



**MAR BASELIOS CHRISTIAN COLLEGE OF  
ENGINEERING AND TECHNOLOGY,  
PEERMADÉ**

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS  
ENGINEERING**

**REPORT ON**

**WEBINAR**

**QUALITY CONTROL & TESTING OF TRANSFORMER**

## **ABOUT THE SESSION**

Organized By: Electrical and Electronics Department

Date: 19-July-2024

Venue: Google Meet

Attendees: Students of Electrical and Electronics Engineering

# INTRODUCTION

The Department of Electrical and Electronics Engineering conducted a highly informative webinar on the topic **“Quality Control and Testing of Transformer”**, presented by **Er. Albin Sabu**, an expert in power equipment testing and quality assurance. The session aimed to provide students with in-depth knowledge about the manufacturing standards, testing procedures, and quality control measures essential to ensure the safe and reliable operation of transformers.

Transformers play a crucial role in power transmission and distribution systems, and their performance directly affects the efficiency and stability of the electrical grid. The webinar covered critical aspects such as routine and type testing, insulation resistance tests, oil analysis, and fault diagnosis techniques. Er. Albin Sabu also discussed industry standards like IS, IEC, and IEEE that govern transformer testing practices.

This session served as a valuable platform for bridging theoretical knowledge with practical industrial applications. It helped students understand the significance of testing in identifying defects, enhancing transformer reliability, and ensuring compliance with technical specifications. The webinar encouraged aspiring electrical engineers to appreciate the role of quality assurance in delivering safe and efficient power systems.

# SYNOPSIS OF THE PROGRAM

The Department of Electrical and Electronics Engineering organized a webinar on the topic **“Quality Control and Testing of Transformer”**, presented by **Er. Albin Sabu**, an industry professional with extensive experience in transformer testing and quality assurance practices. The webinar was aimed at providing students with practical insights into the critical testing procedures and quality control measures applied to transformers during manufacturing and commissioning stages.

The session covered various key areas including transformer construction basics, types of faults, insulation resistance testing, dielectric tests, oil quality testing, load and no-load tests, short-circuit tests, and routine vs. type testing as per international standards (IEC/IEEE/IS). The importance of each test in ensuring performance, safety, and compliance with regulatory standards was thoroughly explained.

The webinar also emphasized the role of electrical engineers in identifying manufacturing defects, preventing premature failures, and improving transformer reliability through standardized inspection protocols. The session encouraged students to consider quality control and equipment testing as important career domains within the electrical engineering profession.

## PO JUSTIFICATIONS:

### **PO1 – Engineering Knowledge**

→ Involves application of core electrical engineering concepts related to transformer design, function, and performance.

### **PO2 – Problem Analysis**

→ Analyzing issues such as winding faults, insulation failure, and testing abnormalities through standard procedures.

### **PO3 – Design/Development of Solutions**

→ Understanding how quality testing supports improved design and ensures system safety and efficiency.

### **PO4 – Conduct Investigations**

→ Involves practical understanding of fault diagnosis, routine and type tests, and interpreting test results.

### **PO5 – Modern Tool Usage**

→ Exposure to testing instruments and diagnostic tools used in transformer testing (e.g., megger, turns ratio tester, tan delta kit).

### **PO6 – The Engineer and Society**

→ Highlights the engineer's role in delivering reliable and safe transformers that impact everyday electricity usage.

### **PO8 – Ethics**

→ Underlines the importance of accurate reporting, honest inspection, and adherence to standards during quality testing.

### **PO10 – Communication**

→ Understanding and communicating test results, inspection reports, and technical documentation effectively.

### **PO12 – Life-Long Learning**

→ Encourages continuous learning of evolving standards (IS/IEC), new test methods, and innovations in transformer testing.

## **PSO JUSTIFICATIONS:**

### **PSO1 – Design, Analyze, and Test Electrical Systems**

→ Directly aligned with quality inspection and stability analysis of components and systems using hardware and software tools.

### **PSO2 – Control, Analog, and Digital System Functions**

→ Applicable when assessing the performance and reliability of control systems and electronic circuits during inspection.



## **OUTCOME:**

After attending the webinar on “**Quality Control and Testing of Transformer**”, students were able to:

1. **Understand the importance of quality control** in the manufacturing and maintenance of transformers to ensure safety, efficiency, and reliability.
2. **Gain knowledge of various testing procedures**, including routine tests, type tests, insulation resistance, oil testing, and load/no-load performance evaluations.
3. **Identify common transformer faults** and learn how to detect and analyze them using standard industrial testing equipment.
4. **Familiarize themselves with national and international testing standards**, such as IS, IEC, and IEEE, and understand their role in quality assurance.
5. **Appreciate the role of electrical engineers** in ensuring compliance, system stability, and product safety through accurate testing and inspection protocols.
6. **Develop awareness of modern diagnostic tools** used in transformer testing and fault analysis in real-world power systems.
7. **Strengthen their understanding of testing documentation**, inspection reports, and data interpretation for decision-making in the field.
8. **Encourage continuous learning** in the area of power equipment testing and industrial quality control as a potential career path.

## OUTCOME:

After attending the webinar on “**Quality Control and Testing of Transformer**”, students were able to:

1. **Understand the importance of quality control** in the manufacturing and maintenance of transformers to ensure safety, efficiency, and reliability.
2. **Gain knowledge of various testing procedures**, including routine tests, type tests, insulation resistance, oil testing, and load/no-load performance evaluations.
3. **Identify common transformer faults** and learn how to detect and analyze them using standard industrial testing equipment.
4. **Familiarize themselves with national and international testing standards**, such as IS, IEC, and IEEE, and understand their role in quality assurance.
5. **Appreciate the role of electrical engineers** in ensuring compliance, system stability, and product safety through accurate testing and inspection protocols.
6. **Develop awareness of modern diagnostic tools** used in transformer testing and fault analysis in real-world power systems.
7. **Strengthen their understanding of testing documentation**, inspection reports, and data interpretation for decision-making in the field.
8. **Encourage continuous learning** in the area of power equipment testing and industrial quality control as a potential career path.

# PHOTOS:





POSTER:



MAR BASELIOS CHRISTIAN  
COLLEGE OF ENGINEERING & TECHNOLOGY  
KUTTIKKANAM, PEERMADÉ

# WEBINAR

QUALITY CONTROL & TESTING OF  
TRANSFORMER

MATERIAL THAT WILL  
BE DISCUSSED

Introduction to Transformers

Need for Quality Control in  
Transformers

SPEAKER :

ALBIN SABU

19 July  
2024

08.00 - PM  
09:30



## CONCLUSION:

The webinar on **“Inspection and Quality Check Stability”** delivered by **Er. Elbin Sabu M** was highly informative and relevant to the academic and professional development of electrical engineering students. The session provided valuable insights into the critical role of inspection and quality assurance in ensuring the safety, performance, and reliability of electrical systems.

Through the discussion of standard procedures, real-world practices, and industrial benchmarks, students gained a practical understanding of how quality checks are conducted and why they are essential in every stage of engineering—from design and production to maintenance and compliance. The resource person effectively bridged the gap between theoretical learning and its real-time industrial applications.

Overall, the session enriched the participants' knowledge and encouraged them to adopt a mindset of precision, responsibility, and continuous improvement—core attributes of a successful professional in the field of electrical and electronics engineering.



Field	Details
Name of Student	Thushara
Roll Number	6
Department	ECE
Semester	S7
Course Name	
Course Code	
Date	

### ◆ 1. Activity Relevance

- Was the **objective** of the gap-filling activity clear and relevant to the course content?  
☒ Yes ☐ Partially ☐ No  
Comment: \_\_\_\_\_

### ◆ 2. Learning Outcomes

- Which of the following **Course Outcomes (COs)** did the activity help you achieve?  
(Tick all that apply)  
☒ CO1 - *Thushara DCM7, SIM, PS, PL*  
☐ CO2 -  
☐ CO3 -  
☐ CO4 -  
☐ CO5 -  
☐ CO6 -  
☐ CO7 -  
☐ CO8 -  
☐ CO9 -
- How effectively did the activity support the above COs?  
☐ Highly Effective ☐ Effective ☐ Moderately Effective ☐ Not Effective

### ◆ 3. Program Outcomes (POs) Mapping

- To what extent did this activity help improve the following **Program Outcomes**?

PO	Outcome	Rating (✓)
PO1	Engineering knowledge	<input checked="" type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low
PO2	Problem analysis	<input checked="" type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low



PO3	Design/development of solutions	<input checked="" type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
PO4	Conduct investigations of complex problems	<input checked="" type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
PO5	Modern tool usage	<input checked="" type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
PO6	The engineer and society	<input checked="" type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
PO7	Environment and sustainability	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
PO8	Ethics	<input checked="" type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
PO9	Individual and teamwork	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
PO10	Communication	<input checked="" type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
PO11	Project management and finance	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
PO12	Life-long learning	<input checked="" type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low

#### ◆ 4. Difficulty Level

- How would you rate the difficulty of the activity?

☐ Very Easy    ☐ Easy    ☐ Moderate    ☐ Difficult    ☐ Very Difficult

- Reason: \_\_\_\_\_

#### ◆ 5. Suggestions for Improvement

- What improvements would you suggest for similar activities in the future?

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#### ◆ 6. Overall Feedback

- Did this activity enhance your understanding of the topic?

☐ Yes    ☐ Partially    ☐ No

- Would you recommend this type of activity for future sessions?

☐ Yes    ☐ Maybe    ☐ No

General Comments:

Arisha mal nish  
Arisha