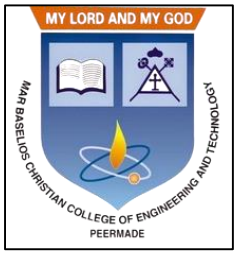


MAR BASELIOS CHRISTIAN COLLEGE OF ENGINEERING AND TECHNOLOGY, PEERMADE

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

REPORT ON

WEBINAR

OVERHEAD LINE PROTECTION AND LOSS REDUCTION TO IMPROVE RELIABILITY

ABOUT THE SESSION

Organized By: Electrical and Electronics Department

Date: 14-February-2022

Venue: Google Meet Platform

Attendees: Students of Electrical and Electronics Engineering

INTRODUCTION

The Department of Electrical and Electronics Engineering organized a webinar on the topic **"Overhead Line Protection and Loss Reduction to Improve Reliability"**, presented by **Er. Elbin Sabu M**. This session was conducted as part of the department's ongoing efforts to expose students to emerging trends and real-world practices in the electrical power sector.

The webinar focused on the significance of protecting overhead transmission lines, identifying common sources of power loss, and exploring methods to enhance system reliability. With increasing dependency on electric power in all sectors, minimizing technical losses and ensuring uninterrupted power delivery are critical objectives for utility engineers and system planners.

Er. Elbin Sabu M shared his in-depth knowledge on fault detection, protection schemes, and modern solutions that can be implemented to reduce transmission and distribution losses. The session not only provided theoretical insights but also highlighted practical approaches and industry best practices, making it highly relevant and beneficial for electrical engineering students.

This report summarizes the key points discussed during the webinar and outlines the major takeaways that contribute to the professional development and technical awareness of the participants.

SYNOPSIS OF THE PROGRAM

The webinar titled **"Overhead Line Protection and Loss Reduction to Improve Reliability"** was organized by the **Department of Electrical and Electronics Engineering** to enhance students' understanding of modern practices in power system protection and efficiency. The resource person, **Er. Elbin Sabu M**, delivered an informative session focusing on the various protection schemes for overhead lines and the technical methods used to reduce energy losses in transmission and distribution systems.

The session covered topics such as fault detection techniques, relay coordination, insulation and grounding practices, and real-time monitoring tools. Additionally, the webinar addressed the impact of technical and non-technical losses on power system reliability and explored practical strategies for minimizing them.

The primary goal of the program was to bridge the gap between academic learning and industry application by introducing students to current technologies and practices adopted by utilities to ensure a more resilient and efficient power grid. The event served as an excellent platform for knowledge exchange and career-oriented learning in the field of electrical engineering.

PO JUSTIFICATIONS:

- PO1 – Engineering Knowledge
  → Understanding of electrical principles behind overhead line protection systems and energy loss mechanisms.

- PO2 – Problem Analysis

  → Analysis of faults, power loss issues, and reliability challenges in transmission and distribution systems.
- PO3 – Design/Development of Solutions

  → Exposure to protection schemes and loss reduction methods that help design more reliable power systems.
- PO4 – Conduct Investigations

  → Insights into real-time fault analysis, load flow, and grid disturbances using modern investigation methods.
- PO5 – Modern Tool Usage

  → Introduction to protection relays, SCADA systems, and other tools used in modern electrical grid monitoring.
- PO6 – The Engineer and Society

  → Highlights the social importance of reliable electricity supply and the role of engineers in maintaining it.
- PO7 – Environment and Sustainability

  → Emphasizes loss reduction to improve energy efficiency, contributing to sustainable energy practices.
- PO8 – Ethics

  → Understanding ethical responsibilities in power distribution planning, safety, and public welfare.
- PO10 – Communication

  → Development of technical communication through interactive learning and discussions during the webinar.

- PO12 – Life-Long Learning
  → Encourages ongoing learning in evolving fields like smart grid protection and energy efficiency.

PSO JUSTIFICATIONS:

- PSO1 – Design, Analyse, and Test Electrical Systems
  → The webinar discusses designing protection systems and analysing performance using industry tools.
- PSO2 – Control and Signal Processing Functions
  → Involves understanding of control mechanisms and relay operations within overhead line protection systems.

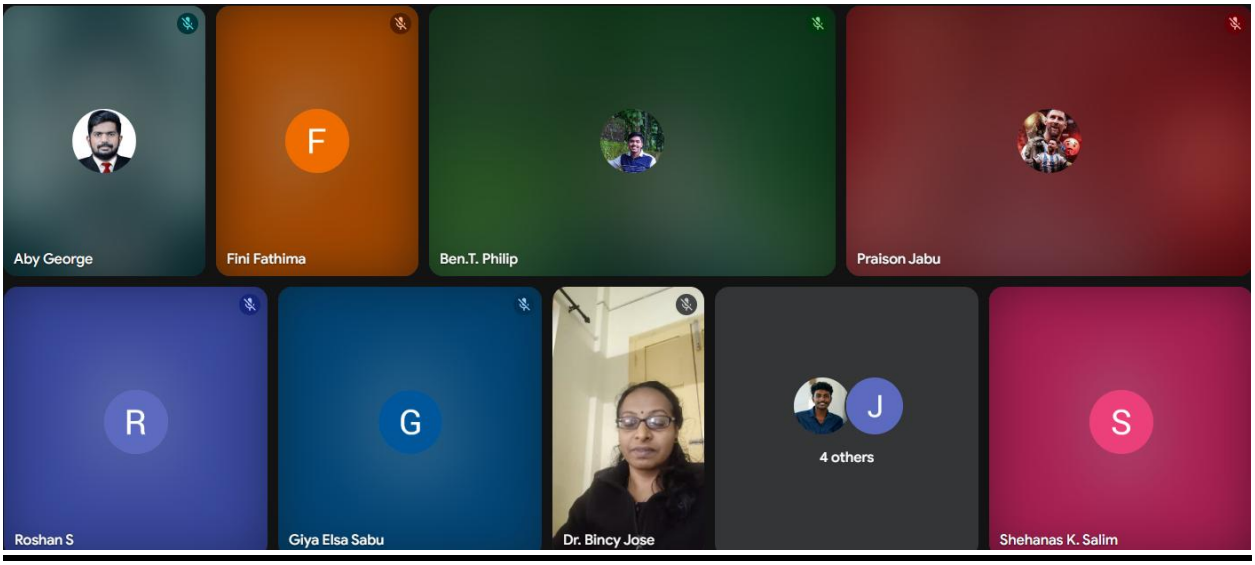
OUTCOME:

After attending the webinar, students were able to:

1. **Understand the importance of overhead line protection** systems in ensuring the reliability and safety of power transmission and distribution networks.
2. **Identify various types of faults** occurring in overhead lines and the protection mechanisms used to detect and isolate them.
3. **Gain insights into techniques for loss reduction**, including methods to minimize technical and non-technical losses in electrical systems.
4. **Familiarize themselves with modern tools and equipment**, such as relays, circuit breakers, and SCADA systems used in power system protection.

5. **Comprehend the role of electrical engineers** in maintaining a reliable and efficient power supply for societal development.
6. **Recognize the environmental benefits** of reducing energy losses and improving overall system efficiency.
7. **Enhance their technical knowledge and communication skills** through interaction with the expert speaker and discussion of real-world applications.
8. **Develop an interest in lifelong learning** by exploring recent trends and innovations in power system protection and reliability enhancement.

PHOTOS:



POSTER:


MAR BASELIOS CHRISTIAN
COLLEGE OF ENGINEERING & TECHNOLOGY
KUTTIKKANAM, PEERMADE
WEBINAR
OVERHEAD LINE PROTECTION
AND
LOSS REDUCTION TO IMPROVE RELIABILITY
MATERIAL THAT WILL BE DISCUSSED
Introduction to Overhead Lines
Losses in Overhead Lines
SPEAKER :
ELBIN SABU M
14
February
2 0 2 4
08.00 - PM
09:30

CONCLUSION:

The webinar on **"Overhead Line Protection and Loss Reduction to Improve Reliability"**, led by **Er. Elbin Sabu M**, provided valuable insights into one of the most critical areas of power system engineering. The session effectively connected theoretical knowledge with practical industry applications, helping students understand the significance of protection systems and the necessity of minimizing losses to ensure efficient and reliable power delivery.

The discussion emphasized modern techniques and tools used in fault detection, system monitoring, and energy conservation. Students gained a broader perspective on the challenges and solutions associated with maintaining the integrity of overhead transmission lines. The interaction with an industry expert also motivated them to stay updated with current technologies and innovations in the field.

Overall, the webinar was a highly beneficial learning experience, enhancing students' technical understanding, professional awareness, and readiness to contribute to the power and energy sector as competent electrical engineers.