



COURSE OVERVIEW ME0691

Steam Generation and Distribution Operations

Course Title

Steam Generation and Distribution Operations

Course Date/Venue

Session 1: April 14-18, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

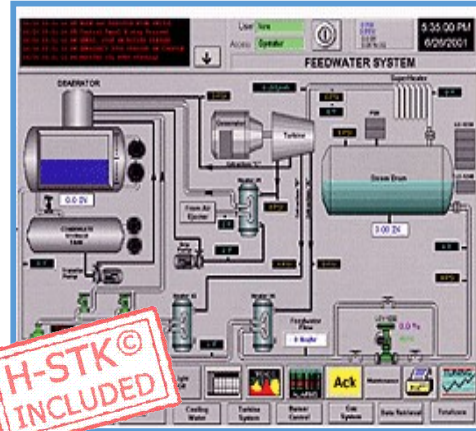
Session 2: October 05-09, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference

ME0691

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs



Course Description



This practical and 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.



This course is designed to provide participants with a detailed and up-to-date overview of Steam Generation and Distribution Operations. It plays a critical role in enhancing production efficiency, facilitating thermal processes and supporting various industrial applications. Steam is primarily generated in high-pressure boilers using fuels such as natural gas, crude oil or refinery byproducts. It is then distributed through an extensive pipeline network to drive steam turbines, assist in enhanced oil recovery (EOR) techniques like steam injection, power distillation columns and support heating and cleaning processes.



Proper management of steam pressure, temperature, and condensate recovery is essential to optimize energy efficiency, minimize heat losses and ensure safe operations. Effective water treatment, boiler maintenance and system insulation are key to preventing scaling, corrosion and operational downtime, making steam distribution a vital component of oil and gas processing facilities.



During this interactive course, participants will learn the steam boilers, fuel combustion and steam generation; the firing application and thermal efficiency; the boiler auxiliary equipment, feed water pump, valves, steam traps, fans, fire tube and water tube boilers; the combustion bases and fuel burners; the boiler instruments and its purpose; the typical P&I diagram for boilers and steam generators; the operation sequence and procedures; the steam demand and firing rate including pressure and pressure containing components; the basic control loops solving and the reason for problems and troubleshoot; and the boiler shutdown prevention and plant start up and shutdown.

Course Objectives

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

- Apply and gain good working knowledge on steam generation and distribution operations
- Discuss steam boilers, fuel combustion and steam generation
- Perform firing application and thermal efficiency
- Operate and control boiler auxiliary equipment, feed water pump, valves, steam traps, fans, fire tube and water tube boilers and combustion bases and fuel burners
- List boiler instruments and discuss its purpose
- Illustrate typical P&I diagram for boilers and steam generators and apply operation sequence and procedures
- Discuss steam demand and firing rate including pressure and pressure containing components
- Apply basic control loops solving and interpret the reason for problems and troubleshoot
- Perform boiler shutdown prevention as well as plant start up and shutdown properly and safely

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 steam generator operation and troubleshooting for supervisors, operation & maintenance engineering, technical staff, supervisors and leaders.

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 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.

Accommodation

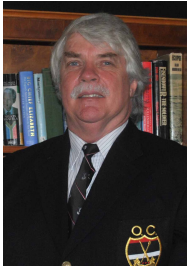
Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.





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. 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 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 - 0915	Introduction to Steam Boilers
0915 - 0930	<i>Break</i>
0930 - 1100	Fuel Combustion and the Steam Generation
1100 - 1215	Firing Applications & Thermal Efficiency
1215 - 1230	<i>Break</i>
1230 - 1430	Boiler Auxiliary Equipment
1430	<i>Lunch & End of Day One</i>

Day 2

0730 - 0900	Feed Water Pump
0900 - 0915	<i>Break</i>
0915 - 1100	Valves
1100 - 1215	Steam Traps
1215 - 1230	<i>Break</i>
1230 - 1430	Fans
1430	<i>Lunch & End of Day Two</i>

Day 3

0730 - 0900	Fire Tube & Water Tube Boilers
0900 - 0915	<i>Break</i>
0915 - 1100	Combustion Bases & Fuel Burners
1100 - 1215	Operation & Control
1215 - 1230	<i>Break</i>
1230 - 1430	Boiler Instruments & Their Purpose
1430	<i>Lunch & End of Day Three</i>





Day 4

0730 – 0900	<i>Typical P & I Diagrams for Boilers & Steam Generators</i>
0900 – 0915	<i>Break</i>
0915 – 1100	<i>Operation Sequence & Procedures</i>
1100 – 1215	<i>Steam Demand & Firing Rate</i>
1215 – 1230	<i>Break</i>
1230 – 1430	<i>Pressure & Pressure Containing Components</i>
1430	<i>Lunch & End of Day Four</i>

Day 5

0730 – 0900	<i>Basic Control Loops Solving</i>
0900 – 0915	<i>Break</i>
0915 – 1100	<i>Reason for Problems & Their Troubleshooting</i>
1100 – 1215	<i>How to Prevent Boiler Shutdown</i>
1215 – 1230	<i>Break</i>
1230 – 1315	<i>How to Startup the Plant Properly</i>
1315 – 1345	<i>How to Shut Down the Plant Safely</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>

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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

