

COURSE OVERVIEW ME0210
Mechanical Course for Non-Mechanical Engineers

Course Title

Mechanical Course for Non-Mechanical Engineers

Course Date/Venue

Session 1: June 15-19, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Session 2: November 10-14, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE



H-STK[®] INCLUDED

Course Reference

ME0210



Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Description



This hands-on, highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.



Engineers from all disciplines and other professionals and technical personnel in both the industrial and commercial environments need a good understanding of the basic concepts that underlie the application of mechanical engineering to the successful and efficient installation and operation of mechanical and plant equipment and systems. This course is aimed at participants who either had no formal training in mechanical engineering or are seeking a refresher to increase and enhance their current knowledge.



This course is developed to provide non-mechanical engineers and technical staff with the necessary fundamentals training to ensure a basic understanding of mechanical components and mechanical systems. It includes information on diesel engines, heat exchangers, pumps, valves, and miscellaneous mechanical components. This information will provide participants with a foundation for understanding the construction and operation of mechanical components that are associated with the facility operations and maintenance.

Course Objectives

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

- Apply and gain a good working knowledge and overview on mechanical engineering
- Define the operation of pumps, drivers and pumping systems and identify the types of couplings, their application, function, operation and maintenance
- Operate pressure vessels, fans, blowers and compressors and become familiar with rotary, centrifugal and reciprocating compressors, the function of their respective components, and the operation and preventive maintenance required thereof
- List the fundamentals of diesel engines, their operating principles and protective features and experiment bearing and lubrication
- Recognize the applications and classifications of valves
- Evaluate heat exchangers and assess heat transfer systems and equipments, fired boilers, process heaters and heat recovery equipment
- Illustrate HVAC and refrigeration systems and design and inspect storage tanks and the various types of separators
- Manage instrumentation and control of mechanical equipments

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 mechanical engineering for professionals who need to upgrade their current experience and knowledge of mechanical engineering including engineers from other disciplines, mechanical engineers who require practical knowledge of certain aspects of mechanical engineering, industrial and commercial plant and facilities engineers and operators, consultants, property managers, project engineers, design engineers and other technical personnel who are involved in the operation and maintenance of mechanical equipment, systems and processes.

Accommodation


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

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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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.

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

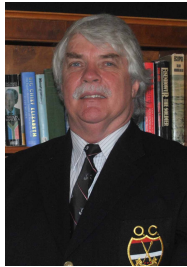
Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** 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.

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. Den Bazley, PE, BSc, is a **Senior Mechanical Engineer** with over **30 years** of industrial experience in **Oil, Gas, Refinery, Petrochemical, Power and Utilities** industries. His wide expertise includes **Pumps & Compressors** Maintenance & Troubleshooting, **Centrifugal Pump** Design, **Hydraulic Turbines**, Axial Flow **Compressor**, **Centrifugal Pump** Installation & Operation, **Centrifugal Pump** Maintenance & Troubleshooting, **Centrifugal & Positive Displacement Pump** Technology, **Pumps & Valves** Operation, **Bearings, Seals & Couplings**, **Compressors & Turbines** Maintenance & Troubleshooting, **Gas Turbine** Design & Maintenance, **Gas Turbine** Troubleshooting, **Pressure Vessel** Design, Fabrication & Testing, **Tank & Tank Farms**, **Heat Exchangers** Operation &

Maintenance, **Boilers & Steam System** Management, Re-tubing & Tube Expanding Technology, Propylene **Compressor & Turbine**, **Valve** Installation & Repair, **Safety Relief Valve** Sizing & Troubleshooting, **Dry Gas Seal** Operation, **Mechanical Seal** Installation & Maintenance, Industrial Equipment & **Turbomachinery**, **Pumps, Compressors, Turbines & Motors**, **Boiler & Steam** System Management, Tune-Up, Heat Recovery & Optimization, **Bearing & Lubrication**, Installation & Failure Analysis, **Boiler** Operation & Maintenance, Process **Control Valves**, **Steam Turbine** Operation, **Bearing** Mounting/Dismounting, **Valve** Types, Troubleshooting & Repair Procedure, **Pressure Vessels & Heat Exchangers**, **Corrosion** Inspection, **PSV** Maintenance & Testing, **Pump** Maintenance, Machinery Troubleshooting, **Valves**, **Safety Relief Valves**, Strainers & Steam Traps, **Pipeline Rules of Thumb**, Analytical Prevention of Mechanical Failure, **Gear Boxes** Troubleshooting & Repair, **Piping & Pipeline** Design & Inspection, **Pigging** & Integrity Assessment, Process Piping Design, **Pipeline** Operation & Maintenance, **Welding & Fabrication**, **Brazing**, Fitness-for-Service (FFS), **Process Plant** Equipment, **Pressure Vessels**, Piping & Storage Facilities, Layout of **Piping Systems & Process Equipment**, **Pipe Work** Design & Fabrication, Mechanical Integrity & Reliability, Mechanical **Rotating Equipment & Turbomachinery**, **Motors & Variable Speed Drives**, Mechanical Engineering Design, **Process Plant Shutdown**, Turnaround & Troubleshooting, **Mechanical Alignment**, **Laser & Dial-Indicator** Techniques, **Material Cataloguing**, **Condition Based** Monitoring, **Maintenance** Management, **Reliability** Management, Reliability Centred Maintenance (RCM), Total Plant Maintenance (TPM) and Reliability-Availability-Maintainability (RAM), **Engineering Drawings**, **Codes & Standards**, **P&ID Reading**, **Interpretation & Developing**, **Maintenance & Reliability** Best Practices, **Maintenance** Auditing, **Benchmarking & Performance** Improvement, Excellence in **Maintenance & Reliability** Management, **Preventive & Predictive** Maintenance & Machinery Failure Analysis (RCFA), Total Plant Reliability Centered Maintenance (RCM), Rotating Equipment Reliability Optimization, Machinery Failure Analysis, Prevention & Troubleshooting, **Maintenance** Planning, Scheduling & Work Control and **Maintenance Planning & Cost** Estimation.

During his career life, Mr. Bazley has gained his practical and field experience through his various significant positions and dedication as the **General Manager**, **Branch Manager**, **Refinery Chairman**, **Engineering Manager**, **Maintenance Engineer**, **Construction Engineer**, **Project Engineer**, **Mechanical Engineer**, **Associate Engineer**, **Oil Process Engineer**, **Mechanical Services Superintendent**, **Quality Coordinator**, **Planning Coordinator**, **Consultant/Instructor**, **Lecturer/Trainer** and **Public Relations Officer** for numerous international companies like **ESSO**, **FFS Refinery**, **Dorbyl Heavy Engineering (VECOR)**, **Vandenbergh Foods (Unilever)**, **Engen Petroleum**, **Royle Trust** and **Pepsi-Cola**.

Mr. Bazley is a **Registered Professional Engineer** and has a **Bachelor** degree in **Mechanical Engineering**. Further, he is a **Certified Engineer** (Government Certificate of Competency GCC Mechanical Pretoria), a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership and Management (ILM)**, an active member of the **Institute of Mechanical Engineers (IMechE)** and has delivered numerous trainings, courses, seminars and workshops internationally.

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 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	Mechanical Engineering – An Overview <i>Strength of Materials • Torque and Power</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Mechanical Engineering – An Overview (cont'd) <i>Power Transmission • Fluid Engineering and Piping Systems</i>
1100 – 1230	Pumps, Drivers and Pumping Systems <i>Explains the Operation of Centrifugal and Positive Displacement Pumps. Topics Include Net Positive Suction Head, Cavitations, Gas Binding, and Pump Characteristic Curves</i>
1230 – 1245	<i>Break</i>
1245 – 1420	Couplings <i>Explains the Types of Couplings (Flexible Type & Fixed Type), Their Applications, How Do It Work and the Coupling Maintenance</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0900	Pressure Vessels
0900 – 0915	<i>Break</i>
0915 – 1100	Fans, Blowers and Compressors
1100 – 1230	Rotary Compressors <i>Explains Construction of Rotary Screw Compressor, the Function of the Compressor Components, Driving System, Accessories and Operation & Preventive Maintenance</i>

1230 – 1245	Break
1245 – 1420	Centrifugal Compressors <i>Explains Basic Introduction, Centrifugal Compressor Components, Compressor Seals, Shaft Bearings, Lubrication System, Compressor Drivers & Couplings, Compressor Instrumentation and Control, Compressor Operation & Maintenance</i>
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 – 0930	Reciprocating Compressors <i>Explains Reciprocating Compressor Working Principle, Compressor Components, and Cooling Systems, Lubrication, Compressor Operation, Maintenance</i>
0930 – 0945	Break
0945 – 1100	Diesel Engines <i>Explains Diesel Engine Fundamentals, the Basic Operating Principles of 2-Cycle and 4-Cycle Diesel Engines. Includes Operation of Engine Governors, Fuel Ejectors, and Typical Engine Protective Features</i>
1100 – 1230	Bearing & Lubrication <i>Explains Introduction to Bearings, Sliding Surface Bearings, Sliding Surface Bearing Failure, Rolling Element Bearings (Anti – Friction Bearings)</i>
1230 – 1245	Break
1245 – 1420	Bearing & Lubrication (cont'd) <i>Bearing Installation, Lubrication System</i>
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0930	Valves <i>Explains Introduces the Functions of the Basic Parts Common to Most Types of Valves. Provides Information on Applications of Many Types of Valves. Types of Valves Covered Include Gate Valves, Globe Valves, Ball Valves, Plug Valves, Diaphragm Valves, Reducing Valves, Pinch Valves, Butterfly Valves, Needle Valves, Check Valves, and Safety/Relief Valves</i>
0930 – 0945	Break
0945 – 1100	Heat Exchanger <i>Explains the Construction of Plate Heat Exchangers and Tube and Shell Heat Exchangers. Describes the Flow Patterns and Temperature Profiles in Parallel Flow, Counter Flow, and Cross Flow Heat Exchangers</i>
1100 – 1230	Heat Transfer Systems and Equipment
1230 – 1245	Break
1245 – 1420	Fired Boilers, Process Heaters & Heat Recovery Equipment
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 – 0930	HVAC and Refrigeration Systems and Design
0930 – 0945	<i>Break</i>
0945 – 1100	Storage Tanks <i>Explains the Types of Storage Tanks such as Liquid Storage Tanks, Maintenance of Storage Tanks (Basic Introduction), Hazardous Conditions and Safety Procedures</i>
1100 – 1230	Separators <i>Explains Separation Fundamentals, Separators Description, Separator Types, Separator Internals and Material of Construction</i>
1230 – 1245	<i>Break</i>
1245 – 1345	Instrumentation and Control
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Practical Sessions

This hands-on, highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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