

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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Building Skills and Professionalism Through Industrial Training at Perodua Manufacturing

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On job training is a crucial opportunity for engineering students to gain practical experience and connect classroom learning with its applications in a manufacturing environment. As an intern in Perodua Manufacturing Sdn. Bhd., I was placed in the Production Engineering (Body) department and got to experience different manufacturing processes, especially in automation and robotics.

In this article, I will discuss my practical learning in robot teaching, spot welding, safety and a brief exposure to programmable logic controllers (PLC) which have been beneficial in my technical and professional growth.

A particularly valuable experience during my training was working with spot welding robots in the body assembly line. Initially, I just observed the robots doing the welding work repeatedly and accurately. But my knowledge grew when I had the chance to learn and operate the pendant of robot under the guidance of my supervisor.



Figure 1: Operating Robot Pendant

From this, I understood how Iwatani's engineers and teaching man control the robot motion and welding points. I also helped spot welding points on parts, which is a crucial step to successful welding in production. This process needs to be done carefully because it can affect the product.

At first, I struggled to comprehend the process flow and robot operation order. As time went by, I started to gain confidence with guidance from my supervisor. This experience highlighted that automation systems still require human accuracy and programming to operate.

Other than robotics, I was also engaged in a few other technical activities that improved my skills. These tasks involved identifying components and their specification numbers, helping to create specification sheets and understanding the sequence of the pallet changer which is used in the production process.

Furthermore, I learned about Mitsubishi PLC systems that are used to control and automate processes in the plant. While my participation was limited, I saw how PLC logic programs are used to control sequences like machine cycles and material conveyors.



Figure 2: Inside of Mitsubishi PLC

This experience was very relevant to my studies in the Electrical and Electronic Engineering (EE) programme on a course that related to control systems and automation. Ideas such as inputs, outputs, sequences and logic control were used in practice as I saw in the system. This allowed me to reinforce my knowledge and see how valuable PLC knowledge is when it comes to engineering.

My work on specification sheets also taught me how engineers communicate technical information effectively. I also learned about welding parameters and their effects on weld strength and quality, enabling me to apply theory to practice. I also participated in Gemba walks. By seeing first-hand how things work on the shopfloor, I could relate to how systems work in a production environment, which added to my understanding.

I was well advised on safety practices. On the first day I had a safety induction about identifying hazards, using personal protective equipment (PPE) and plant safety protocol. A particular practice that was encouraged is the 3-point safety check (Yosh) to raise awareness when walking around the plant. I also learned about permit-to-work system, which authorizes and ensures the safety of tasks. This practice helped me to recognize that safety is not merely a regulation, but an expectation for all engineers. This helped me to be more conscious of ensuring a safe workplace.

During the internship, I was involved in meetings, giving weekly reports and interacting with engineers and team members. This helped me to develop communication and technical presentation skills.

I also learned how engineers work together, plan their tasks, and technical problems. This taught me the value of collaboration, time management and professionalism in the workplace. As time went on, I also grew more confident in communicating with others and being proactive in my work, showcasing my improvement in non-technical areas.



Figure 3: Meeting at HW Sinaran with Vendors for Project Schedule

Overall, my experience of industrial training at Perodua Manufacturing has equipped me with practical skills and insights in engineering. The hands-on experience of robotics, PLC, technical tasks and safety has improved my knowledge of practical engineering applications.

Authors' Biography



Muhammad Naufal Hakimi bin Zahir is a Diploma in Electrical Engineering student at Universiti Teknologi MARA (UiTM) Cawangan Pulau Pinang. He is on industrial training at Perodua Manufacturing Sdn. Bhd. from March to June 2026. He is working in the field of automation systems, electronics and robotics. He hopes to enhance his knowledge in control systems and automation for his career.



Ts Dr. Norazwana binti Mohd Najib has 3 years of experience in Electronic Engineering field since she joined Universiti Teknologi MARA Permatang Pauh in 2023. She received Bachelor of Electrical Engineering (Hons) from Universiti Teknologi MARA (UiTM) in 2008. In 2009, she received Master of Engineering Science (Telecommunications) from University of New South Wales, Australia and was appointed as Product Engineer at Keysight Technology Bayan Lepas. She served with Ministry of Human Resource as Vocational Training Officer for 13 years. In 2018, she received her PhD in Electrical and Electronic Engineering from University of Leeds, United Kingdom and current research interest are filters and antenna design.

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