

Module Synopses

MC1 Certificate in Electrical & Digital Circuit Fundamentals

Module 1 Electrical Principles

Covers the basic laws and theorems that govern the operation of electrical circuits. Topics covered include scientific notation, engineering notation, metric prefixes, definitions of energy and power, power sources, measuring instruments, DC and AC concepts, simple series and parallel networks, electromagnetism, inductor, inductance, transformers, Kirchoff's Voltage and Current Laws, Current and Voltage Divider Rules.

Module 2 Digital Principles

Covers the principles and design techniques to enable students to design simple combinational circuits using commercial SSI and MSI integrated circuits. Simple sequential logic circuits such as flip-flops and mono-stables are also introduced.

<i>(A) Rolling Stocks Track (OJT)</i>	<i>(B) Signalling Track (OJT)</i>
<p>MC2 Certificate in Train Mechanical System</p> <p>Introduces the various systems found within the rapid transit environment, which includes signalling, communication, tracks, rolling stock and building services; and how to identify and manage hazards and risk at the workplace.</p> <p>Provides knowledge to carry out schedule maintenance on mechanical equipment of trains and train-cars in the depot, which includes air-conditioning system, pneumatic system, bogies and couplers.</p>	<p>MC2 Certificate in Automatic Train Control</p> <p>This training unit provides participants with the knowledge and application skills in carrying out Scheduled Maintenance on the track side equipment. It covers maintenance on the various equipment such as IAGO, ATC Cubicle, Beacon, Modem and Track Circuit.</p> <p>This training unit also provides participants with the knowledge and application skills in carrying out Scheduled Maintenance on the train-borne ATC equipment. It covers maintenance on the various equipment such as antenna and train-borne ATC cubicle.</p>
<p>MC3 Certificate in Train Electrical System</p> <p>Provides knowledge to carry out schedule maintenance on electrical equipment of trains and train-cars in the depot, which includes the Total Information Management System (TIMS) and passenger communications.</p> <p>Provides knowledge to carry out schedule maintenance on electrical power supply equipment of trains and train-cars in the</p>	<p>MC3 Certificate in Signal Interlocking & Maintenance</p> <p>This training unit provides participants with the knowledge and application skills in carrying out Scheduled Maintenance on the station interlocking equipment. It covers maintenance on the various equipment such as Signal Light, HWTW, ESP.</p> <p>This training unit also provides participants with the knowledge and application skills in carrying out Scheduled Maintenance on the route interlocking equipment. It covers</p>

<p>depot, which includes auxiliary system and propulsion system.</p>	<p>maintenance on the various equipment such as CVCM, ASCV, Relay interlocking. This training unit also provides participants with the knowledge and application skills in carrying out Scheduled Maintenance on the point equipment.</p>
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MC4 Certificate in Electrical Systems

Module 1 Electrical Installation & Power Distribution

Builds upon and extends the knowledge covered in Electrical Principles. Topics covered include an overview of the power generation, transmission and distribution system, electrical safety and protection principles, analyse and design electrical systems based on the relevant codes of practices, testing and troubleshooting of electrical installation circuits, application of technology such as the KNX system in electrical installation, main equipment such as cables and associated protective devices used in the distribution of electrical power; standard requirements for effective delivery of electrical energy through distribution networks, principles, characteristics and applications of various types of protective relays; installation, maintenance and testing of electrical distribution systems with good engineering practices in accordance to the relevant Codes of Practices/Standards.

Module 2 Electrical Power Systems

This module covers the basic operating principle of Electrical Power Supply system in Electric Vehicles and for a Mass Rapid Transit (MRT) system. The topics covered include DC-DC Converter, PWM Controller, DC & AC motors and Batteries.

MC5 Certificate in Communication Systems

Module 1 Digital Communications

Teaches the principles and techniques used in digital communication systems. Topics covered include signal analysis, digital pulse modulation (PCM, DPCM), digital modulation (ASK, FSK, PSK), transmission problems such as ISI, AWGN, BER & eye diagram, detection techniques, information theory and coding.

Module 2 Networks & Protocols

This module covers the introduction of networks protocols using TCP/IP, and the concepts and techniques used in the various networks. It aims to provide the students with the fundamental knowledge for Broadband Communications module