

REFLECTIVE ELECTRICAL ENGINEERING LEARNING (REEL2026)

Building Skills and Professionalism through
Industrial Training

SKILLS



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Reflective
Electrical Engineering Learning

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BUILDING SKILLS AND PROFESSIONALISM THROUGH INDUSTRIAL TRAINING



REEL 2026

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*"Building Skills and Professionalism
through Industrial Training"*

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*Reflection transforms
experience into meaningful learning*

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A Reflective Study on Industrial Training Experience Voltage and Current Measurement at Feeder Pillar for Low Voltage Complaint

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While on my industrial training with Tenaga Nasional Berhad (TNB), I had the privilege to assist the technical team in handling real customer cases involving power supply issues. For instance, one of the most memorable tasks was to handle a customer complaint regarding low voltage supply. The task entailed analyzing the problem in situ via measurements done at the feeder pillar.

The task began with a customer complaining about experiencing low voltage supply at their premises. The TNB team was tasked with investigating the matter by doing measurements at the feeder pillar, which distributes electrical power to several consumers. At the site, the team opened the feeder pillar and did measurements of voltage and current using the right measuring devices. As an observer, I saw the technicians connecting the measuring devices carefully while observing safety measures, including donning personal protective equipment (PPE) and maintaining adequate safe working distances.

The measurements indicated that the voltage level was below the acceptable operating range, thereby validating the reported voltage complaints. In addition, a relatively high current load was observed at the feeder. Based on the measurements, the technicians estimated the load distribution and compared it with the standard values calculated by the engineers. It was found that the existing feeder pillar was supplying power to an excessive number of consumers, resulting in significant voltage drops. Consequently, the team recommended the installation of a new feeder pillar to redistribute the load. Once the load is properly balanced, the voltage levels are expected to stabilize, benefiting all consumers.



Figure 1: Voltage And Current Measurement at Feeder Pillar During Site Inspection

Figure 1 shows the measurements taken at the feeder pillar to assess the voltage and current levels of the electrical supply. A clamp meter and a digital multimeter were used to obtain accurate readings. The clamp meter was used to measure the current in each phase without disconnecting the cables, while the multimeter measured the voltage between phases and neutral. The measurements were carried out in accordance with proper safety procedures. The results confirmed that the voltage level was below the standard operating range, while the current was relatively high. This indicates that the feeder pillar was experiencing excessive load demand, leading to the voltage drops reported by customers.



Figure 2: Distance Measurement for Installation of New Feeder Pillar

Figure 2 illustrates the distance measurement conducted at the site to identify the appropriate position where a new pillar should be injected. A measuring wheel was used to measure the distance accurately along the roadside. The distance measurement is important in identifying the best position for injecting a new pillar to help distribute the electrical load from the existing feeder. Installing a new pillar is significant to enable redistribution of the electrical load to minimize the voltage drop problem and stabilize the power supply.

In summary, the experience enhanced my knowledge and understanding of power distribution systems and the significance of maintaining the voltage levels within the standard operating range. From this practical learning experience, I have learned how voltage drops occur because of excess load. Moreover, I learned the importance of managing loads properly during electricity distribution. I also got hands-on practice in the use of measuring instruments and interpreting real-time data. Observing the team's methodology in problem-solving enhanced my understanding of how technical decisions are derived from site conditions and engineering calculations. Finally, safety awareness is another lesson learned from this exercise, as we were able to observe safety practices, including the use of PPE.

Authors' Biography



Ezzad Iskandar Rashidi is a highly motivated student pursuing a Diploma in Electrical Engineering (Power) at Universiti Teknologi MARA (UiTM) Cawangan Pulau Pinang. Currently, Ezzad is undergoing an industrial internship at Tenaga Nasional Berhad (TNB) from 2nd March to 21st June 2026. This hands-on experience allows him to apply theoretical knowledge in a real-world situation, further emerging his expertise in electrical engineering and contribute to industry and become a skilled professional in electrical engineering.



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