



COURSE OVERVIEW EE0307 Motor Control Centers (MCC) (Engineering) – Basics

Course Title

Motor Control Centers (MCC) (Engineering) – Basics

Course Date/Venue

Session 1: July 13-17, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Session 2: December 15-19, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE



Course Reference

EE0307



Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Description



This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.



This course is designed to provide participants with a fundamental overview of motor control centres and VFD's. It covers the features and layout of MCC and VFD; the NEMA wiring classifications of MCC and VFD; the operating parameters of the motor control centres and VFD'S; the bus system and starter units of MCC; the feeder tap units and device panel of MCC and VFD; the reasons for routine maintenance of motor control centres and VFD's; the common maintenance tasks carried out on motor control centres and VFD's; and the appropriate tools and test equipment.



During this interactive course, participants will learn how to evaluate and interpret performance of motor control centres and VFD'S; the response to abnormal conditions and take action; the proper troubleshooting using diagrams and manufacturers manuals; the block diagrams, line diagrams, wiring diagrams and interlock diagrams; the required maintenance for condition, fuses, mechanism and overhaul; and the weekly, monthly and yearly program maintenance.



Course Objectives

At the end of this course, the trainee will be able to:-

- Apply and gain a fundamental knowledge on motor control centres (MCC) and VFSD's
- Explain the operating parameters of the motor control centres and VFD'S including the reasons for routine maintenance of motor control centres and VFD's
- Explain the common maintenance tasks carried out on motor control centres and VFD's
- Select the appropriate tools and test equipment
- Demonstrate how to evaluate and interpret performance of motor control centres and VFD's
- Demonstrate response to abnormal conditions and take action
- Identify the features and layout of MCC and VFD including NEMA wiring classifications of MCC and VFD
- Discuss bus system and starter units of MCC as well as feeder tap units and device panel of MCC and VFD
- Apply proper troubleshooting using diagrams and manufacturers manuals
- Illustrate block diagrams, line diagrams, wiring diagrams and interlock diagrams
- Determine required maintenance for condition, fuses, mechanism and overhaul
- Carryout weekly, monthly and yearly program maintenance

Exclusive Smart Training Kit - H-STK®



*Participants of this course will receive the exclusive "Howard Smart Training Kit" (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides a fundamental knowledge on motor control centres & VFD's for industrial maintenance engineers, technicians and those who are associated with the use of electrical motors in the industrial or automation environment. The course will also benefit those working in system design as well as site commissioning, maintenance and troubleshooting.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.


Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

- 

British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- 

The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology’s courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant’s involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant’s CEU and PDH Transcript of Records upon request.

Course Fee

US\$ 5,500 per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Mr. Sherif Bayoumi, BSc, is a **Senior Electrical Engineer** with over **30 years** of extensive experience within **Oil, Gas, Petrochemical** and **Power** industries. His expertise widely covers **Electrical Systematics Troubleshooting, Electrical Distribution Systems & Control Circuits, Electrical Parameters, Maintenance of Electrical Switchgear & Overhead Lines, Switchgear and Transformers, HV Switchgear Operation & Maintenance, Distribution Switchgear & Equipment, Symmetrical & Unsymmetrical Faults, Electrical Drawings, Relay Logic Circuits, Test Requirements, Component Testing Procedures, Electrical & Control System, Troubleshooting Transformers, Equipment Troubleshooting, System Grounding, Circuit Breakers, Protection Devices & Technology, Protection Relay, Solid State Relay, Instrument Transformers, Grading & Protection Coordination, Electrical System & Equipment, Generators, Gas Turbine, Diesel Generators, Power Transformers, AC & DC Motors, Substations, Switchgears & Distribution, Power System Analysis, Electrical Equipment Control Systems, Cables & Domestic Wiring, Overhead Transmission Lines, Electrical Safety, Electrical Protection, Batteries, Chargers & UPS, Electrical Projects Handling, Electrical Measurements, Medium Voltage Switchgears (MVSG), Motor Control Centers (MCC), Electrical Submersible Pumps (ESP).** He is also well-versed in **Preventive Maintenance, Health, Safety & Environmental Management System (HSEMS), On-Shore & Off-Shore Electrical Installations, Engineering Studies, Water Desalination Units, Induction Motors, Power Supply Substations, Electro-mechanical Protection Relays, Engineering Drawings, Industrial Power System Coordination, Machinery Vibration, Dynamic Balancing Analysis, Material & Equipment Standard & Code System, Hazardous Area Classification, Safety Management System, Emergency Response, Permit to Work & Issuing Authority, Defensive Driving and Task Risk Assessment.**

During Mr. Sherif's career life, he has occupied various key positions in several companies such as the **Electrical Maintenance Engineer, Senior Electrical Support Engineer, Lead Maintenance Electrical Engineer, Maintenance Electrical Engineer, Specialist Electrical Engineer** in **Abu Dhabi Company for Onshore Oil Operations (ADCO), Gulf of Suez Petroleum Company (GUPCO)** and **West Desert Petroleum Company (WEPCO).**

Mr. Sherif has a **Bachelor's** degree in **Electrical Power Engineering.** Further, he is a **Certified Instructor/Trainer** and has delivered numerous courses, trainings, workshops, seminars and conferences internationally.



Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 - 0800	Registration & Coffee
0800 - 0815	Welcome & Introduction
0815 - 0830	PRE-TEST
0830 - 0930	Introduction to Motor Control Centre (MCC)
0930 - 0945	Break
0945 - 1130	Introduction to Variable Frequency Drive (VFD)
1130 - 1215	Features & Layout of MCC & VFD
1215 - 1230	Break
1230 - 1420	NEMA Wiring Classifications of MCC & VFD
1420 - 1430	Recap
1430	Lunch & End of Day One

Day 2

0730 - 0930	Operating Parameters of the Motor Control Centres & VFD's
0930 - 0945	Break
0945 - 1100	Bus System & Starter Units of MCC
1100 - 1215	Feeder Tap Units & Device Panel of MCC & VFD
1215 - 1230	Break
1230 - 1420	Feeder Tap Units & Device Panel of MCC & VFD (cont'd)
1420 - 1430	Recap
1430	Lunch & End of Day Two

Day 3

0830 - 0930	Reasons for Routine Maintenance of Motor Control Centres & VFD's
0930 - 0945	Break
0945 - 1100	Reasons for Routine Maintenance of Motor Control Centres & VFD's (cont'd)
1100 - 1215	Common Maintenance Tasks Carried Out on Motor Control Centres & VFD's
1215 - 1230	Break
1230 - 1420	Appropriate Tools & Test Equipment
1420 - 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 - 0830	How to Evaluate & Interpret Performance of Motor Control Centres & VFD's
0930 - 0945	Break
0945 - 1100	How to Evaluate & Interpret Performance of Motor Control Centres & VFD's (cont'd)
1100 - 1215	Response to Abnormal Conditions & Take Action
1215 - 1230	Break
1230 - 1420	Trouble Shooting - Use of Diagrams & Manufacturers Manuals
1420 - 1430	Recap
1430	Lunch & End of Day Four



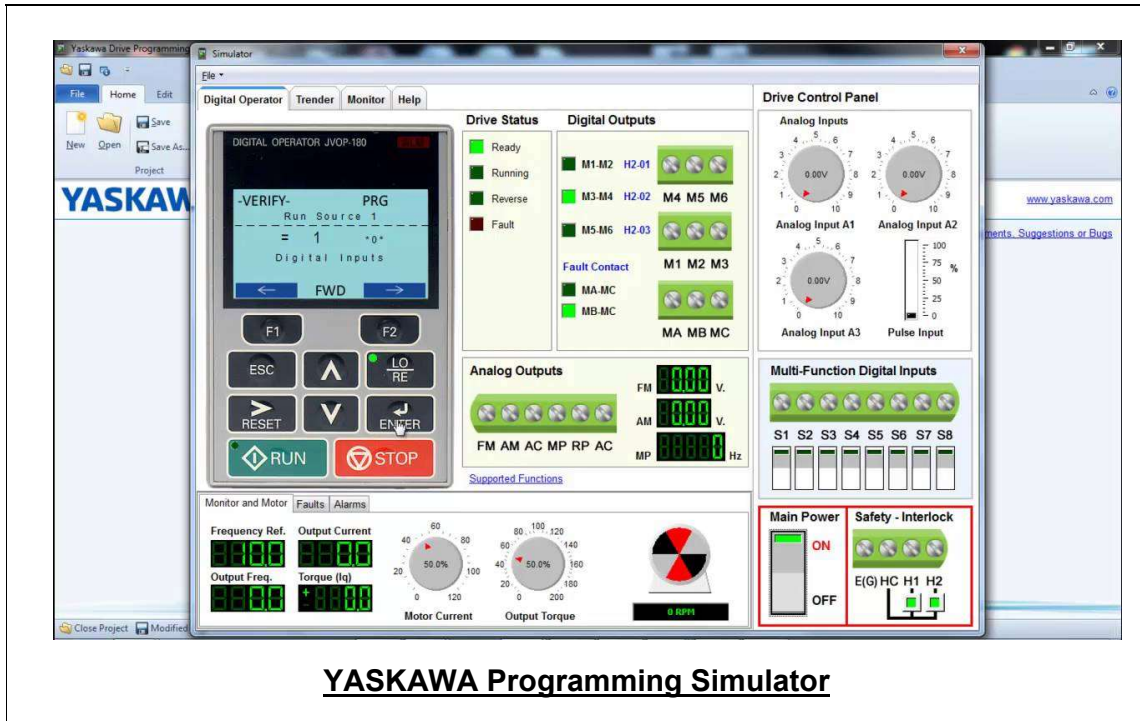


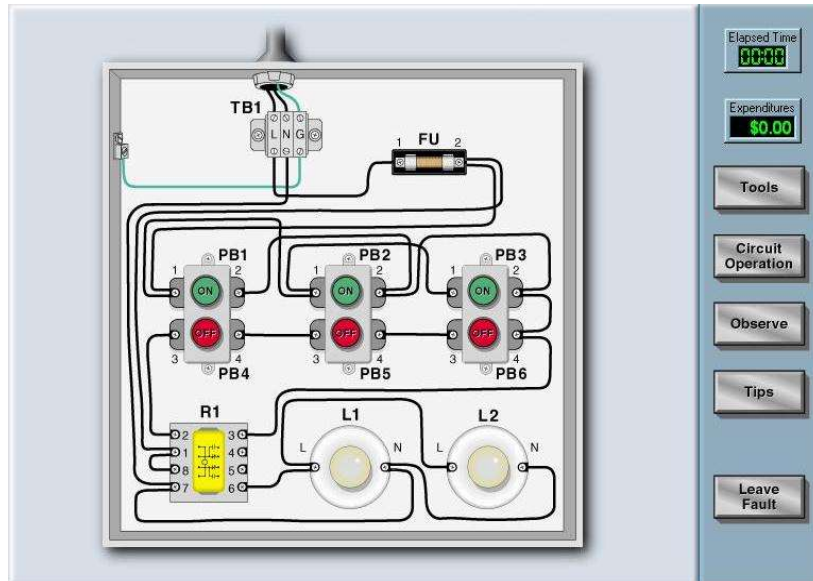
Day 5

0730 - 0830	<i>Block Diagrams, Line Diagrams, Wiring Diagrams & Interlock Diagrams</i>
0930 - 0945	<i>Break</i>
0945 - 1100	<i>Required Maintenance - Condition, Fuses, Mechanism, Overhaul</i>
1100 - 1215	<i>Required Maintenance - Condition, Fuses, Mechanism, Overhaul (cont'd)</i>
1215 - 1230	<i>Break</i>
1230 - 1345	<i>Weekly, Monthly, Yearly Program of Maintenance</i>
1330 - 1345	<i>Course Conclusion</i>
1400 - 1415	<i>POST-TEST</i>
1415 - 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

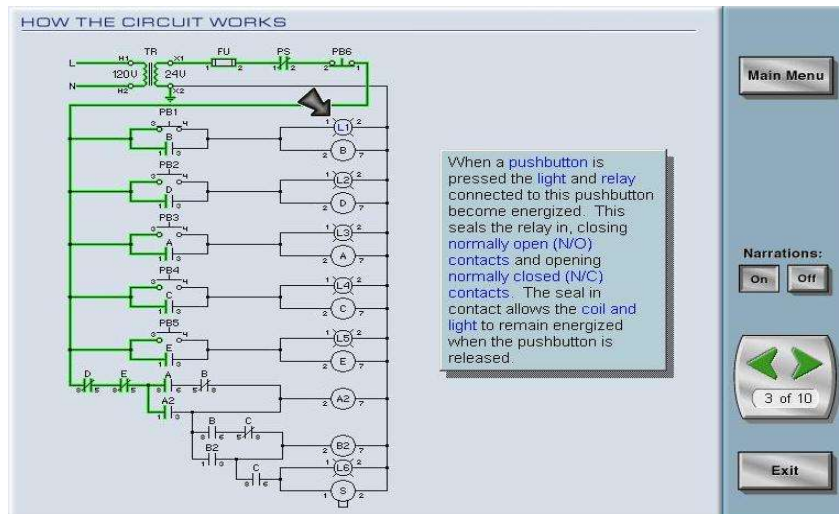
Simulators (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using our state-of-the-art “Yaskawa Programming Simulator”, “Siemens SIMATIC S7-300”, “Basic Techniques” “Basic Control Circuits” and “Motor Control Techniques”.





Basic Techniques



Basic Control Circuits



Motor Control Techniques

Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org