

COURSE OVERVIEW EE0136
Advanced ABB VSD Controllers

Course Title

Advanced ABB VSD Controllers

Course Reference

EE0136

Course Date/Venue

Session 1: June 15-19, 2025/Business Meeting,
 Crowne Plaza Al Khobar, Al Khobar,
 KSA

Session 2: December 07-11, 2025/Boardroom 1,
 Elite Byblos Hotel Al Barsha, Sheikh Zayed Road,
 Dubai, UAE



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.



It is estimated that electrical drives and other rotating equipment consume about 50% of the total electrical energy consumed in the world today. The cost of maintaining electrical motors can be a significant amount in the budget item of manufacturing, oil, gas, petrochemical and power industries. This course gives you a thorough understanding of electrical motor's working, maintenance and failure modes and gives you the tools to maintain and troubleshoot electrical motors and variable speed drives.



This course is designed to provide delegates with an advanced overview of ABB VSDS controllers. It covers the importance and functions of variable speed drives (VSDs) including induction motors physical construction, motors physical equivalent circuit and VFD physical construction, components of ABB VSD, power electronics and test power electrics.

The course will also illustrate the electrical construction, operating principles of the ABB VSD, steps in receiving a new ABB VSD unit, checking before powering, loading the ABB VSD, ABB VSD operation, identifying the problems associated in the operation and troubleshooting procedures of the ABB VSD and maintenance.

Course Objectives

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

- Apply and gain an advanced knowledge on ABB VSD controllers
- Recognize the importance and functions of Variable Speed Drives (VSDs)
- Explain induction motors physical construction, motors physical equivalent circuit and VFD physical construction
- Identify and differentiate the components of ABB VSD, power electronics and test power electrics
- Employ the electrical construction and the operating principles of the ABB VSD
- Carryout the proper steps in receiving a new ABB VSD unit and checking before powering and loading the ABB VSD
- Operate ABB VSD properly and identify the problems associated in the operation
- Implement the troubleshooting procedures of the ABB VSD and 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 an advanced overview of ABB VSD controllers for engineers and other technical personnel who are in charge of selection, application, operation, diagnostic testing, protection, control, troubleshooting or maintenance of motors and variable speed drives.

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:-

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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.

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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.

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. Ahmed Abozeid is a **Senior Electrical & Instrumentation Engineer** with over **30 years** of **Onshore & Offshore** experience within the **Oil & Gas** and **Power** industries. His wide expertise covers **HV Cable Design, Cable Splicing & Termination, Cable Jointing Techniques, High Voltage Electrical Safety, HV/MV Cable Splicing, High Voltage Circuit Breaker Inspection & Repair, High Voltage Power System Safe Operation, High Voltage Safety, High**

Voltage Transformers, Safe Operation of High Voltage & Low Voltage Power Systems, Electric Distribution System Equipment, ABB 11KV Distribution Switchgear, Rotork Operation & Maintenance, Power System Protection and Relaying, Electrical Motors & Variable Speed Drives, Motor Speed Control, Power Electronic Converters, Control Valve, Flowmetering & Custody Transfer, Meters Calibration, Installation & Inspection, Crude Metering & Measurement Systems, Flow Meter Maintenance Troubleshooting, AC Converters Section, Electromagnetic Compatibility (EMC), Motor Failure Analysis & Testing, Machinery Fault Diagnosis, Bearing Failure Analysis Process Control & Instrumentation, Process Control Measurements, Control System Commissioning & Start-Up, Control System & Monitoring, Power Station Control System, Instrumentation Devices, Process Control & Automation, PID Controller, Distributed Control Systems (DCS), Programmable Logic Controllers (PLC), ABB PLC & DCS System, Gas Analyzers, Simulation Testing, Load Flow, Short Circuit, Smart Grid, Vibration Sensors, Cable Installation & Commissioning, Calibration Commissioning and Site Filter Controller. Further, he is also well-versed in **Fundamentals of Electricity, Electrical Standards, Electrical Power, PLC, Electrical Wiring, Machines, Transformers, Motors, Power Stations, Electro-Mechanical Systems, Automation & Control Systems, Voltage Distribution, Power Distribution, Filters, Automation System, Electrical Variable Speed Drives, Power Systems, Power Generation, Power Transformers, Diesel Generators, Power Stations, Uninterruptible Power Systems (UPS), Battery Chargers and AC & DC Transmission.** He is currently the **Project Manager** wherein he manages, plans and implements projects across different lines of business.

Mr. Ahmed worked as the **Electrical Manager, Electrical Power & Machine Expert, Electrical Process Leader, Team Leader, Electrical Team Leader, Technical Instructor, and Instructor/Trainer** from various companies such as the Lafarge Nigeria, Egyptian Cement Company, ECC Training Center, Alrajhi Construction & Building Company and Ameria Cement Company, just to name a few.

Mr. Ahmed has a **Bachelor's** degree in **Electrical Engineering**. Further, he is a **Certified Instructor/Trainer, Certified TQUK Level 3 Vocational Achievement (RQF) Assessor** and has delivered numerous trainings, seminars, courses, workshops and conferences internationally.

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.

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	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	Introduction to ABB VSDs
0930 – 1030	Why Do We Need to Use VSDs
1030 – 1045	<i>Break</i>
1045 – 1130	Induction Motors Physical Construction
1130 – 1215	Induction Motors Equivalent Circuit
1215 – 1230	<i>Break</i>
1230 – 1330	VFD Physical Construction
1330 – 1420	Practical Session
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0930	Identifying Components of ABB VSD
0930 – 0945	<i>Break</i>
0945 – 1100	Power Electronics Components
1100 – 1215	Testing Power Electronics Components
1215 – 1230	<i>Break</i>
1230 – 1420	Practical Session
1420 – 1430	Recap
1430	<i>Lunch & End of Day Two</i>

Day 3

0730 – 0930	Electrical Construction of ABB VSD
0930 – 1030	Theory of Operation of ABB VSD
1030 – 1045	<i>Break</i>
1045 – 1100	Receiving a New ABB VSD Unit
1100 – 1215	Checks before Powering the ABB VSD
1215 – 1230	<i>Break</i>
1230 – 1330	Powering ABB VSD
1330 – 1420	Practical Session
1420 – 1430	Recap
1430	<i>Lunch & End of Day Three</i>

Day 4

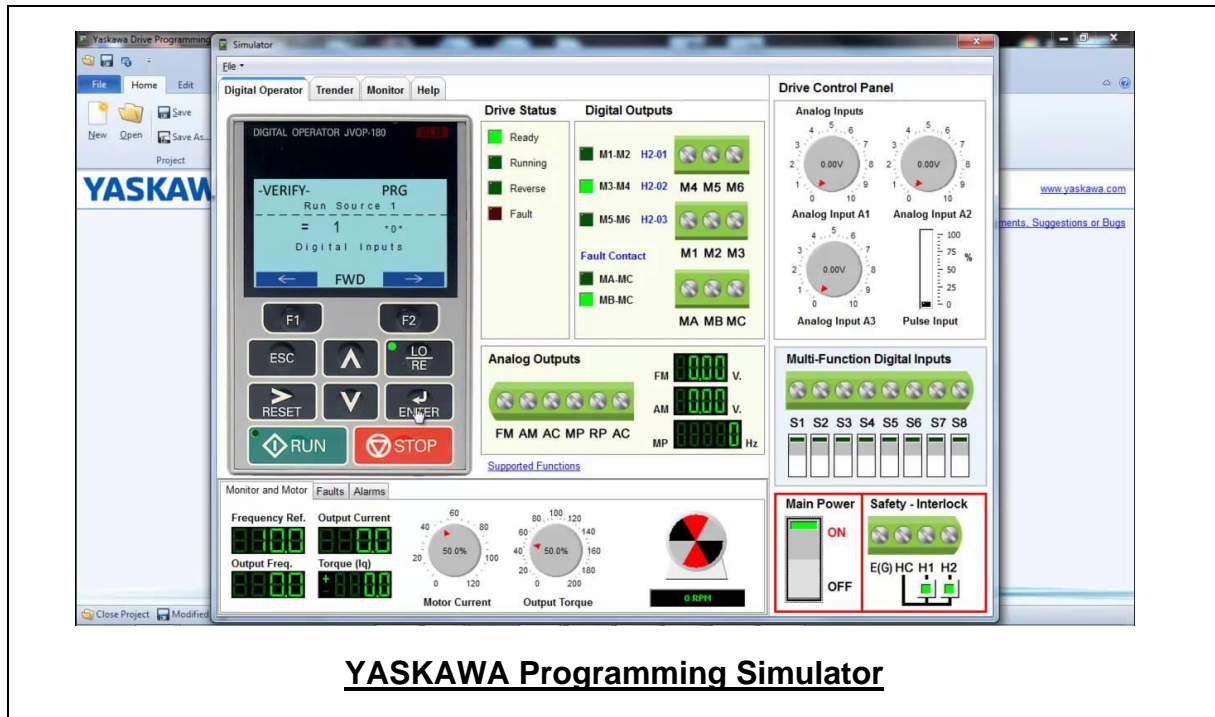
0730 – 0930	<i>Checks Before Loading the ABB VSD</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<i>Putting ABB VSD in Operation</i>
1100 – 1215	<i>Problems Associated with the Operation of ABB VSD</i>
1215 – 1230	<i>Break</i>
1230 – 1420	<i>Practical Session</i>
1420 – 1430	<i>Recap</i>
1430	<i>Lunch & End of Day Four</i>

Day 5

0730 – 0930	<i>Troubleshooting Procedures</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<i>Troubleshooting Procedures (cont'd)</i>
1100 – 1215	<i>Maintenance ABB VSD</i>
1215 – 1230	<i>Break</i>
1230 – 1345	<i>Practical Session</i>
1345 – 1400	<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”.



Course Coordinator

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