

REFLECTIVE ELECTRICAL ENGINEERING LEARNING (REEL2026)

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Industrial Training

SKILLS



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Reflective
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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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Development of Practical and Technical Skills During Industrial Training in Electrical Engineering

Muhammad Haziq Imran bin Amri, *Abdul Rahim bin Ahmad

Faculty of Electrical Engineering, Universiti Teknologi MARA Cawangan Pulau Pinang,
Permatang Pauh, Malaysia

*Corresponding author's email: arahima@uitm.edu.my

When I began my internship at JKR Shah Alam, I was overwhelmed and confused. When I was studying Electric Power as an engineering student at UiTM Permatang Pauh, I initially believed that I would be working as a chargeman or technician, and that most of my work would be with wiring and installation of systems. But after entering the professional realm, I have come to understand that engineering is much more than technical work, it is problem-solving, safety and long-term effects.

My experience as an intern taught me that my studies were not only designed to fit me into a particular technical position but rather prepare me with the tools and the mind to be a balanced engineer. This change in perception helped me to understand that my courses were preparing me with the basis of critical thinking, safety management as well as accountability in every sense of engineering projects.

The most enlightening experience that I had as an intern was with distribution board (DB) plans. My initial efforts were full of mistakes: the cable sizes were not properly selected, the breakers were not appropriately located, and Maximum Demand (MD) was not calculated correctly. Whenever I turned in my work, my seniors did not simply indicate my errors, they gave me reasons as to why precision is important. I strongly remember this moment when a wrongly calculated MD value was indicated and my senior shared the reason as to how the slightest error can result in overloading, nuisance tripping or a case of worse outcome, and safety hazards. This was when I understood that engineering is all about never giving up: it is not about trying to get something right the first time but rather practicing the skills of letting a problem be revealed and corrected in its infancy before it gets out of control.



Figure 1: Faulty SPD Observed in Electrical Panel Due to Surge Impact

One of the most memorable experiences that occurred during my time as an intern was when I went on a site visit to the tallest flagpole in Southeast Asia. The significance of Surge Protective Device (SPD) compartmentalization was introduced to me. The engineers stated that when an SPD is installed too near MCBs or MCCBs there is a risk that a surge will destroy the entire system. The realization of this principle in the real world helped me realize how much consideration is put in each design choice. Not only did this incident drive home the value of the safety-first mindset but also made me realize that an engineering choice has long-term ramifications, including the reliability of a system, and the safety of the general population.



Figure 2: Site Visit to the Tallest Flagpole in Southeast Asia

Besides the technical capabilities, I have been introduced to the industry-standard certifications such as ETABS, AutoCAD and BIM. It was informative to see how these tools were applied on the field. To give an example, I observed the role of AutoCAD in assisting the engineers to perfect the DB plans, considering real world constraints such as cable routing, space restrictions amongst others. The demonstrations of these tools helped me learn the reason why they are required in the process of making any project efficient, accurate, and high quality. This inspired me to strive towards undertaking certifications in these fields so I can enhance my career opportunities while further expanding my engineering knowledge and expertise.

The collaboration with more seasoned professionals, many of whom are also UiTM lecturers, enhanced my comprehension of the application of academic concepts into practice. Their mentorship enabled me to realize what the engineering profession entails not only in a technical sense but also in a moral sense of the responsibility that engineers have towards the society, environment and people safety.

One of the most influential experiences was when I got the opportunity to go through the Bill of Quantities (BQ) of a large-scale project with a budget of 10 million. This specific experience changed my view of engineering. It was not merely development of technical drawings but rather running of massive budgets, cost-efficiency and making decisions that impact overall communities. I understood that engineers do not design systems alone, they

are also expected to manage the project, budget and make sure that the infrastructure that is provided to the population is undertaken in a safe and efficient manner.

Going through my internship experience, now I have a definite career path. I will strive to be a Graduate Engineer (GE) and progressively achieve my Professional Engineer (Ir.) qualification. The experience has provided me with the decisiveness and clarity to proceed to the next steps towards becoming a licensed engineer.

The internship has changed my life. The knowledge I have gained throughout the process of learning about the accuracy required in calculations to the significance of certifications and the duty that we as engineers have has influenced how I have perceived the engineering profession. Now I also consider it a career that involves more than technical skills, there is also the critical thinking, project management and safety that should be ensured. I am also eager to carry on with this adventure and resolve to expand on the platform I have established at JKR.

Authors' Biography



Muhammad Haziq Imran bin Amri is a committed student who is undertaking a Diploma in Electrical Engineering (Electronics) at Universiti Teknologi MARA (UiTM) Cawangan Pulau Pinang. In his study life, he will be having an internship with JKR Shah Alam from 2nd March 2026 to 21st June 2026. This practical experience enables him to use theoretical knowledge in the real-world environment, furthering his skills in electrical and electronics engineering. With great interest in technological innovations, he wants to make a significant contribution to the field and become a professional in electrical and electronics engineering.



Abdul Rahim bin Ahmad is currently a lecturer with the Department of Computer, Faculty of Electrical Engineering at Universiti Teknologi MARA Cawangan Pulau Pinang since 2001. Received his degree of electrical engineering from Universiti Teknologi Malaysia in 1996. His teaching courses are Programming, Computer Networking and Microprocessor System. He is interested in research areas including Embedded System and Image Processing using Artificial Intelligence or Internet of Things.

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