WORK-STUDY DIPLOMA IN MECHANICAL SYSTEMS ENGINEERING

Course Objective

This Work-Study Diploma course aims to equips trainees with the engineering skills, knowledge and professional attributes to install, maintain and troubleshoot mechanical equipment and smart systems, implement quality control and risk management procedures, and manage engineering activities to maximise resources and minimise equipment downtime, ensuring the optimal operating condition of the mechanical system.

Module Objectives

Mechanical Systems Maintenance

On completion of this module, trainees should be able to implement testing procedures and analyse results for follow-up measures, and implement repair and maintenance procedures to ensure the functionality and safe operation of equipment and systems.

Engineering Drawing

On completion of this module, trainees should be able to interpret engineering blueprints and equipment specifications, draw engineering components and generate 3D models. He/She should also be able to update engineering drawing, convert 3D model to 2D drawing using CAD software and prepare technical data package for fabrication.

Mechanical Systems in Operation

On completion of this module, trainees should be able to set up an optimal operating/workplace environment ensuring adherence to industry specific processes and procedures. He/She should also be able to implement a safety culture, monitor performance of equipment and system components, coordinate maintenance work and prepare technical reports for follow-up.

Mechanical Installation

On completion of this module, trainees should be able to apply the principles of equipment lifecycle to perform installation. He/She should also be able to perform testing and commissioning of mechanical equipment and systems in compliance with regulatory requirements and practices, and update technical documentation.

Instrumentation & Control

On completion of this module, trainees should be able to perform troubleshooting and root cause analyses on sensors and monitoring systems to identify potential malfunctions and provide solutions. He/She should also be able to perform rectification and calibration to ensure the continuous operations of analog equipment, components and systems.

Robotics Systems Engineering

On completion of this module, trainees should be able to collect and interpret system performance data, conduct testing and configure the robotic system to meet equipment performance requirements.

Smart Systems Engineering

On completion of this module, trainees should be able to diagnose faults and troubleshoot any abnormality detected on robotic and automation systems. He/She should also be able to support programming of automation system for optimal performance, and maintain the robotic and automation system for operation.

Quality & Project Management

On completion of this module, trainees should be able to implement and monitor adherence to Quality Assurance/ Quality Control (QA/QC) procedures and Quality System Management (QSM) requirements. He/She should be able to carry out continuous improvement activities to optimise the quality and efficiency of system and maintenance workflows.

Risk Control & Management

On completion of this module, trainees should be able to conduct equipment and system risk and reliability analyses to mitigate risks. He/She should also be able to implement and communicate risk management plans and control measures to stakeholders, and support crisis response and recovery.

Engineering Resource Management

On completion of this module, trainees should be able to coordinate with internal and external stakeholders to plan and prioritise maintenance activities based on maintenance data analytics. He/She should also be able to perform resource planning to support asset lifecycle activities, as well as manage the maintenance team and vendors ensuring resourcing plans are adhered to meet operational targets.