

REFLECTIVE ELECTRICAL ENGINEERING LEARNING (REEL2026)

Building Skills and Professionalism through
Industrial Training

SKILLS



REEL2026
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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From Theory to Practice: My Industrial Training Experience at Flex, Prai

Muhammad Hasnol Izhar bin Ahmad Haslizan, *Aiza Mahyuni binti Mozi
Faculty of Electrical Engineering, Universiti Teknologi MARA Cawangan Pulau Pinang,
Permatang Pauh, Malaysia

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

The transition from theoretical learning to real-world application is one of the most significant phases in an engineering student's academic journey. As a Diploma student in Electrical Engineering (Power), industrial training at Flex (Flextronics) Plant 1, Prai, Penang provided valuable exposure to the practical demands of a manufacturing environment. This experience allowed classroom knowledge to be applied in real industrial operations, while also developing a deeper understanding of workplace discipline, technical responsibility, and professional communication.

At the beginning of the internship, adapting to the fast-paced production environment was challenging, particularly because accuracy, efficiency, and time management are essential in daily industrial operations. Unlike academic exercises, industrial tasks require immediate understanding, careful execution, and the ability to respond to real-time production needs. Figure 1 shows a Hari Raya gathering with the Industrial Engineering (IE) team, which reflects the supportive working environment and professional interaction experienced during the internship. Through continuous involvement in technical activities such as cycle time measurement, workstation setup, production line modification, and electrical installation, the ability to apply theoretical knowledge to practical engineering tasks gradually developed.



Figure 1: Hari Raya Gathering with the Industrial Engineering (IE) Team

One of the most meaningful tasks during the internship was conducting cycle time measurements on the production line, as shown in Figure 2, particularly for the inspection and module assembly processes of the AMD and Hornbill lines. A stopwatch was used to record several production cycles to determine the time required to complete one unit of product. At the initial stage, the importance of accuracy in time measurement was not fully recognized. However, it became clear that even a small variation of one to two seconds could significantly affect overall production output.

This task became more challenging when cycle time data had to be collected for multiple

modules within a limited period. The need to obtain accurate and sufficient data requires a high level of focus, consistency, and discipline. In addition, understanding the workflow at each workstation was essential to ensure that the start and end points of each cycle were correctly identified. This experience strengthened technical observation skills and highlighted the importance of precise data collection in improving production efficiency.



Figure 2: Calculating manufacturing cycle time in the production line



Figure 3: Example of the material trolley that has been fabricated

In addition to analytical tasks, I was actively involved in fabrication work in the Moonshine Section, particularly in the construction of material handling trolleys used in the production line as shown in Figure 3. This process involved measuring, cutting, and assembling metal components using various hand tools. Through this hands-on experience, I gained practical exposure to fabrication techniques and learned how mechanical structures are designed to support production operations. I also understood the importance of precision and structural stability in ensuring that the trolleys function effectively in a real industrial environment.

Another valuable experience was participating in the movement and relocation of production machines, such as the TRI wave soldering machine, to a new production line as shown in Figure 4. This task required careful planning, coordination, and execution to ensure minimal disruption to production activities. I was involved in preparing the workspace, assisting in equipment relocation using appropriate tools, and performing electrical setup and cable management after installation. This experience provided me with insight into how production line layout changes are implemented and how electrical systems must be properly managed to ensure safe and efficient operation. Through these combined experiences, I was able to observe how different engineering functions analysis, fabrication, and system integrate work together to support production efficiency. Each task required a different set of skills, from data analysis to hands on technical work, further strengthening my overall engineering competency.



Figure 4: Movement of the Wave Machine from Another Plant to A New Production Line from Left to Right, Respectively



Figure 5: Monitoring vendor and alerting them to safety regulations

Safety awareness was another important aspect of my internship. I learned to follow proper safety procedures when using hand tools such as drills, handling equipment, and performing electrical-related tasks. I was also given the responsibility to monitor worker compliance with safety regulations as shown in Figure 5, provided practical exposure to workplace safety practices and highlighted the importance of maintaining a safe working environment. This experience increased my awareness of potential hazards and reinforced the importance of safety in engineering practice. Throughout my internship, I also developed my professional skills through participation in meetings and interaction with engineers and supervisors. Although contributing to discussions was challenging at the beginning, continuous exposure to the workplace environment gradually improved confidence in sharing ideas and asking relevant questions. This helped strengthen my communication skills and develop a more professional attitude in handling workplace responsibilities.

Looking back, this industrial training experience has transformed my understanding of engineering from a theoretical subject into a practical and dynamic field. I learned that engineering is not only about calculations and formulas, but also about observation, problem-solving, teamwork, and continuous improvement. The challenges encountered throughout the training helped build resilience, confidence, and adaptability, which are essential qualities for lifelong learning and future engineering practice. In conclusion, my industrial

training at Flex, Prai has been a valuable experience that significantly contributed to my technical and professional development. Through hands-on activities such as cycle time analysis, workstation improvement, and electrical setup, I was able to apply engineering knowledge in real-world situations. This experience has strengthened my skills, broadened my perspective, and prepared me for future challenges in the engineering field with greater confidence.

Authors' Biography



Muhammad Hasnol Izhar bin Ahmad Haslizan is a dedicated student pursuing a Diploma in Electrical Engineering (Power) at Universiti Teknologi MARA (UiTM) Cawangan Pulau Pinang. As part of his academic journey, Hasnol is currently undergoing an internship at Flextronics Technology Plant 1 from 2nd March to 21st June 2026. This hands-on experience allows him to apply theoretical knowledge in a real-world setting, further developing his expertise in engineering.



Aiza Mahyuni binti Mozi has 16 years of experience in electrical engineering education and currently serves as a Senior Lecturer at the Faculty of Electrical Engineering. She received a Bachelor of Engineering (Hons) in Electrical Engineering from Universiti Malaysia Perlis in 2007 and a Master of Engineering in Electrical Engineering, specializing in Communication, from Universiti Tun Hussein Onn Malaysia (UTHM) in 2009. She is currently pursuing a PhD in Electrical Engineering, specializing in Communication, at UiTM Cawangan Pulau Pinang. Her current research interests include radio frequency (RF), microwave engineering, and antenna propagation.

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