

WORK-STUDY DIPLOMA IN MECHANICAL & ELECTRICAL SERVICES SUPERVISION

Module Objectives

Building Technology

On completion of this module, trainees should be able to identify various stages of building development, main building elements, construction process and interfacing of building services with building elements during construction.

Workplace Safety and Health

On completion of this module, trainees should be able to ensure safe work procedures are put in place at the worksite, in accordance with Workplace Safety & Health (WSH) Act.

Technical Communication

On completion of this module, trainees should be able to apply both oral and written communication at work and in project documentation and presentation.

Engineering and Construction Drawings

On completion of this module, trainees should be able to interpret, amend, update and extract information from 2D M&E drawings. They should also be able to interpret construction drawings for M&E works.

Water, Sanitary and Gas Systems

On completion of this module, trainees should be able to inspect the installation of water supply, sanitary and gas systems in buildings including supervision of testing gas pipes and fittings.

M&E Services Documentation

On completion of this module, trainees should be able to prepare M&E services documentation and contract specifications. They should also be able to prepare and complete mandatory documents for the purpose of statutory submissions.

Electrical System

On completion of this module, trainees should be able to inspect electrical power distribution systems to ensure compliance with statutory requirements. They should also be able to inspect lightning protection and earthing systems.

Air-Conditioning and Mechanical Ventilation System

On completion of this module, trainees should be able to inspect and test Air-conditioning and Mechanical Ventilation (ACMV) systems to ensure compliance with contract specifications.

Fire Protection System

On completion of this module, trainees should be able to inspect and test active and passive fire protection systems. They should also be able to provide support in the commissioning of fire protection systems.

Intelligent Building and Extra Low Voltage Systems

On completion of this module, trainees should be able to inspect and test building automation system, including energy management system, general security system, broadband network and different types of control and sensors used in M&E automation systems.

Lift and Escalator Systems

On completion of this module, trainees should be able to inspect installation of escalators and lifts.

M&E Services Supervision and Management

On completion of this module, trainees should be able to plan, supervise and coordinate M&E services to meet contractual schedule and apply project management skills to monitor and manage progress of work at various stages of construction.

Building Information Modelling (BIM)

On completion of this module, trainees should be able to interpret, amend, update and extract information from Building Information Modelling (BIM) models for Mechanical, Electrical and Plumbing (MEP) systems.

On-the-Job Training I

On completion of the first year OJT, trainees should be able to apply relevant foundational skills and knowledge from their first year of study to carry out basic M&E services supervision and coordination at the worksite.

On-the-Job Training II

On completion of the second year OJT, trainees should be able to apply relevant skills and knowledge from their second year of study to carry out M&E services supervision and coordination independently at the worksite.

On-the-Job Training III

On completion of the third year OJT, trainees should be able to apply relevant skills and knowledge from their third year of study to carry out M&E services supervision and coordination independently at the worksite.

**List of Skills for On-The-Job Training
Work-Study Diploma in Mechanical & Electrical Services Supervision**

S/N	List of Skills (Standard) for M&E Services Supervision
56.	Monitor implementation of WSHMS by contractors at work site
57.	Monitor implementation of WSH requirements and Code of Practices by contractor and subcontractors at work site
58.	Issue site memo to contractor to rectify unsafe work practices and remove hazards
59.	Conduct risk assessment
60.	Communicate and relate effectively at the workplace
61.	Perform effective written communication at the workplace
62.	Apply information and communication technology (ICT) tools for project documentation
63.	Interpret construction drawings (eg. C&S drawings, M&E drawing & Architectural drawings)
64.	Update M&E drawings for discrepancies found in drawings (manual)
65.	Extract information from M&E drawings
66.	Prepare for inspection of water, sanitary and gas supply systems
67.	Inspect underground pipes layout and inspection chamber
68.	Inspect above ground sanitary & plumbing pipes installation
69.	Inspect water tank
70.	Inspect pump and motor
71.	Inspect gas pipes layout and fittings
72.	Supervise testing of gas pipe joints
73.	Maintain site diary of events and daily activities
74.	Maintain documentation of drawings
75.	Maintain site files and records of correspondences
76.	Compile inspection reports and test certificates
77.	Verify and compile final documents and as-built drawings
78.	Maintain site documentation of defects and any outstanding contract works
79.	Facilitate and coordinate ISO internal audits at site
80.	Prepare for inspection of power supply system
81.	Inspect power distribution system
82.	Inspect cable support system, conduits and associated cable works
83.	Inspect main and distribution switchboards
84.	Inspect electrical outgoing circuits
85.	Verify and inspect electrical appliances and equipment certifications
86.	Inspect lightning protection and earthing system
87.	Prepare for inspection of ACMV system
88.	Inspect chiller installation
89.	Inspect cooling towers and tanks
90.	Inspect pump and motor assembly
91.	Inspect pipework
92.	Inspect electrical control panels
93.	Inspect air handling units, exhaust & supply fans and fan coil units

S/N	List of Skills (Standard) for M&E Services Supervision
94.	Inspect ductworks
95.	Prepare ACMV system for TOP inspection
96.	Prepare for inspection of fire protection system
97.	Inspect wet and dry risers system
98.	Inspect sprinkler system
99.	Inspect fire detection alarm system
100.	Inspect fire hose reel and fire hydrant system
101.	Inspect fire suppression system
102.	Inspect emergency voice communication system
103.	Inspect security and monitoring system
104.	Inspect electronic data and communications information system
105.	Inspect cable support system and associated cabling works
106.	Plan and produce M&E work schedule
107.	Brief site crew on scope and schedule
108.	Manage and allocate resources to site crew
109.	Issue work instructions to site crew
110.	Supervise and coordinate M&E works to meet contract specifications and work schedule
111.	Verify results of testing and commissioning of M&E works
112.	Facilitate mandatory inspection by relevant government authorities to obtain TOP and CSC
113.	Perform pre-handover inspection
114.	Facilitate handover inspection to relevant stakeholders
115.	Monitor and report progress of M&E work (including verifying progress claims and preparing progress reports)
116.	Conduct M&E coordination meetings