

# REFLECTIVE ELECTRICAL ENGINEERING LEARNING (REEL2026)

Building Skills and Professionalism through  
Industrial Training

# SKILLS



**REEL2026**  
Reflective  
Electrical Engineering Learning

# REFLECTIVE ELECTRICAL ENGINEERING LEARNING

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## BUILDING SKILLS AND PROFESSIONALISM THROUGH INDUSTRIAL TRAINING



## REEL 2026

### REFLECTIVE ELECTRICAL ENGINEERING LEARNING

*"Building Skills and Professionalism  
through Industrial Training"*

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## **Lessons from Industrial Training in Photonics Testing: Developing Practical Technical Skills for Lifelong Learning**

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Industrial training provides a vital platform for Electrical Engineering students to gain real-world experience in addition to theoretical knowledge acquisition. This reflective article describes my internship at Jabil Circuit, located at Batu Kawan, Penang. The purpose of this internship is to expose me to industry practices, particularly in advanced technologies industries.

During my internship, I worked in the Test Engineering (TE) department in the photonics section whereby my responsibilities are testing optical communication modules in clean room environment. As for Test Engineering department, its key role is to make sure that all products produced by the company are up to the required quality and performance standards before being released to customers.

Photonics is defined as an advanced branch of technology that deals with the use of light for the transmission of data in high-speed communication systems such as data centres and cloud computing systems. This reflection article outlines my technical responsibilities, including Bit Error Rate (BER) testing, Duty Cycle and Extinction optimization (DCEO) testing, and additional activities involving troubleshooting, calibration, and equipment maintenance

### **Specific Technical Tasks and Responsibilities**

As a trainee in TE department, my responsibilities include the testing of products manufactured by the company. One of the technical tasks given to me was the BIT error rate testing, whereby the quality of optical communication systems is measured based on this test. The BIT error rate testing involves the transmission of a particular set of data to measure its quality.

Furthermore, the next technical task was the DCEO testing that includes checking the quality of signals in terms of extinction ratio, signal symmetry and waveform quality through the analysis of the eye diagrams. Through the process, I learn that the signal quality has direct impact on the overall performance of the system. Poor extinction ratio or inappropriate duty cycle will lead to high degrees of signal distortion thus affecting BIT performance.



Figure 1: Performing BIT Error Rate Testing in Clean Room Environment



Figure 2: Setup and Signal Analysis in DCEO Testing



Figure 3: Repair of fiber Scope Using Soldering Technique

Another task assigned to me was the repairing of a fiber inspection scope. While carrying out this repair process, I improved my soldering skills. I learn how to properly solder components while doing repairs.



Figure 4: Calibration of Testing equipment before testing

Calibration of testing equipment before running product unit was another skill I acquired. Calibration is vital in order to make sure that the tester produces accurate measurement. I was trained to do the calibration process.

### **Tools, Equipment, and Safety Practices**

Being a trainee in the photonics section in TE department, I must follow clean room protocol when performing my tasks. Personal protective equipment (PPE) including safety shoes, ESD smocks, hair covers and gloves must be worn in order to prevent contamination and to protect sensitive devices from electrostatic discharge.

I used several types of testing equipment such as optical test station, BIT tester, optical power meter, fiber connectors and cables during my testing procedure in clean room. Clean room environment plays vital role as microscopic dust can distort testing results in optics testing.

### **Technical Problems and Solutions**

One of the biggest problems I encounter was in handling optical components. Optical components are highly sensitive; hence a minor misalignment can cause signal distortion. Through proper handling and adherence to SOPs, this issue was resolved.

In terms of knowledge, initially, I could not understand some technical parameters such as BIT value, extinction ratio and eye diagram analysis. With repeated observation and asking for help from engineers, finally, I managed to understand the relationship between those parameters and the signal performance.

It seems that testing processes are always done repetitively. However, I have come to realize that testing procedures must be performed accurately and consistently to avoid incorrect test results. For example, cleaning the fiber repeatedly is required to obtain better results.

Another challenge encountered during my internship involved the testing equipment, where the testers occasionally produced inconsistent results. According to the technicians' guidance, appropriate calibration and correct setup of the tester are essential to ensure reliable test results. Hence, I realized that in addition to producing quality products, testing equipment must also operate effectively.

### Life-long Learning and Professional Growth

My internship exposure gave me opportunities to learn the application of theoretical knowledge in the industry. Prior to this, I only knew about theoretical data transmission in communications systems. In the photonics department, I have chance to apply what I have learnt in real world context.

Apart from technical knowledge, other practical knowledge I acquire is the troubleshooting of tester, repair of components and calibration of testing equipment. This experience makes me become a confident electrical engineer with sufficient technical skills.

In summary, my internship experience has provided me with immense knowledge and skills in photonics. Being exposed to photonics testing has given me valuable experience in handling high-level testers and analyzing the quality of signal performance. Overall, my professional competency is becoming higher due to this experience.

### Conclusion

In conclusion, my training experience at Jabil Circuit has helped me develop knowledge and skills related to photonics and optical communication systems. Through performing BIT error rate and DCEO testing tasks, I was able to understand how testers work and analyze signal quality performance. With this experience, I have developed greater competence as an electrical engineering intern.

### Authors' Biography



**Muhammad Amsyar Mohd Hashim** studying Diploma in Electrical Engineering (Power) at Universiti Teknologi MARA (UiTM) Cawangan Pulau Pinang. During my studies, I am doing internship at Jabil Circuit Sdn Bhd from 2nd March 2026 to 22nd July 2026. This internship exposure gives me opportunity to gain further insight into the area of my interest which includes power system, facility management and embedded system. My career ambition is to become a competent electrical engineer.



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