COURSE OVERVIEW ME0288
How to Prevent Failures in HVAC System – Proven & Tested Solutions

Course Title
How to Prevent Failures in HVAC System – Proven & Tested Solutions

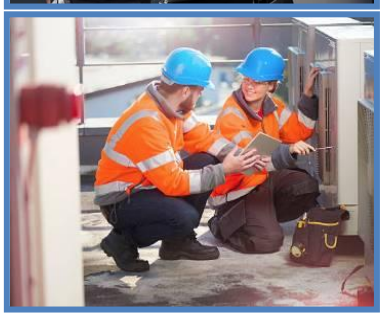
Course Reference
ME0288

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

Course Date/Venue

Session(s)	Date	Venue
1	May 04-07, 2026	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
2	July 05-09, 2026	Safir Meeting Room, Divan Istanbul, Turkey
3	September 20-24, 2026	Crowne Meeting Room, Crowne Plaza Al Khobar, KSA
4	December 20-24, 2026	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai UAE

Course Description



This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt in the class will be applied using the following practical methods:

(**1**) **Industrial Facility Visit:** Course participants will be taken to an industrial facility where they will practice testing, maintenance and troubleshooting. In case that this course is organized inside client premises (In-House), then client shall provide access to its HVAC and refrigeration workshop for practical sessions.

(**2**) **HVAC Simulator:** Participants will use in the class the state-of-the-art HVAC Simulator to practice some of the skills learnt.

This course is designed to provide participants with a detailed and up-to-date overview of failure prevention in HVAC systems. It covers the HVAC and R common standards, systems basics and components; the psychrometric chart, air properties and systems equipment; the refrigeration and HVAC systems selection and protection; the HVAC systems performance calculation and improvement; and the HVAC and refrigeration systems energy efficiency ratio calculations (EER).

During this interactive course, participants will learn to employ HVAC systems maintenance, troubleshooting analysis and fault finding; schedule and apply preventive and predictive maintenance of HVAC systems; recognize HVAC systems maintenance procedures and resources; perform HVAC systems daily checks; employ HVAC systems 3 months, 6 months and annual scheduled preventive maintenance procedures; identify the HVAC systems maintenance techniques and tools and how to pump down, charge and evacuate the HVAC units; and discuss maintenance and inspection standard according to ANSI, ASHRAE and ACCA 180-2010.

Course Objectives

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

- Apply proven and tested solutions to prevent failures in HVAC system
- Define HVAC and R and discuss its common standards, systems basics and components
- Recognize psychrometric chart, air properties and HVAC & R systems equipment
- Carryout refrigeration and HVAC systems selection and protection
- Calculate and improve refrigeration and HVAC systems performance
- Perform HVAC and refrigeration systems energy efficiency ratio calculations (EER)
- Employ HVAC systems maintenance, troubleshooting analysis and fault finding
- Schedule and apply preventive and predictive maintenance of HVAC systems
- Apply HVAC systems maintenance procedures and resources
- Perform HVAC systems daily checks and implement 3 months, 6 months and annual scheduled preventive maintenance procedures
- Identify the HVAC systems maintenance techniques and tools and how to pump down, charge and evacuate the HVAC units
- Discuss maintenance and inspection standard according to ANSI, ASHRAE and ACCA 180-2010

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 a complete and up-to-date overview of HVAC & refrigeration systems for HVAC, utilities, maintenance, plant, operation and inspection engineers and other technical staff who are involved in the design, installation, maintenance and troubleshooting of such equipment and system. Further, it is suitable for mechanical, design, electrical and consulting engineers.

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.

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. Mustafa Fadel is a **Senior Mechanical Engineer** with over **25 years** of industrial experience within the **Power & Water Utilities** and other **Energy Sectors**. His specialization widely covers **District Cooling**: **Plant**: **Design**, **Operation & Maintenance HVAC System**, **HVAC** Equipment Terminology, **HVAC System Block Load Calculation**, **HVAC System** Development of Drawings, **Air Distribution** System, Basic **Chiller Water System Design & Selection**, **Pump** Design & Selection, **Rotating & Static Equipment**, **Cooling Tower Design**, **Boiler** Design & Selection, Energy Management & Value Engineering for Mechanical System, Mechanical Ventilation, Smoke Ventilation, Staircase Pressurization, System Design & Development of Drawings, Data Center Design, **Precision AC Equipment Selection**, **Refrigeration Systems**, **Air Cooler Design**, **Chillers**, **Mass** & **Heat Transfer**, **Electromechanical**, **Rotating & Static Equipment** including **Heat Exchangers**, **Piping & Pipeline**, **Pressure Vessels**, **Valves**, **Tanks Turbines**, **Compressors**, **Motors**, **Pumps**, **Evaporators**, **Condensers**, **Blowers** and **Fans**, **Maintenance Planning & Scheduling**, **Root Cause Failure Analysis**, **Performance Calculations**, **Reliability Maintenance** and **Corrective** & **Preventive Maintenance**. Further, he is also well-versed in **HSE Management**, **KPI's**, **CMMS** and **AutoCAD** as well as in various international standards such as the **ASHRAE**, **API**, **ASTM**, **ASME**, **AMCA**, **NFPA** and **SMACNA**. Currently, he is the **HVAC&R Specialist** in **SEGAS LNG Plant** wherein he is responsible for the implementation, construction and maintenance strategy for industrial HVAC&R equipment.

During his career life, Mr. Fadel has gained his practical and field experience through his various significant positions and dedication as the **Section Head**, **Project Manager**, **HVAC System Consultant Engineer**, **Mechanical Engineer**, **HVAC&R Instructor** and **Senior Technical Consultant** for international companies and universities like the **Foster Wheeler**, **Technip**-Italy, Borner Company, Union FENOSA Gas, Asphalt Bitumen, King Khalid University, Alexandria Petroleum Company, FAWAZ Company, Marium Corporation and many more.

Mr. Fadel has a **Bachelor's** degree in **Power Mechanical Engineering**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**) and an active member of the American Society of Heating Refrigetaring and Air Conditioning Engineers (**ASHRAE**), **USA**. He has further delivered and participated numerous engineering and inspection projects, trainings, courses, seminars and conferences globally.

Course Fee

Istanbul	**US$ 6,000** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	**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.
Al Khobar	**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.
Abu Dhabi	**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	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***HVAC & R Definitions***
0930 – 0945	*Break*
0945 – 1100	***HVAC & R Common Standards***
1100 – 1215	***HVAC & R Systems Basics & Components***
1215 – 1230	*Break*
1230 – 1420	***Psychrometric Chart & Air Properties***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0930	***HVAC & R Systems Equipment***
0930 – 0945	*Break*
0945 – 1100	***Refrigeration & HVAC Systems (Selection, Components & Protection)***
1100 – 1215	***Refrigeration & HVAC Systems Performance C.O.P (Calculation & Improvement)***
1215 – 1230	*Break*
1230 – 1420	***HVAC & Refrigeration Systems EER (Energy Efficiency Ratio Calculations)***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***HVAC Systems Maintenance & Troubleshooting Analysis (Types, Goals & Objectives) & Fault Finding Skills***
0930 – 0945	*Break*

0945 – 1100	***HVAC Systems Preventive & Predictive Maintenance***
1100 – 1215	***HVAC Systems Preventive Maintenance Schedules***
1215 – 1230	*Break*
1230 – 1420	***HVAC Systems Maintenance Procedures & Resources***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0930	***HVAC Systems Daily Checks***
0930 – 0945	*Break*
0945 – 1100	***HVAC Systems 3 Months Scheduled Preventive Maintenance Procedures***
1100 – 1215	***HVAC Systems 6 Months Scheduled Preventive Maintenance Procedures***
1215 – 1230	*Break*
1230 – 1420	***HVAC Systems Annual Scheduled Preventive Maintenance Procedure***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

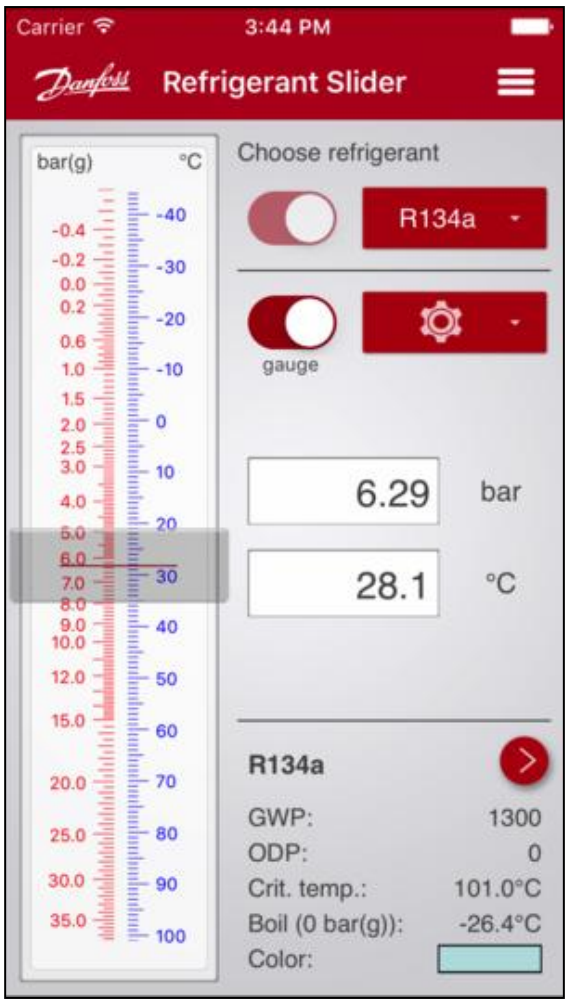
Day 5

0730 – 0930	***HVAC Systems Maintenance Techniques & Tools***
0930 – 0945	*Break*
0945 – 1100	***How to Pump Down, Charge & Evacuate the HVAC Units***
1100 – 1215	***ANSI-ASHRAE-ACCA 180-2010 Maintenance & Inspection Standard According to American National Standard Institute (ANSI), American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE) & Air Conditioning Contractors of America (ACCA)***
1215 – 1230	*Break*
1230 – 1345	***ANSI-ASHRAE-ACCA 180-2010 Maintenance & Inspection Standard According to American National Standard Institute (ANSI), American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE) & Air Conditioning Contractors of America (ACCA) (cont'd)***
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

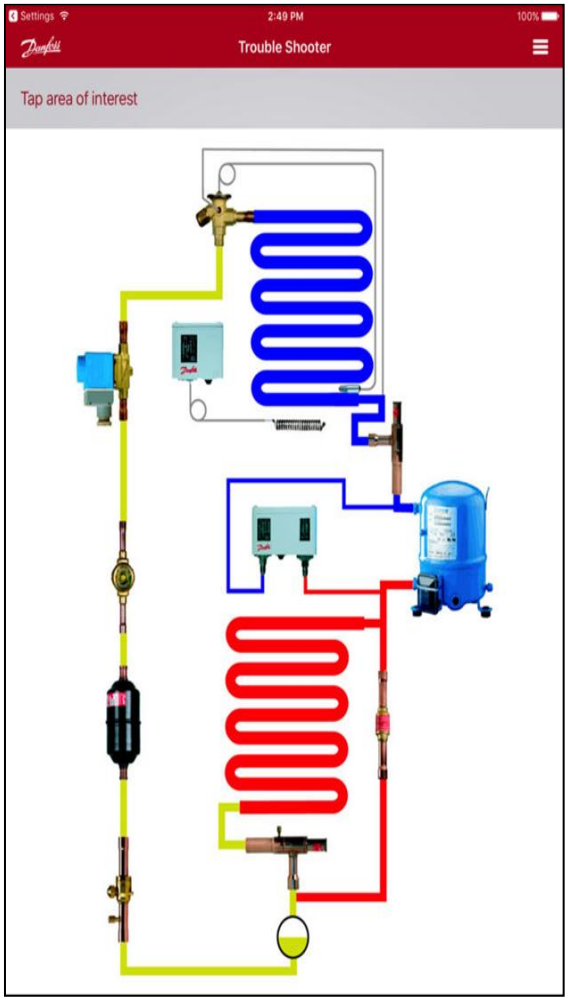
Practical Sessions/Site Visit

Simulator (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 the "Danfoss Refrigerant Slider App" and "Danfoss Troubleshooter App".



Danfoss Refrigerant Slider App



Danfoss Troubleshooter App

Coordinator

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