COURSE OVERVIEW ME0737
Bearing Assembly & Disassembly

Course Title
Bearing Assembly & Disassembly

Course Reference
ME0737

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

Course Date/Venue

Session(s)	Date	Venue
1	May 18-22, 2025	TBA Meeting Room, Taksim Square Hotel, Istanbul, Turkey
2	September 08-12, 2025	Ajman Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
3	November 23-27, 2025	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

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 detailed and up-to-date overview of Bearing Assembly & Disassembly. It covers the types, components and materials of bearings; the principles and factors affecting bearing performance; the criteria for selecting the appropriate bearing for specific applications; the types of lubricants and lubrication methods; the safety practices in bearing handling and the proper inspection of bearing components before assembly; the proper tools and equipment for bearing assembly; the bearing mounting methods and step-by-step bearing assembly and disassembly procedures; and the common assembly and disassembly mistakes and how to avoid them.

During this interactive course, participants will learn the inspection of bearings and components before disassembly; the proper tools and equipment for bearing disassembly; the precision assembly, common bearing issues, root cause analysis and corrective actions; the importance of proper balancing and alignment; the best practices for handling and storing bearings; the bearing assembly and disassembly operating procedures; and the emerging technologies and materials in bearing design.

Course Objectives

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

- Apply and gain a comprehensive knowledge on bearing assembly a disassembly
- Identify the types, components and materials of bearings as well as the principles and factors affecting bearing performance
- Recognize the criteria for selecting the appropriate bearing for specific applications
- List the types of lubricants and lubrication methods and apply safety practices in bearing handling
- Inspect bearing components before assembly and use proper tools and equipment for bearing assembly
- Employ bearing mounting methods and step-by-step bearing assembly and disassembly procedures
- Identify the common assembly and disassembly mistakes and how to avoid them
- Inspect bearings and components before disassembly and implement proper tools and equipment for bearing disassembly
- Carryout systematic techniques for precision assembly, troubleshoot common bearing issues and apply root cause analysis and corrective actions
- Employ regular maintenance and inspection of bearings and analyze bearing failures to prevent recurrence
- Discuss the importance of proper balancing and alignment and apply best practices for handling and storing bearings
- implement best practices in bearing assembly and disassembly operating procedures
- Discuss the emerging technologies and materials in bearing design

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 on the Bearing Assembly & Disassembly of air-cooled screw chiller for maintenance technicians and engineers, machine operators, field service technicians, reliability engineers, quality control inspectors, training coordinators and supervisors: teams, engineering students or new professionals.

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

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 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 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. Andrew Ladwig is a **Senior Process & Mechanical Engineer** with over **25 years** of extensive experience within the **Oil & Gas**, **Refinery**, **Petrochemical & Power** industries. His expertise widely covers in the areas of **Ammonia Manufacturing & Process Troubleshooting**, **Distillation Towers**, **Crude Oil Distillation**, **Fundamentals of Distillation** for Engineers, **Distillation** Operation and Troubleshooting, **Advanced Distillation** Troubleshooting, **Distillation** Technology, Vacuum **Distillation**, **Ammonia Storage & Loading** Systems, **Ammonia Plant** Operation, Troubleshooting & Optimization, **Ammonia Recovery**, **Ammonia Plant Safety**, Hazard of **Ammonia Handling**, Storage & Shipping, **Operational Excellence** in **Ammonia Plants**, **Fertilizer Storage** Management (Ammonia & Urea), **Fertilizer Manufacturing** Process Technology, **Sulphur Recovery**, Phenol Recovery & Extraction, **Wax Sweating & Blending**, **Petrochemical & Fertilizer** Plants, **Nitrogen Fertilizer** Production, **Petroleum Industry Process** Engineering, **Refining Process & Petroleum Products**, **Refinery Planning & Economics**, Safe **Refinery Operations**, **Hydrotreating & Hydro-processing**, **Separators** in **Oil & Gas** Industry, **Gas Testing & Energy** Isolations, Gas Liquor Separation, **Industrial Liquid Mixing**, **Wax Bleachers**, **Extractors**, **Fractionation**, Operation & Control of **Distillation**, Process of **Crude ATM & Vacuum Distillation** Unit, **Water Purification**, **Water Transport** & Distribution, **Steam & Electricity**, **Flame Arrestors**, **Coal Processing**, **Environmental Emission Control**, R&D of **Wax Blending**, **Wax** Molding/Slabbing, **Industrial Drying**, Principles, Selection & Design, **Process Safety** Design, Certified **Process Plant** Operations, Control & Troubleshooting, **Operator** Responsibilities, **Storage Tanks Operations** & Measurements, **Tank Design**, Construction, Inspection & Maintenance, **Atmospheric Tanks**, **Process Plant** Troubleshooting & Engineering Problem Solving, **Process Plant Performance**, Efficiency & Optimization, Continuous Improvement & Benchmarking, **Process Troubleshooting** Techniques, Oil & Gas Operation/Introduction to **Surface Facilities**, **Pressure Vessel** Operation, **Plant & Equipment Integrity**, **Process Equipment** Performance & Troubleshooting, **Plant Startup & Shutdown**, **Startup & Shutdown** the Plant While Handling Abnormal Conditions, **Flare & Relief** System, **Process Gas Plant** Start-up, Commissioning & Problem Solving, **Process Liquid** and **Process Handling & Measuring** Equipment. Further, he is also well-versed in **Compressors & Turbines** Operation, Maintenance & Troubleshooting, **Heat Exchanger** Overhaul & Testing Techniques, Balancing of **Rotating Machinery** (**BRM**), **Pipe Stress** Analysis, **Valves & Actuators** Technology, Inspect & Maintain **Safeguarding Vent & Relief System**, Certified Inspectors for **Vehicle & Equipment**, Optimizing **Equipment Maintenance** & Replacement Decisions, Certified Maintenance Planner (**CMP**), Certified Planning and Scheduling Professional (**AACE-PSP**), **Material Cataloguing**, Specifications, Handling & Storage, **Steam Trap** Design, Operation, Maintenance & Troubleshooting, **Steam Trapping & Control**, **Column**, **Pump** Technology, **Pump** Selection & Installation, **Centrifugal Pumps** Troubleshooting, **Pumps** Design, Selection & Operation, **Pump & Exchangers**, Troubleshooting & Design, **Rotating Equipment** Operation & Troubleshooting, **Control & ESD** System, **Detailed Engineering Drawings**, Codes & Standards, **Budget** Preparation, Allocation & Cost Control, Root Cause Analysis (**RCA**), **Production Optimization**, Permit to Work (**PTW**), Project Engineering, **Data** Analysis, **Process Hazard** Analysis (**PHA**), **HAZOP** Study, Sampling & Analysis, **Training** Analysis, **Job Analysis** Techniques, Storage & Handling of **Toxic Chemicals & Hazardous Materials**, **Hazardous Material** Classification & Storage/Disposal, **Dangerous Goods**, Environmental Management System (**EMS**), Supply Chain, Purchasing, Procurement, **Logistics** Management & **Transport** & **Warehousing** & **Inventory**, **Risk** Monitoring Authorized Gas Tester (**AGT**), Confined Space Entry (**CSE**), Personal Protective Equipment (**PPE**), Fire & Gas, First Aid and Occupational Health & Safety.

During his career life, Mr. Ladwig has gained his practical experience through his various significant positions and dedication as the **Mechanical Engineer**, **Project Engineer**, **Reliability & Maintenance Engineer**, **Maintenance Support Engineer**, **Process Engineer**, **HSE Supervisor**, **Warehouse Manager**, **Quality Manager**, **Business Analyst**, **Senior Process Controller**, **Process Controller**, **Safety Officer**, **Mechanical Technician**, **Senior Lecturer** and **Senior Consultant/Trainer** for various companies such as the Sasol Ltd., Sasol Wax, Sasol Synfuels, just to name a few.

Mr. Ladwig has a **Bachelor's** degree in **Chemical Engineering** and a **Diploma** in **Mechanical Engineering**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**) and has delivered various trainings, workshops, seminars, courses and conferences 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

Accommodation

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

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 – 0900	***Overview of Bearings*** *Types of Bearings: Ball Bearings, Roller Bearings, Thrust Bearings, etc. ● Applications in Marine and Offshore Construction*
0900 – 0930	***Bearing Components & Materials*** *Key Components of Bearings: Inner Ring, Outer Ring, Rolling Elements, Cage ● Materials Used in Bearing Manufacturing*
0930 – 0945	*Break*
0945 – 1130	***Principles of Bearing Operation*** *Load Distribution and Bearing Contact Mechanics ● Factors Affecting Bearing Performance*
1130 - 1230	***Bearing Selection Criteria*** *Criteria for Selecting the Appropriate Bearing for Specific Applications ● Load Capacity, Speed, Environment, and other Considerations*
1230 – 1245	*Break*
1245 – 1320	***Lubrication of Bearings*** *Importance of proper lubrication ● Types of lubricants and lubrication methods*
1350 - 1420	***Safety Practices in Bearing Handling*** *Safety protocols for working with bearings ● Personal protective equipment (PPE) and risk assessment*
1420 – 1430	***Recap***
1400	*Lunch & End of Day One*

Day 2

0730 – 0830	***Preparation for Bearing Assembly*** *Preparing Tools and Workspace ● Inspecting Bearing Components Before Assembly*
0830 – 0930	***Tools and Equipment for Bearing Assembly*** *Specialized Tools for Bearing Assembly ● Proper use and Maintenance of Tools*
0930 – 0945	*Break*
0945 – 1130	***Bearing Mounting Methods*** *Methods of Mounting Bearings: Cold Mounting, Hot Mounting, Hydraulic Mounting ● Advantages and Disadvantages of Each Method*
1130 – 1230	***Step-by-Step Bearing Assembly Procedures*** *Detailed Procedures for Assembling Different Types of Bearings ● Ensuring Proper Alignment and Fit*
1230 – 1245	*Break*
1245 – 1330	***Common Assembly Mistakes & How to Avoid Them*** *Identifying and avoiding common errors in bearing assembly ● Ensuring optimal bearing performance and longevity*
1330 - 1420	***Practical Exercise: Bearing Assembly*** *Hands-On Session Assembling Various Types of Bearings ● Group Analysis and Feedback on Assembly Techniques*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Preparation for Bearing Disassembly*** *Preparing Tools and Workspace ● Inspecting Bearings and Components Before Disassembly*
0830 – 0930	***Tools & Equipment for Bearing Disassembly*** *Specialized Tools for Bearing Disassembly ● Proper Use and Maintenance of Tools*
0930 – 0945	*Break*
0945 – 1130	***Bearing Removal Methods*** *Methods of Removing Bearings: Mechanical Removal, Hydraulic Removal, Thermal Removal ● Advantages and Disadvantages of Each Method*
1130 – 1230	***Step-by-Step Bearing Disassembly Procedures*** *Detailed Procedures for Disassembling Different Types of Bearings ● Ensuring Minimal Damage to Bearings and Components*
1230 – 1245	*Break*
1245 – 1330	***Common Disassembly Mistakes & How to Avoid Them*** *Identifying and Avoiding Common Errors in Bearing Disassembly ● Ensuring Components are Ready for Reassembly or Replacement*
1330 - 1420	***Practical Exercise: Bearing Disassembly*** *Hands-On Session Disassembling Various Types of Bearings ● Group Analysis and Feedback on Disassembly Techniques*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0830	***Advanced Bearing Assembly Techniques*** *Techniques for Precision Assembly ● Ensuring Optimal Performance in Demanding Environments*
0830 – 0930	***Troubleshooting Bearing Issues*** *Identifying Common Bearing Problems ● Root Cause Analysis and Corrective Actions*
0930 – 0945	*Break*
0945 – 1130	***Maintenance & Inspection of Bearings*** *Regular Maintenance Practices ● Techniques for Inspecting Bearings in Service*
1130 – 1230	***Bearing Failure Analysis*** *Analyzing Bearing Failures to Prevent Recurrence ● Case Studies on Bearing Failures in Marine Applications*
1230 – 1245	*Break*
1245 – 1330	***Balancing & Alignment*** *Importance of Proper Balancing and Alignment ● Techniques and Tools for Achieving Precision*
1330 - 1420	***Group Project: Troubleshooting & Repair*** *Collaborative Project on Troubleshooting and Repairing Bearing Issues ● Presentation and Discussion of Findings*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Bearing Handling & Storage*** *Best Practices for Handling and Storing Bearings ● Ensuring Bearings Remain in Optimal Condition*
0930 – 0945	*Break*
0945 - 1100	***Implementing Best Practices in Bearing Assembly & Disassembly*** *Developing Standard Operating Procedures ● Ensuring Consistency and Quality in Bearing Handling*
1100 - 1230	***Future Trends in Bearing Technology*** *Emerging Technologies and Materials in Bearing Design ● Impact on Marine and Offshore Construction*
1230 – 1245	*Break*
1245 - 1345	***Comprehensive Review of Assembly & Disassembly Techniques*** *Recap of Key Concepts and Procedures ● Open Discussion and Q&A Session*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

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 state-of-the-art simulator "iLearnVibration".

iLearnVibration Simulator

Course Coordinator

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