COURSE OVERVIEW EE0458
Motors Major Overhaul Maintenance

Course Title
Motors Major Overhaul Maintenance

Course Date/Venue
Session 1: May 19-23, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: November 09-13, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
EE0458

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes 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 detailed and up-to-date overview of Motor Overhauling, Rewinding and Lubrication It covers the basics, types, applications and components of electric motors; the basic of motor overhauling and motor lubrication; adhering to safety protocols during overhauling, rewinding and lubrication; the motor overhauling and systematic process of disassembly, inspection and repair and reassembly; the necessary tools and equipment for overhauling; the bearing removal and replacement; and the motor components like the stator, rotor, windings and other parts.

During the interactive course, participants will learn the common issues and resolving common motor faults; the stator and rotor windings and their role in motor operation; the motor rewinding process, rewinding calculation and safety precautions; the winding insulation and testing methods; the importance of motor lubrication and the types of lubricants; the lubrication methods, maintenance and troubleshooting; dealing with complex issues that might arise during overhauling, rewinding or lubrication; the motor efficiency, parameters; and the importance of maintaining records of overhauling, rewinding and lubrication activities.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on motor overhauling, rewinding and lubrication
- Discuss the basics, types, applications and components of electric motors
- Explain the basic of motor overhauling and motor lubrication as well as adhere to safety protocols during overhauling, rewinding and lubrication
- Carryout motor overhauling and systematic process of disassembly, inspection and repair and reassembly
- Identify the necessary tools and equipment for overhauling and apply bearing removal and replacement
- Clean and inspect motor components like the stator, rotor, windings and other parts
- Troubleshoot common issues by identifying and resolving common motor faults
- Discuss stator and rotor windings and their role in motor operation
- Illustrate motor rewinding process, rewinding calculation and safety precautions
- Apply winding insulation and testing methods and discuss the importance of motor lubrication
- Identify the types of lubricants and apply lubrication methods, maintenance and troubleshooting
- Deal with complex issues that might arise during overhauling, rewinding or lubrication
- Discuss the motor efficiency, parameters and the importance of maintaining records of overhauling, rewinding and lubrication activities

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward 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 an overview of all significant aspects and considerations of motor overhauling, rewinding and lubrication for electrical engineers, industrial engineers, maintenance technicians, electricians, service technicians, students and trainees.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

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 + **VAT**. 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. Herman Eksten, PE, PgDiP, is a **Senior Electrical Engineer** with over **30 years** of extensive experience **Oil**, **Gas**, **Petrochemical**, **Refinery** & **Power** industries and **Water & Utilities** specializing in **Electrical Safety**, Certified **HV Electrical Safety**, **Low Voltage Electrical Safety**, **Electrical Circuits**: Series and Parallel Connection, **Electrical Faults & Protective Devices**, **Renewable Energy Integration**, **Smart Grid** & **Renewable Integration**, **Renewable Energy** Storage Systems, **Renewable Energy** Economics & Finance, Risk Control Methods, **LOTO – Breakers** Operation in Electricity Substation, **LOTO** Principles and Procedures, **Arc Flash Risk Assessment**, Safety in **Power Electronic Equipment & Lasers**, **Circuit Breakers & Switchgears**, **Switchgear Assets Management**, **Circuit Breakers Control Circuits**, **Substation Maintenance** Techniques, **High Voltage Operation, Electrical Protection**, **Overhead Lines & Substation**, **Power Supply**, **High Voltage Substation**, **Electrical Protection Design**, **Earthing & Lightning Protection Design, Underground Equipment**, **Distribution Network Maintenance & Construction**, **Transformers Operation & Maintenance**, **Electric Power System, Power Plant Management**, **Substation Commissioning & Troubleshooting**, **Cable Splicing & Termination, Electrical Installation & Maintenance**, **Power Generation Operation & Control, Switchgear Life Assessment**, **Structured Cabling, Electric Power System, Power System Stability, Power System Planning & Economics**, **Power Flow** Analysis, **Combined Cycle Power Plant**, **UPS & Battery System, Variable Speed Drives,** and **HV Motors & Transformers**. He is currently the **Lead Electrical Engineer** of **SNC-LAVALIN** wherein he is responsible for basic designs and successful implementation of electrical engineering to plant overhead lines and substations.

During his career life, Mr. Eksten held various positions such as the **Lead Electrical Engineer**, **Operations Manager**, **Project Engineer**, **Technical Specialist**, **Customer Executive**, **District Manager**, **Electrical Protection Specialist**, **High-Voltage Operator** and **Apprentice Electrician** for FOX Consulting, UHDE (ThyssenKrupp Engineering), TWP Projects/Consulting (EPMC-Mining), ISKHUS Power, Rural Maintenance (PTY) Energia de Mocambique Lda., Vigeo (PTY) Ltd and ESKOM.

Mr. Eksten is a **Registered Professional Engineering Technologist** and has a Postgraduate Diploma in Management Development Programme and a National Higher Diploma (NHD) in Electrical Power Engineering. Further, he is a **Certified Instructor/Trainer**, a Senior member of the South African Institute Electrical Engineers (**SAIEE**) and holds a Certificate of Registration Membership Scheme from the Engineering Council of South Africa (**ESCA**). He has further delivered numerous trainings, courses, seminars, workshops 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 course 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 Electric Motors**: Basics, Types, Applications & Components*
0930 – 0945	*Break*
0945 – 1100	***Basics of Motor Overhauling**: Concept, Importance & When It's Needed*
1100 – 1230	***Basic Principles of Motor Rewinding**: Understanding the Need For & Process of Motor Rewinding*
1230 – 1245	*Break*
1245 – 1415	***Motor Lubrication**: Basics of Motor Lubrication & Its Significance*
1415 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0930	***Safety Measures**: Understanding & Adhering to Safety Protocols During Overhauling, Rewinding & Lubrication*
0930 – 0945	*Break*
0945 – 1100	***Detailed Steps in Motor Overhauling**: Systematic Process of Disassembly, Inspection, Repair & Reassembly*
1100 – 1230	***Tools & Equipment for Overhauling**: Overview of Necessary Tools & How to Use Them*
1230 – 1245	*Break*
1245 – 1345	***Bearing Removal & Replacement**: Techniques for Safe & Effective Bearing Removal & Replacement*
1345 - 1415	***Cleaning & Inspection of Motor Components**: How to Clean & Inspect Stator, Rotor, Windings & Other Parts*
1415 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Troubleshooting Common Issues**: Identifying & Resolving Common Motor Faults*
0930 – 0945	*Break*
0945 – 1100	***Stator & Rotor Windings**: Detailed Understanding of Windings & Their Role in Motor Operation*
1100 – 1230	***Motor Rewinding Process**: Step-By-Step Walkthrough of the Motor Rewinding Process*
1230 – 1245	*Break*
1245 – 1345	***Calculations for Rewinding**: Understanding Coil Pitch, Coil Span, Turns, Wire Size & More*
1345 - 1415	***Rewinding Tools & Safety Precautions**: Necessary Tools & Safety Measures While Rewinding*
1415 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

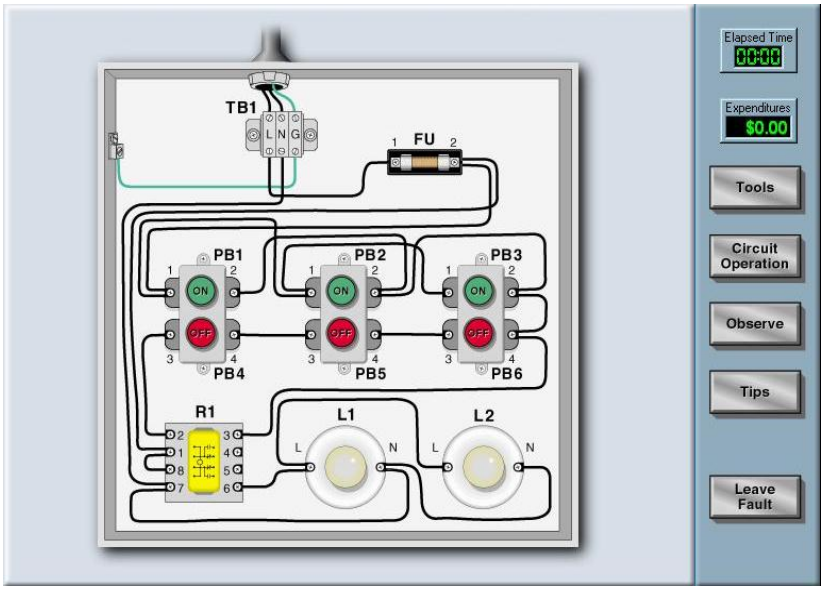
0730 – 0930	***Winding Insulation & Testing**: Importance of Insulation, Techniques & Testing Methods*
0930 – 0945	*Break*
0945 – 1100	***Importance of Motor Lubrication**: Understanding the Role of Lubrication in Motor Lifespan & Efficiency*
1100 – 1230	***Types of Lubricants**: Overview of the Different Lubricants Used in Motors & their Specific Applications*
1230 – 1245	*Break*
1245 – 1345	***Lubrication Methods**: Techniques for Applying Lubricants to Motor Bearings & other Components*
1345 -1415	***Lubrication Schedule & Maintenance**: Establishing a Regular Lubrication Schedule for Optimal Motor Performance*
1415 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

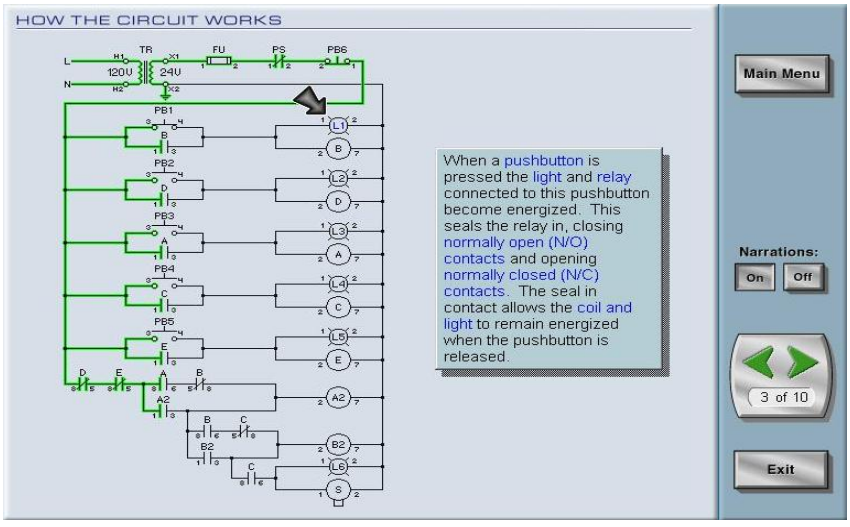
0730 – 0930	***Troubleshooting Lubrication Issues**: Identifying & Addressing Common Lubrication Problems*
0930 – 0945	*Break*
0945 – 1145	***Advanced Troubleshooting Techniques:** Dealing with Complex Issues that Might Arise During Overhauling, Rewinding or Lubrication*
1145 – 1230	***Motor Efficiency**: Understanding Efficiency Parameters & How Proper Maintenance can Improve Motor Efficiency*
1230 – 1245	*Break*
1245 – 1345	***Role of Documentation**: The Importance of Maintaining Records of Overhauling, Rewinding & Lubrication Activities*
1345 – 1345	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

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 "Haward Troubleshooting".



Basic Techniques



Basic Control Circuits

Motor Control Techniques

Course Coordinator

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