to distribution

At first we have to generate electricity then it will transmit to the Grid. And from grid electricity has transferred to the different distribution company. From the distribution company through transformers, Company supplies the electricity to the house hold or industry.

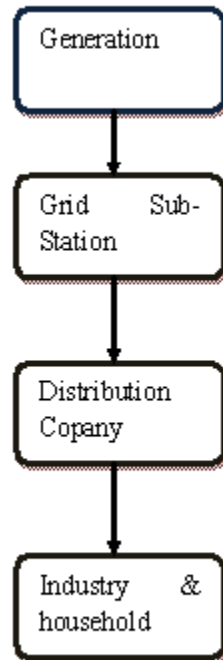


Figure 1.2: Flow Chart of Our Electric supply system

During our internship we have learned distribution first and generation at last. But for arranging our report properly and for describing our knowledge clearly we have written generation first and distribution later.

Chapter 2

2. Transformer

2.1 Basic Principle of Transformer

Transformer refers to the static electromagnetic setting which can transfer power from one circuit to another one. In AC circuits, AC voltage, current and waveform can be transformed with the help of Transformers. Each transformation is usually to transfer from one circuit to another one by the way of electromagnetism, but it has no direct relation with this circuit. It also can be transformed through electromagnetism (electrical manner). This electromagnetism is known as auto-transformer. Transformer plays an important role in electronic equipment. AC and DC voltage in Power supply equipment are almost achieved by transformer's transformation and commutation. At the same time the electrical parameters transformed by transformer are not one but a few ones. Most of the isolation, matching and impedance in the circuit carry out by transformer. Most of isolation, matching and impedance in the circuit carry out by transformer. Simple schematic diagram of the transformer is shown in fig. It is connected by closed-magnet (iron cores), two windings and AC power supply. The winding is called the primary winding; another winding is connected with load, and it is called secondary windings. (2)

Things that are important for Transformer: Structure, Core diameter, insulation label, cooling system, tapping system, Coil thickness, tank and conservator.

There are three types of transformers:

1. Power transformer
2. Distribution transformer
3. Instrument transformer

2.2 Main Parts of Transformer

- i. Core
- ii. Low tension (LT) coil
- iii. High tension (HT) coil
- iv. Transformer oil
- v. Transformer tank
- vi. Bushing
- vii. Tapping
- viii. Radiator
- ix. Breather box with silica gel
- x. Conservator tank etc

2.3 List of Raw Materials of Transformer

Transformer's raw materials are shown below

1. Winding machine 1
2. Tools
3. Raw materials
 - a. copper wire 5.5kg for HT side
 - b. copper wire 5kg for LT side
 - c. insulation paper

Undergraduate Internship Report



d. cotton tape

e. scotch tape

f. gum

g. thinner

h. insulating burnish

i. strapping sill

j. gas cap

k. ampere tube

l. pressure release valve

m. super glue

n. scrap paper

o. HT bushing

p. LT bushing

q. socket

2.4 Transformer Coil

There are three types of coil. They are:

1. Low Voltage Coil or LT Coil
2. High Voltage Coil or HT Coil
3. Tap Changing Coil

2.5 Power Transformer

Power transformer is an essential element for power system. They allow relatively low voltages from generators to be raised to a high level for efficient power transmission. There are two types of power transformer. They are step up and step down. (3)



Figure 2.1: Power Transformer

There are two types of instrument transformer:

- i. Current transformer (CT)
- ii. Potential Transformer (PT)

2.5.1 Current Transformer (CT)

Current transformer is used to measure the amount of current in a line by a predefined CT ratio. CT protects the transformer by reducing the current of the main line according to the CT ratio. It is not possible to measure the current of high voltage system directly because of insulation problem of measuring instruments. It is also not possible to use current flowing through the system directly for protection purpose due to its high value and high insulation

problem. So we must need a transformer which takes high input but the output is low. This type of transformer is called CT. (3)



Figure 2.2: Current Transformer

Purpose of Current Transformer is following

1. To reduce the line current to a value which is suitable for standard measuring instruments, relays, etc.
2. To isolate the measuring instruments namely meters, relays, etc. from high voltage side of an installation.
3. To protect measuring instruments against short circuit currents.

2.5.2 Potential Transformer (PT)

Potential transformer is used to measure the amount of voltage in a line. It protects the transformer by dropping the voltage of the line according to the PT ratio. It is also used to measure the amount of power transmitted through the line. Because of insulation problem of measuring instruments, direct measurement of voltage in high voltage system is not possible and also not possible to use direct voltage for the system protection purpose due to its high value and high insulation problem of protective relays. So we must need a transformer which takes high input voltage but the output voltage is low. This type of transformer is called PT. (3)

The purpose of Potential transformer is following:

- i. To reduce the line voltage to a value which is suitable for standard measuring instruments, relays, etc.
- ii. To isolate the measuring instruments, meters, relays, etc. from high voltage side of an installation.
- iii. To sense abnormalities in voltage and give voltage signals to protective relays to isolate the defective system.

Generally the Transformers are either Δ to Y or Y to Δ connected. If High voltage side Delta connected then Low Voltage side Y connected and vice versa.

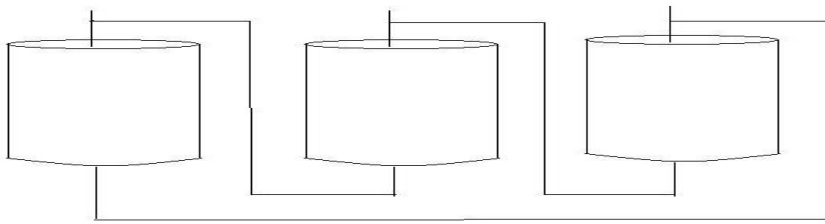


Figure 2.3: Δ connection

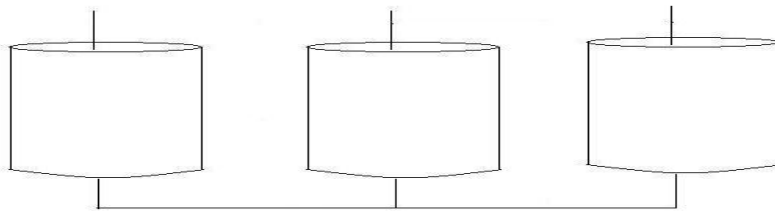


Figure 2.4: Y- Connection

Significance of Δ to Y connection

The closed circuit on the delta side provides some benefits. Voltages on the secondary's have improved balance. Also it cancels third harmonics since these are not supported on the three-wire system. A delta connection on the secondary side provides the possibility of large

circulating currents if the characteristics of the 3 windings are not perfectly balanced. Y connection avoids this.

Significance of Y to Δ connection

The Y- Δ transform can be used to eliminate one node at a time and produce a network that can be further simplified.

2.5.3 Coil Winding

High Voltage Coils

Generally round insulated wire of either copper (Cu) or Aluminum (Al) is used as basic raw material for high voltage coil. The coils are made in number of layers. The starting and finishing leads of each coil are terminated on either side of the coil. These leads are properly sleeved and locked at number of points. (3)

Low Voltage Coils:

The shape of the basic raw-material (Al or Cu) is rectangular.

HT Side

In HT side, the voltage is high and current is low. For this reason the insulation must be higher than LT side insulation. HT insulation paper is used in HT side.

LT Side

In LT side, the voltage is low and current is high. For LT side coil insulation, LT insulation paper or DPC paper is used.

2.5.4 Cooling System of Transformer

In transformers, the cooling has a special importance to ensure safe operation and to increase the lifetime of the transformer. The heat occurred in the transformers is dissipated at the cooling unit by the help of oil. The simplest and mostly used cooling system is ONAN (Natural Air Cooling with Radiators). ONAF (Radiators Additionally Cooled by Fans) cooling system, in which cooling air is blown to the radiators by fans, is also used.

2.5.5 Tap Changing

Tap changing means the changing of voltage by a switch. It is provided in HT coil for changing purpose. Sometimes taps are getting from HT coil; also sometimes an extra coil is used for taps. Taps are also depending on the winding.

- i. On load tap changing
- ii. Off load tap changing



Figure 2.5: Testing

On load tap changing means that the taps are changed during the loading condition but in that condition off load tap changing cannot work properly. It is dangerous to change the taps of off load tap changer during loading condition. Because when it moves from one tap to another tap it can be sparked and fired.



Figure 2.6: Testing

2.5.6 Protection

Every transformer must have a protection system otherwise it will damage.

- i. Cooling system
- ii. Thermal protection
- iii. Oil level indicator
- iv. Silica gel
- v. Insulation

2.5.7 Oiling System

In transformers, the cooling has a special importance to ensure safe operation and to increase the lifetime of the transformer. The heat occurred in the transformers is dissipated at the cooling unit by the help of oil.



Figure 2.7: Transformer with cooling system

2.5.8 Oil Level Indicator

Oil level indicator indicates the oil level in the conservator and gives too low or too high indications by the contacts on it.

2.5.9 Insulation

There are three types of insulation

- i. Insulating paper
- ii. Oil
- iii. Varnish

2.5.10 Insulation Paper

High quality crepe insulating paper is used to build up main insulation of the CT and PT. The craft paper is used to avoid short circuit between core and coil.



Figure 2.8: Insulation Paper

2.5.11 Core Assembles

Silicon steel sheet is cut by designed shape. This sheet is sliced for decreasing eddy current loss. By adding this sliced sheet the core is created. After that the limbs of the core are tightly wrapped with cotton tape. Then an insulating press board is wrapped on all the three limbs.



Figure 2.9: Core Assemble

We saw two types of transformer in PBS 1, one is power transformers and another is distribution transformers. In PBS 1 they use cooling system, Insulation paper, Oil level indicator, silica gel to protect their transformers.

Chapter 3

3. Service Department

3.1 Member Service Department

Dhaka Palli Bidyut samity-1 gives service to the consumer which depends on geographical design and load. MS department is mainly giving attention to the consumer facility. The procedure of their service is describe by a flow chart below-

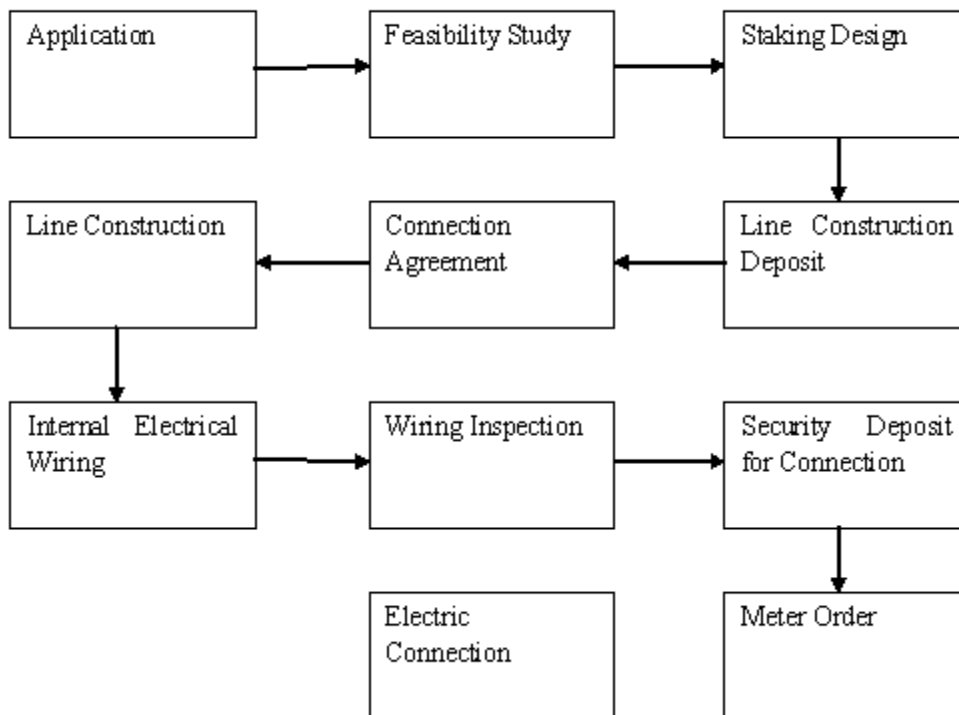


Figure 3.1: Procedure of giving Connection in DPBS-1

There is also a service called one point service at Member Service department. In this system MS gives service to the consumer from one desk that is why it is called “One Point Service”. To have these service consumers should fill up a complaint form at the one point service desk and they will get their solution from that desk. (1)

Generally, Customers can get the following services from “**One Point Service desk**”:-

- Meter running rate, Socket burn, Seal broken, blue seal missing, Broken/missing, Meter runs without load, not running, Testing, Shifting
- Bill related & connection problems.
- Right off way problems
- Consumer ownership charge.
- New connection procedure.
- Information for outstanding bill etc.

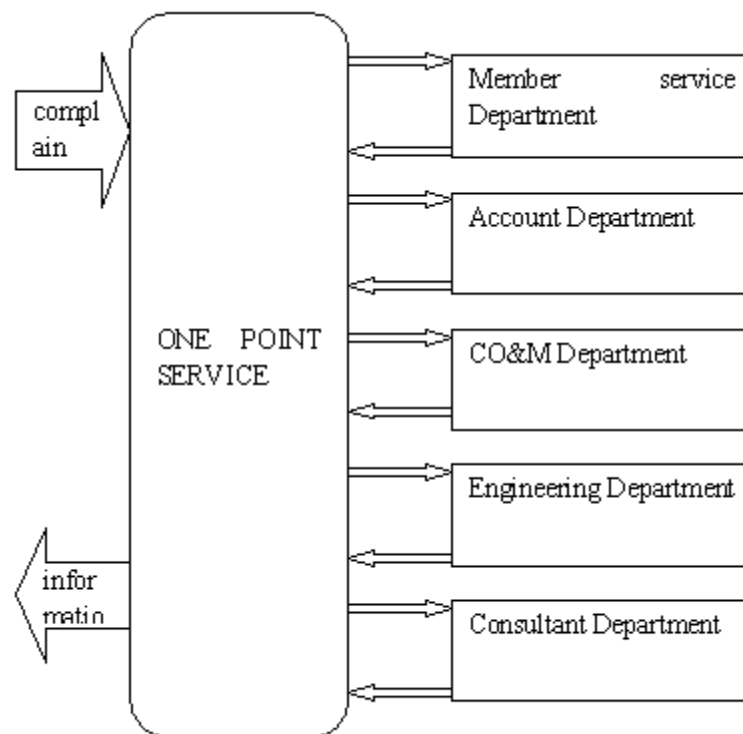


Figure 3.2: Block Diagram of One Point Service

3.2 General Service department

The whole service system of Dhaka Palli Bidyut Samity is combined through General Service department. The services of GS department are-

- There is a selection board under the GS Department
- This board takes all decision for PBS-1
- They bought all type of materials used at PBS-1 by tender system
- They maintain the service for the Employee also
- And also maintain the salary, vacation, meetings etc. (1)

Board and management

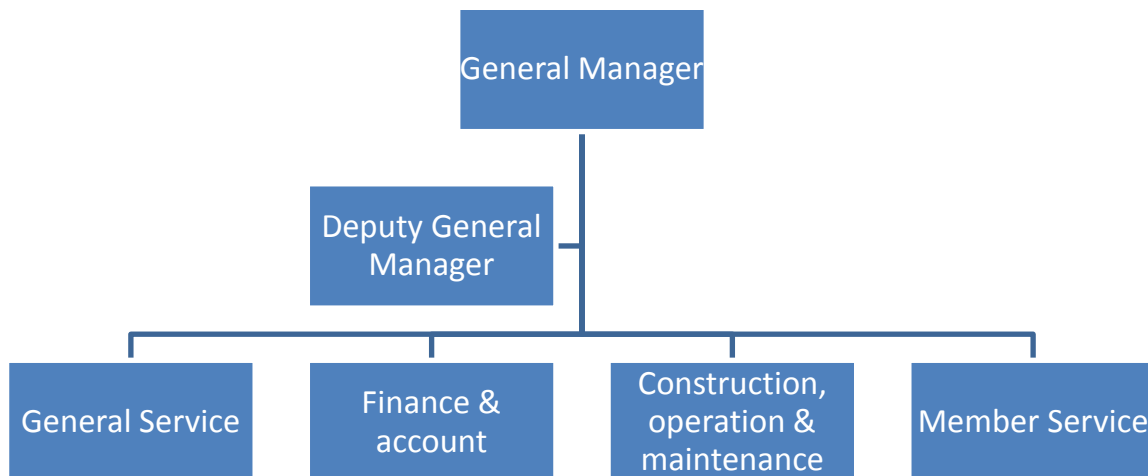


Figure 3.3: Oregano gram of DPBS-1

3.3 Finance Department

This department is divided into two parts: 1) Account and 2) Finance. Both parts are work for making bills, bill collection, bank reconciliation, Annual budget, employee salary etc. PBS-1 collect their fund from billing money, governmental fund etc. Their main work is about billing system. They have some workers for collecting meter readings from consumer area. Each Meter reader collects 2000 domestic and commercial customer meter reading per month. After collecting meter readings, each billing assistant prepares 5000 electric bill per month. Then messengers distribute 2000 electric bills to the consumer per month.

These bills are collected by cashier of PBS cash collection booth and also collected by different commercial banks. (1)

3.4 Construction, Operation and Maintenance Department

This department is actually run by Engineers. They give their services at Line and system maintenance. Meter inspection, connection, re-connection, disconnection, test and repair are also their job. They also do all type of maintenances about the distribution and connection.

In PBS1 we mainly visited the outdoor type distribution Sub-Stations at Polashbari, DEPZ and in Bishmaile, Savar, a grid Sub-Station at Fulbaria, Savar and the pole mounted Sub-Stations which is very common in our roads and high ways.

Chapter 4

4. Sub-Station of Palli Bidyut Samity 1 consists of

- ABS (Auto Breaker Switch)
- LBS(Auto breaker switch)
- ACR (Auto circuit Recloser)
- Isolator
- Lightning arrester
- CT/PT metering
- Transformer
- AVR (Automatic Voltage Regulator)
- Bus bar
- Bushing
- Circuit breaker
- Grounding

4.1 Grid Sub-Station

Grid is a power house from where we will take/get high energy. During our internship we have visited 132/33 KV Grid Sub-Station at Fulbaria, Savar on 3rd January, 2012. There we visited two Sub-Stations-

1. 132/33 KV Sub-Station which is for Power Grid Company Bangladesh Limited (PGCBL)
2. 33/11 KV Sub-Station for Palli Bidyut Samity-1



Figure 4.1: Grid Sub-Station

There are two control rooms for two Sub-Stations. From the control room of PGCBL they provide us a single line diagram of 132/33 KV grid Sub-Station.

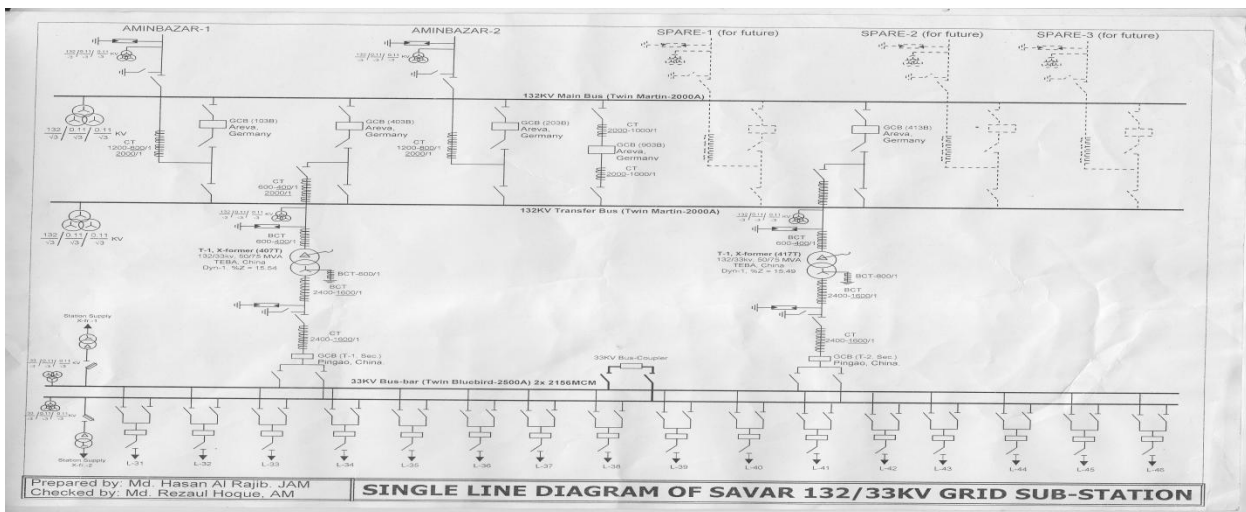


Figure 4.2: Single Line Diagram of 132/33kv Grid Sub-Station

Input of this grid Sub-Station is coming from two different places but at a time they use only one input. So, that here we discuss our topic for one input which is coming from Aminbazar. One 132kv line entered through a lightning arrester and it goes to a two way meter for knowing the actual input voltage. From the meter output the voltage goes to a CT, between CT and meter there is a breaker for protection of the meter.



Figure 4.3: Input of Grid Sub-Station

From the CT line goes to the main bus bar through a breaker and from bus bar line goes to another CT by another breaker.

From this CT voltage go to the meter and from that meter output voltage go to the BCT then it goes to the HT side of the transformer which rating is 132/33kv, 50/75MW. This transformer is made in china. From the LT side of the transformer 33kv voltage is going to the LT side BCT then through a breaker the voltage goes to the CT and then the voltage goes to the 33kv busbar.

This grid Sub-Station has also a digital control panel where they can operate the system digitally. From one point the operators can control any type of fault occurred in the system.



Figure 4.4: Control Panel

The panel needs power for 24 hours so they use charged batteries for back up. These batteries are made of Nichel and Chromium and the batteries need proper maintenance.



Figure 4.5: Batteries

4.2 33/11KV Circuit Breaker

During our internship we visited Bishmile substation to see the 33/11KV circuit breaker. These breaker was very old and the working principle was very different from others. They are in use from the british period and was damaged some years back but after repair they are running well.

(4)



Figure 4.6:33/11KV Circuit Breaker

Chapter 5

5. Designing

5.1 Staking

Staking is basically the distribution of poles. They measure the distance of 1 pole to another pole. The distance is 90m and ruling span is 300'. For staking there we saw some staking and designing books like Engineering and Staking Manual (100-21).

For a one phase primary line they denote I “A” and writes the line angles like below:

- i. $A2 = 0^\circ-30^\circ$
- ii. $A3 = 30^\circ-60^\circ$
- iii. $A4 = 60^\circ-90^\circ$
- iv. $A5 =$ dead end of the time

Similarly by C they indicates tangent line, by G transformer constructing, K for secondary line, M for grounding etc. (1)

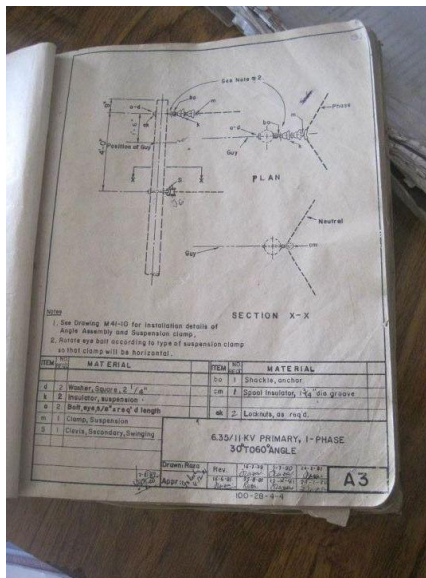


Figure 5.1: Staking Book

There is also log anchor assembly which is the line under ground and it is denoted by F.

5.2 Designing

For designing the line they use a key map and this key map consists of a detail map of a particular area. There is also a block load study for measuring the load, feeder line for Sub-Stations. Then they create a master plan. There are 4 categories under the master plan which are:

- i. 0-1 category
- ii. 1-3 category
- iii. 3-5 category
- iv. 5-above category

These categories are called the lateral line. Which lateral line will connect first and which one will be later is designed in this section. For drawing there we saw some staking and designing books like Standard Specification and Drawings (100-28). (1)

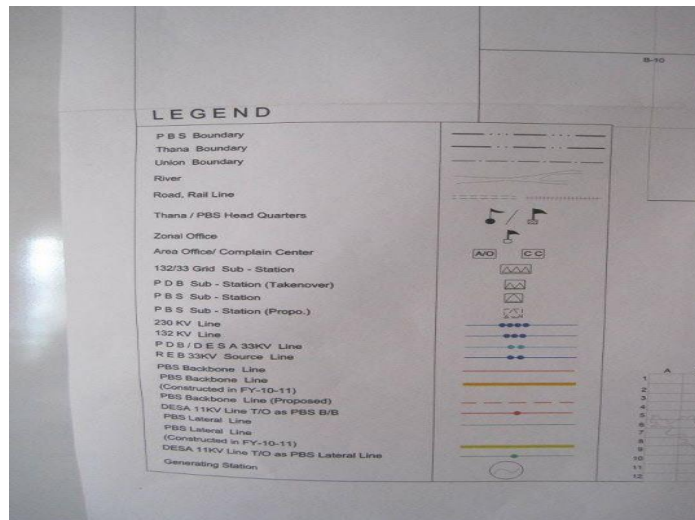


Figure 5.2: Some Designing Symbols

5.3 Summit Power Limited

Summit Power Limited is situated at Asulia. This is a gaseous power generating plant. They get gas from TITAS. It generates 45MW power per day. They can generate power more than that but for protection of engines and low pressure of gas they generate only 45MW. The main consumer of this plant is Dhaka palli bityut samity. It generates 45MW and all is given to the palli bidyut without setup. For that reason we can say that Summit power is the IPP source of palli bidyut. They use two kind of engine to generate power. (5)

The arrangement of the Summit power is limited for generating power through two engines that are shown below through a single line diagram.

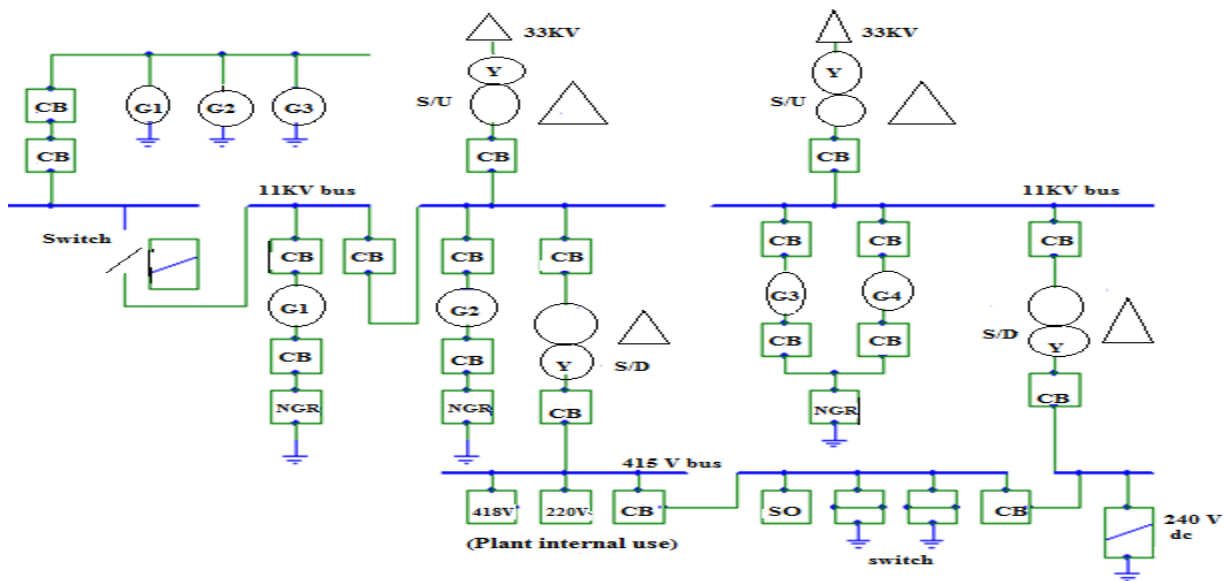


Figure 5.3: Single line Diagram of the Summit System

5.4 United Power Generation & Distribution Company Limited

United Power Generating & Distribution Company Limited is situated at DEPZ, Savar, Dhaka. It generates 41MW power each day. It is mainly established for giving power at DEPZ. At first PBS gives power at DEPZ but load in DEPZ is increasing day by day and PBS is not able to give that much power to DEPZ. So, to fulfill the need of DEPZ, United Power is established. This power plant is also gaseous and uses two kinds of engine to generate power:

1. Caterpillar Engine
2. MTU Engine

Dhaka Export Processing Zone (DEPZ) is the main consumer of this power company and PBS is the secondary one. There are two metering systems in this plant connected with DEPZ and Dhaka Palli Bidyut Samity-1. The daily average need of DEPZ is 35-38MW supplied by united power and the rest 5-7MW power goes in PBS 1. Sometimes United cannot supply or generate 32-33MW power because of low gas pressure then PBS 1 transmits that lacking power to DEPZ. Thus how Two metering system works.

United Power Generation & Distribution Company Limited is the captive member of palli bidyut since it supplies PBS the extra power. (6)

5.5 Voltage Drop Calculations and Draw the Single Line Diagram

They have to calculate the voltage drop calculation and draw the single line diagram for the final distribution to the consumers and for the proper supply of power. (1)

5.5.1 Single Line Diagram

In PBS1 there is a unit where single line diagrams and voltage drop calculation are measured by engineers. They use software like

- i. Lotus
- ii. Harvard Graphics for designing the diagram.

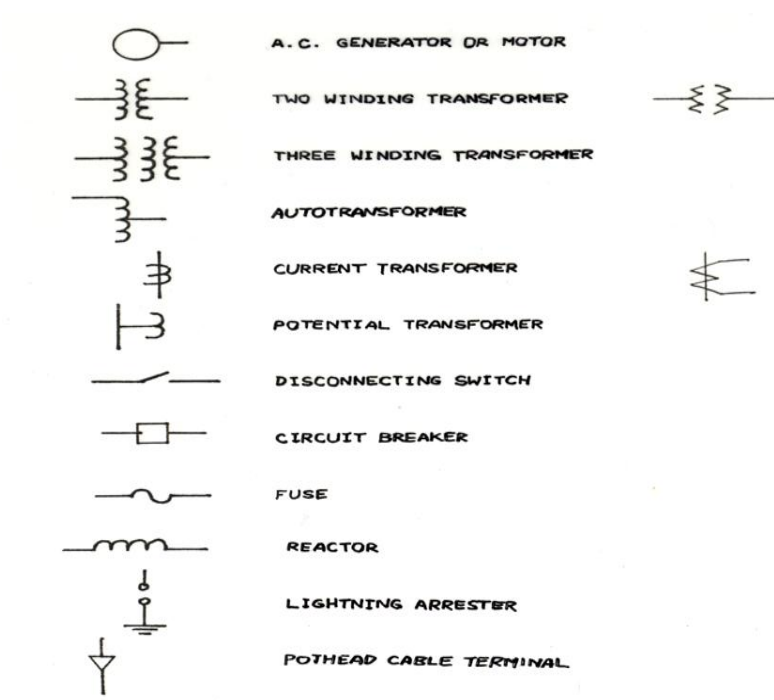


Figure 5.4: Graphical Symbols for Single Line Diagrams

5.5.2 Voltage Drop Calculation:

There are some wires which reduces voltage drop like

- i. Dog wire: resistivity is low
- ii. LVR: its similar to the AVR, the main difference is that it's a line which can control the voltage. LVR are generally inserted in backbone lines so that the lateral lines can also have the benefit of it. LVR's are expensive.

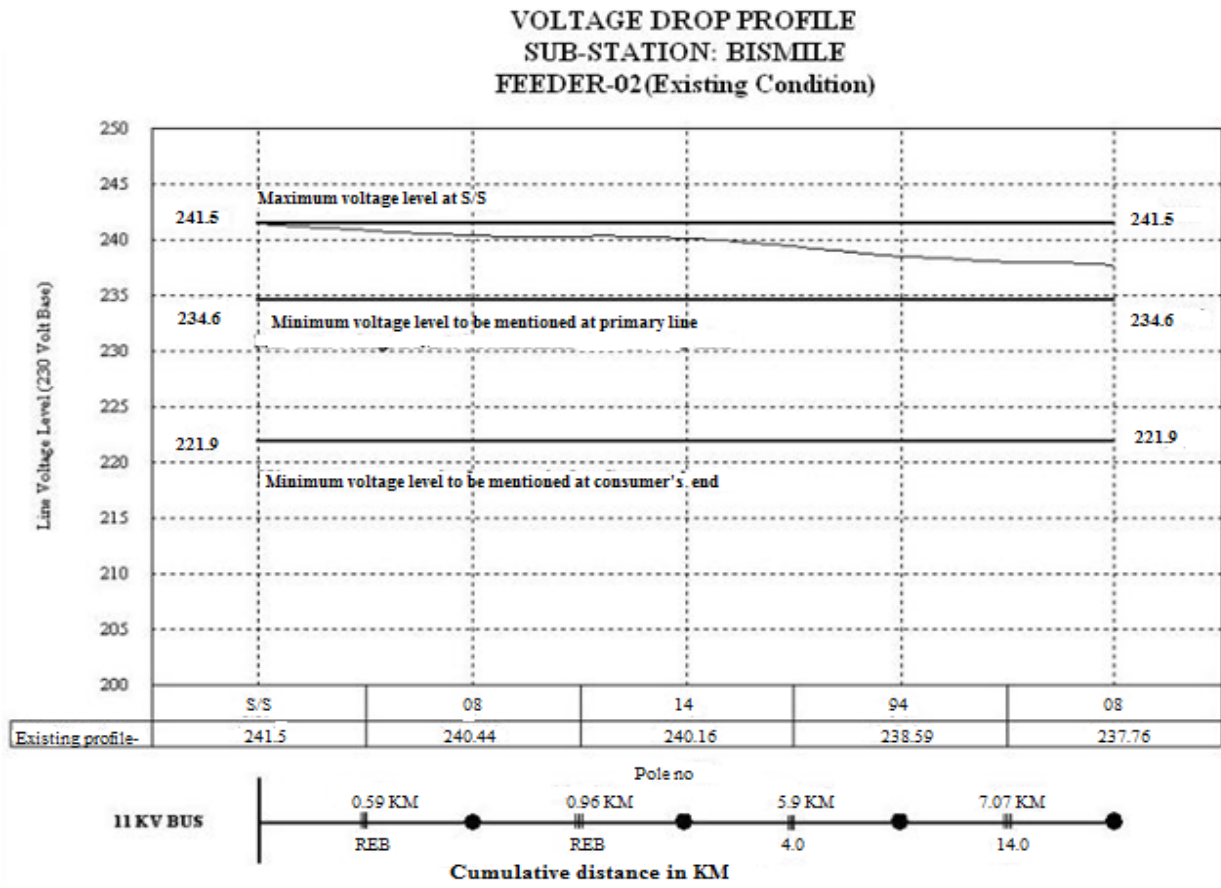


Figure 5.5: Voltage drop profile (voltage vs. distance)

Problems and Recommendation

At first it was difficult for us to understand the huge design of a sub-station because we were seeing it for the first time, but after 2 days the design and working principle seemed quite easy. Before doing this internship one student must complete major courses like EEE 441 (Power Stations), EEE 442 (Switchgear Protection), EEE 447 (Power Electronics) or at least any two from these courses because it helps to understand well the working principles of a sub-station.

Conclusion

We are very happy to do the industrial attachment with the PBS-1. This is one of the most popular REB in Bangladesh which distributes power to its consumers at rural zones. PBS-1 is an established company and has a good reputation. Here Engineers play great role. This attachment makes our theoretical knowledge strong. We learn practically how a sub-station step downs power for distribution that power to the consumer. A distribution company has to design and calculate many relative things after distribution load. According to the whole process and consumer demand they decide to connection of the load line. They take power from a power generation company or from a grid and then according to the consumer demand they step down the power and supply the power. Between the taking and distribution of power there are a lot of procedures to do all the procedure. Within the short time we have tried our best to acquire knowledge about the distribution system, distribution planning system of PBS-1. We have also learnt about the sub-station and the working principle of all sub-stationed equipments. Both Engineer and supervisor in all sectors were helpful to us. We hope that the practical experience which we have gained from PBS-1 will be helpful for our future job sector. We believe that our industrial attachment with PBS-1 is successful.

Reference

1. Information: Provided by PBS 1.
2. Charles I. Hubert, "Electric Machines", 2nd edition (2007-2008), Pearson Education.
3. Bhag S. Guru, Huseyin R. Hiziroglu, "Electric Machinery and Transformers", 3rd edition (2007-2008), Oxford University Press.
4. Sunil S. Rao, "Switchgear Protection and Power System", 12th edition (2011-2012), Khanna Publishers.
5. Information: Provided by Summit Power Limited.
6. Information: Provided by United Power Generation and Distribution.
7. Arther R. Bergen, Vijay Vittal, "Power System Analysis", 2nd edition (2006-2007), Pearson Education.
8. V.K Mehta, Rohit Mehta, "Principles of power system Mehta", 4th edition (2009), C. Chand and Company LTD.

Appendix



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

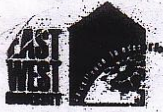
Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity 1
Name of the student:	Muntaha Karim
ID:	2008-2-80-047

Date:	24.12.2012
Start time/End time	9:00am-1:00pm; 2:00pm-5:00pm
Location:	Nabinagare, Savar, Dhaka.
Mentor:	Prashanto Kumar Sutradhara

General Instructions:

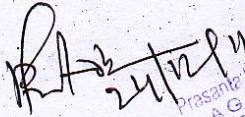
- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



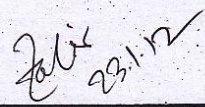
Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1. What was the objective of the day's activities? (If applicable, list multiple objectives)
To know about the history of Palli Bidyut Samity and the other power companies of Bangladesh.
2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.
TPP and captive power distribution
Distribution of Dhaka Palli Bidyut Samity.
3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.


Prasant Kumar Sutradhar
A.G.M. (CO & M)
Dhaka Palli Bidyut Samity-1

Signature of the mentor with date
Name:
Designation:
Contact Phone #:


Signature of academic supervisor with date
Name: MOHAMMAD ZAKIR ALAM
Designation: LECTURER



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Palli Bidyut Shamidi 1
Name of the student:	Murtaha Karim
ID:	2008-2-80-047
Date:	26/12/2011
Start time/End time	9:00am - 1:00pm ; 2:00pm - 5:00pm
Location:	Nabinagar, Savar, Dhaka
Mentor:	Prashanta Kumar Sutradhar

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1. What was the objective of the day's activities? (If applicable, list multiple objectives)
- (i) History of electricity generation, transmission and distribution in Bangladesh.
 - (ii) Knowing the distribution of REB with simple diagrams.

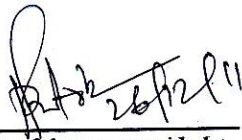
2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

First we got the lecture from our mentor and then we visited the workshop about repairing transformers.

Comment: Got practical idea about the faults that occurs in various transformers.

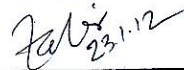
3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE 301, EEE 304, EEE 441, EEE 442



Signature of the mentor with date
Name: Prashanto Kumar Sutradhar
Designation: AGM (com)
Contact Phone #:

Prashanto Kumar Sutradhar
AGM (CO & M)
Dhaka Palli Bidyut Samity-1



Signature of academic supervisor with date
Name: MOHAMMAD ZAKIR ALAM
Designation: LECTURER



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Shamidi : 1 .
Name of the student:	Murtaha Karim
ID:	2008-2-80-047

Date:	27.12.2011
Start time/End time	9:00am - 1:00pm ; 2:00pm - 5:00pm
Location:	Nabinagar, Savar, Dhaka .
Mentor:	Md. Naimul Hasan, A.G.M (MS)

General Instructions:

- a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)


1. What was the objective of the day's activities? (If applicable, list multiple objectives)

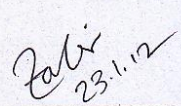
To know about the member services that Palli Bidyut gives to its consumers.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

1. How to be a member of Palli Bidyut.
2. Documents that consumers need to get a line from Palli Bidyut.
3. Per Unit cost.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.


Signature of the mentor with date
Name: Md. Naimul Hasan
Designation: AG. M (MS)
Contact Phone #: 01936016002


Signature of academic supervisor with date
Name: MOHAMMAD ZAKIR ALAM
Designation: LECTURER



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Palli Bidyut Shamiti 1
Name of the student:	Muntaha Kateem
ID:	2008-2-80-047

Date:	28/12/2011
Start time/End time	9:00am - 1:00pm ; 2:00pm - 5:00pm
Location:	Nabinagar, Savar, Dhaka.
Mentor:	Syed Mohammad Saheerul Azam

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1. What was the objective of the day's activities? (If applicable, list multiple objectives)

To know about the General Service of Dhaka Palli Bidyut Samity 1.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

Working Principles of General Service Department.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

Rumme 28.12.2011

Signature of the mentor with date

Name: Syed Mohammed Saheerul Azam

Designation: A.G.M. (GS)

Contact Phone #: Dhaka Palli Bidyut Samity-1

Fahim 23.1.12

Signature of academic supervisor with date

Name: MOHAMMAD ZAKER ALAM

Designation: LECTURER



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Palli Bidyut Shamidi 1
Name of the student:	Muntaha Katerin
ID:	2008-2-80-047
Date:	29/12/2011
Start time/End time	9:00 am-2:00 pm; 2:00 pm-5:00 pm
Location:	Nabinagar, Savar, Dhaka
Mentor:	Md. Abul Kalam Azad, AGM (Engr.)

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1. What was the objective of the day's activities? (If applicable, list multiple objectives)

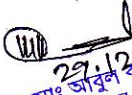
To know about the engineering department of Dhaka Palli Bidyut.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

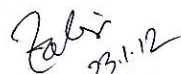
Workshop of DPBS1 where we saw the repairing systems of transformers.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE 301


29.12.2011
মোঃ আবুল কালাম আজাদ
এম (ইঞ্জিনিয়ারিং)
১৯ ডি. কে বিদ্যুৎ সমিতি-১

Signature of the mentor with date
Name: Md. Abul Kalam Azad
Designation: AGM (Engineering)
Contact Phone #: 01680140845


23.1.12

Signature of academic supervisor with date
Name: MOHAMMAD ZAKIR AZAM
Designation: LECTURER



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity 1
Name of the student:	Murshida Karim
ID:	2008-2-80-047
Date:	31/12/2011
Start time/End time	9:00am-1:00pm; 2:00pm-5:00pm
Location:	Nabinagar, Savar, Dhaka
Mentor:	MD. Abul Kashem

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)


1. What was the objective of the day's activities? (If applicable, list multiple objectives)

To know about the finance department of Dhaka Palli Bidyut.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

1. Billing system.
2. Costing.
3. Losses that Dhaka Palli Bidyut faces during payment of consumers.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.


31/12/12
Mohammad Abul Kashem
AGM Finance (Revenue)
Dhaka PBS-1
Dhaka, Dhaka

Signature of the mentor with date
Name: Md. Abul Kashem
Designation: AGM (fin.)
Contact Phone #: 7791620


23/1/12

Signature of academic supervisor with date
Name: MOHAMMAD ZAKIR AZAM
Designation: LECTURER



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity 1
Name of the student:	Murtaha Karim
ID:	2008-2-80-047
Date:	01.01.2012
Start time/End time	9:00am-1:00pm; 2:00pm-5:00pm
Location:	Nabinagar, Savar, Dhaka.
Mentor:	Prashanto Kumar Sutradhara.

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1. What was the objective of the day's activities? (If applicable, list multiple objectives)

To know about the sub-stations, line maintenance, visit the sub-station and know about its working principles.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

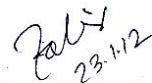
ACSR lines.
ACR
ABR
Transformers
metering System
AVR
Distribution.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE 301,
EEE 304,
EEE 441



Signature of the mentor with date
Name: Prashant Kumar S. Chandra
Designation: AGM (CO2 M)
Contact Phone #: 01936016003


23-1-12

Signature of academic supervisor with date
Name: MOHAMMAD ZAKIR AZAM
Designation: LECTURER



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity I
Name of the student:	Muraha Karim
ID:	2008-2-80-047
Date:	02.01.2012
Start time/End time	9:00 am - 1:00 pm; 2:00 pm - 5:00 pm
Location:	Nabinagar, Savar, Dhaka.
Mentor:	Prashanto Kumar Sathadate

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

- 1 What was the objective of the day's activities? (If applicable, list multiple objectives)

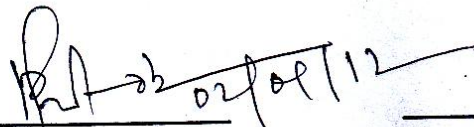
To visit the Sub-station.

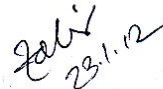
2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

ACSR line
ABR
ACR
Metering system
Transformers (3 ϕ , 1 ϕ)
Bus Bars
AVR
Distribution.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE 301,
EEE 441


02/09/12


23.1.12

Signature of the mentor with date

Name: Probhanto Kumar Sutrahar

Designation: AGM (CO & M)

Contact Phone #: 01936016003

Signature of academic supervisor with date

Name: MOHAMMAD FARID AZAM

Designation: LECTURER



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity-1
Name of the student:	Nawrin Shantia Khanom
ID:	2008-2-80-030

Date:	3/01/2012
Start time/End time	9.00 am - 1.00 pm, 2.00 pm - 5.00 pm
Location:	Favar, 132/33 KV Sub-station, Fulbaria, Savar, Dhaka
Mentor:	Renaz Nishat chowdhury

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1. What was the objective of the day's activities? (If applicable, list multiple objectives)

Today's objective was to visit 132/33 kv sub-station at Fulbaria, Savar, Dhaka.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

1. Visit the sub-station (132/33 kv)
2. Transmission line
3. CT, PT, relay and switch gear equipments principal.
4. Metering system
5. Grounding, Isolation

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE-303
EEE-304
EEE-441
EEE-442

Renz Nishat Chowdhury
31/1/12

Signature of the mentor with date
Name: Renz Nishat Chowdhury
Designation: AGM (CO & M)
Contact Phone #: 01936-016008
Renz Nishat Chowdhury
Asst. General Manager (CO & M)
Savar 132/33 kv Grid s/s
Dhaka Palli Biddut Samity-1

Rizvi Ahmed

Signature of academic supervisor with date
Name: Rizvi Ahmed
Designation: RL



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity - 1
Name of the student:	Nowrin Shantia Khanom
ID:	2008-2-80-030
Date:	4 th Jan, 12
Start time/End time	9.00 am - 1.00 pm ; 2.00 pm - 5.00 pm
Location:	Bishmail control room
Mentor:	Syeda Farhana Nag

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

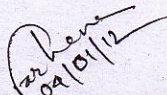
1. What was the objective of the day's activities? (If applicable, list multiple objectives)

To ~~about~~ know about the 33 KV and 11 KV circuit breakers that are used in a 33/11 KV substation.

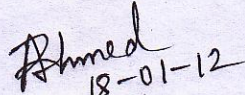
2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

— Distribution system of the Bishmile substation
— Saw the circuit breakers
— know about their function
— These breakers are different from 132 KV breakers.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.


Signature of the mentor with date
Name: Syeda Farhana Naz
Designation: AGM (CoSM)
Contact Phone #: 01723-271717

সৈয়দা ফারহানা নাজ
এ ডি এম (নিপার)
ঢাকা পবিস-১


Signature of academic supervisor with date
Name: Rizvi Ahmed
Designation: RL



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity - 1
Name of the student:	Nawrin Shantia Khanom
ID:	2008-2-80-030

Date:	5/01/12
Start time/End time	9.00am - 2.00pm, 2.00pm - 5.00pm
Location:	Nabinagar, Savar, Dhaka
Mentor:	Abdul Sobhan

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1. What was the objective of the day's activities? (If applicable, list multiple objectives)

To know about the staking designing or palli Bidyat
Sanity-01.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

- Description on staking and designing.
- about the transmission line, feeders, insulators, transformers etc.
- drawing system of a the or a system for live distribution.
- Calculate the costing.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE-301
EEE-200

Signature
5/1/12

Signature of the mentor with date
Name: Abdus Sobhan
Designation: Retainer Engineer
Contact Phone #: 643580

Signature
18-1-12

Signature of academic supervisor with date
Name: Rizvi Ahmed
Designation: RL



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity-1
Name of the student:	Noushin Shantika Khanom
ID:	2008-2-80-030
Date:	7/01/2012
Start time/End time	9.00 am - 1.00 pm, 2.00 pm - 5.00 pm
Location:	Summit Power Limited
Mentor:	M.N. Sazzed

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

- 1 What was the objective of the day's activities? (If applicable, list multiple objectives)

To know about the power generation system at summit power plant and also visit in the summit Power plant.

- 2 List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

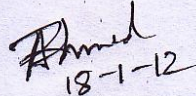
- Description on Power generation.
- About the PLC system
- a clear concept on power generation.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

?



Signature of the mentor with date
Name: M.N. Sazzed
Designation: Shift Engineer
Contact Phone #: 01716-604993



18-1-12

Signature of academic supervisor with date
Name: Rizvi Ahmed
Designation: RL



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Polli Bidyut Samity-1
Name of the student:	Mowtin Shanta Khanom
ID:	2008-2-80-030

Date:	8/01/2012
Start time/End time	9:00 am - 1:00 pm, 2:00 pm - 5:00 pm
Location:	United Power Generation & Distribution
Mentor:	Jahidul Islam

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1. What was the objective of the day's activities? (If applicable, list multiple objectives)

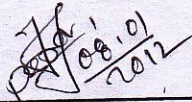
The objective of the day is to visit The United power generation & distribution.

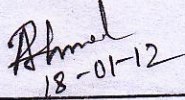
2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

-Caterpillar Engine
-MTU Engine
- total 41 MW power generation
- ~~two~~ Two way metering towards DEEZ and Palli Bidyut sanity-L.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE-301
EEE-304


Signature of the mentor with date
Name: Jahidul Islam
Designation: Generation & distribution
Contact Phone #: 01914001093


Signature of academic supervisor with date
Name: Rizvi Ahmed
Designation: RL



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity-1
Name of the student:	Nowrin Shantia Khanom
ID:	20072-80-030

Date:	3/01/2012
Start time/End time	9:00am - 1:00pm, 2:00pm - 5:00pm
Location:	Nabinagar, Savar, Dhaka
Mentor:	Shahinur Rahman

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1. What was the objective of the day's activities? (If applicable, list multiple objectives)

To know about the single line diagram and voltage drop calculation.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

— Lotus and Hewittand graphical softwares that are used to draw the single line diagrams.
— line voltage drop calculation and the procedure to reduce the voltage drop.
— About the LVR.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE-200.
EEE-101.

Shahin
09.01.12

Signature of the mentor with date

Name: Shahinur Rahman

Designation: Design Engineer [Electrical]

Contact Phone #: 01725135634

Ahmed
18-01-12

Signature of academic supervisor with date

Name: Rizvi Ahmed

Designation: RL



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity - 01
Name of the student:	Nowrin Shantia Khanom
ID:	2008-2-80-030
Date:	10/1/2012
Start time/End time	9am-1pm, 2pm-5pm
Location:	Nabinagar, Savar, Dhaka
Mentor:	Prasanto Kumar Sutradhar

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1. What was the objective of the day's activities? (If applicable, list multiple objectives)

Today's activity is the review of all department's working principle and also visit in the DE PZ-01 and DE PZ-02 substation (33kV/11kV)

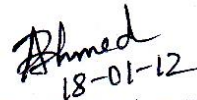
2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

- A brief review description from our supervisor
- Also visit the 20 MW substation of DE PZ-01 (33kV/11kV)
- Also visit 15 MW substation of DE PZ-02 (33kV/11kV)

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

 10/01/12
Prasanta Kumar Sutrachha
AGM (CO & M)
Make Path: Bishui Samity

Signature of the mentor with date
Name: Prasanta Kumar Sutrachha
Designation: AGM (CO & M)
Contact Phone #: 01936016003


18-01-12

Signature of academic supervisor with date
Name: Rizvi Ahmed
Designation: RL



Department of Electrical and Electronic Engineering
 East West University
 EEE 499
 Industrial Training
 Daily Activity Report

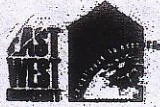
Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity - 01
Name of the student:	Nowrin shanika Khanom
ID:	2008-2-80-030

Date:	11 / 1 / 2012
Start time/End time:	9:00 am - 2:00 pm
Location:	Nabinagar, Savar, Dhaka.
Mentor:	Prasanto Kumar Sutrachar

General Instructions:

- It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
- The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
- The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
- In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.



Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1. What was the objective of the day's activities? (If applicable, list multiple objectives)

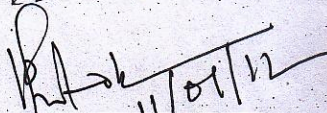
Today's activity is to give an exam on our internship in Dhaka Palli Bidyut Samity - I.

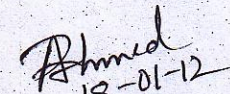
2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

- Our Super Vibor took an exam about the all department's activity.
- Also about transformer test, connection in the substation, CT, PT, etc.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEF - 301
EEF - 304
EEF - 200


Signature of the mentor with date
Name: Prasant Kumar Sutradhar
Designation: AGM (CO&M)
Contact Phone #: 01936016003


Signature of academic supervisor with date
Name: Rizvi Ahmed
Designation: RL

Prasant Kumar Sutradhar
AGM (CO & M)
Dhaka Palli Bidyut Samity