

**COURSE OVERVIEW ME0850**

**Mastering Workshop Equipment Operation and Upkeep**

**Course Title**

Mastering Workshop Equipment Operation and Upkeep

**Course Date/Venue**

Session 1: April 28 – May 02, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE  
 Session 2: August 17-21, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



**Course Reference**

ME0850



**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs

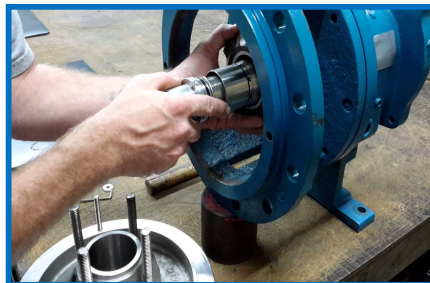
**Course Description**



***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 machine workshop. It covers the machine shop safety, shop layout, types of machines encountered in a machine shop and operations that can be performed in a machine shop; the standard operating procedures, measurement tools, OSHA standards and machine control software; the lathe and safe setup and operation of horizontal and vertical band saws; and the various types of drilling machines used by industry.



During this interactive course, participants will learn the thread types and sixty-degree thread calculations; the micrometer and vernier tools; the different types of milling operations; the standard operating procedures of drilling and grinding; the advanced cutting technologies with laser and water jets; the computer numerical control; and the KPIs of efficient workshop management.

## Course Objectives

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

- Apply and gain an-in-depth knowledge on workshop management
- Discuss machine shop safety, shop layout, the types of machines encountered in a machine shop and operations that can be performed in a machine shop
- Carryout standard operating procedures and identify measurement tools, OSHA standards and machine control software
- Identify lathe covering nomenclature, use and applications, controls and their function and commonly used tool holders
- Recognize industrial saws and illustrate the safe setup and operation of the horizontal and vertical band saws
- List the various types of drilling machines used by industry and apply lathe controls and operations
- Cut external threads with the lathe, identify thread types and apply sixty-degree thread calculations
- Use micrometer and vernier tools as well as read and measure parts with a Vernier, dial or digital caliper
- Discuss milling and the different types of milling operations
- Employ standard operating procedures of drilling and grinding
- Illustrate cutting with band saws and advanced cutting technologies with laser and water jets
- Discuss automation and control software and computer numerical control as well as implement KPIs of efficient workshop management

## 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 overview of all significant aspects and considerations of workshop management for engineers and technicians.

## Course Fee

**US\$ 5,500** per Delegate + **VAT**. This rate includes H-STK® (Howard Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

## 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. Attalla Ersan**, PEng, MSc, BSc, is a **Senior Mechanical Engineer** with over **35 years** of extensive experience within the **Oil & Gas, Hydrocarbon** and **Petrochemical** industries. His expertise widely covers the areas of **Boiler & Steam System Management, Waste Heat Recovery, Boiler Plant Safety, Boiler Controls, Steam Distribution Systems, Steam Traps, Pollution Control, Cracked Gas Compressor, Reboilers, Selection & Operation, Boiler Inspection & Maintenance, Boiler instrumentation & Controls, Boiler Start-up & Shutdown, Boiler Operation & Steam System Management, Boiler Water Chemistry & Treatment, Boiler Efficiency & Waste Heat Recovery, Boiler Inspection & Testing, Boiler Troubleshooting & Safety, Boiler Emissions & Pollution Control, Pumps Maintenance & Troubleshooting, Valve Maintenance, Plunger Valve, Maintenance & Reliability Best Practices, Maintenance & Reliability Management, Process Plant Operations, Process Plant Startup & Operating Procedure, Ethylene & Vinyl Chloride, Ethane Cracking Furnaces Operations, Ethylene & Polyethylene Operation, Acid Gas Treatment, Sulphur Recovery, EDC & VCM, Caustic Soda Storage, Debottle-necking, Process Operation, Safety Audits, Process Engineering, Root Cause Investigations, Pyrolysis Cracking, Gas Plant Commissioning, Loss Prevention Techniques, Occupational Hazards, Hot Tapping & Tie-Ins, Pre-Start-Up Safety Review (PSSR), Standard Operating Procedure (SOP), Emergency Operating Procedure (EOP), Permit to Work Systems (PTW), Steam Cracking, Steam Generation, Binary Fractionators Operations, Tanks Farm & Metering Station Techniques, Gas Treatment, Sulphur Recovery Process Unit Operation, Permit to Work System, Emergency Response Planning, Sulphur Unit Air Blower, Steam Turbine, Distillation Columns, Gas Treatment, Waste & Water Treatment Units, Water Meter Reading System (MMR), Utility Regulation, Best Water Equipment, Water Fittings, Water Tanks Filling Stations, Pumping Station, Water Chemistry, Water Network Design, Pumps, Compressors, Turbines, Motors, Turbo-expanders, Gears, Heat Exchanger, Hazard and Operability (HAZOP) Study, Process Hazards Analysis (PHA), HAZOP Facilitation, Loss Prevention, Consequence Analysis Application, Gas Detectors Operation, Accident/Incident Investigation (Why Tree Method), Occupational Exposure Assessment, Fire Fighting & First Aid, Environmental Management and Basic Safety Awareness. Further, he is also well-versed in Project Management, Human Resources Consultancy, Manpower Planning, Job Design & Evaluation, Recruitment, Training & Development and Leadership, Creative Problem Solving Skills, Work Ethic, Job Analysis Evaluation, Training & Development Needs, Bidding & Tendering, Technical Report Writing, Supervisory Leadership, Effective Communication Skills and Total Quality Management (TQM). He is currently the **CEO of Ersan Petrokimya Teknoloji Company Limited** wherein he is responsible for the design and operation of Biogas Process Plants.**

During his career life, Mr. Ersan has gained his practical and field experience through his various significant positions and dedication as the **Policy, Organization & Manpower Development Head, Training & Development, Head, Ethylene Plant – Pyrolysis Furnace Engineer, Production Engineer, Mechanical Engineer, Boiler Mechanic**, Process Training Coordinator, Ethylene Plant Shift Supervisor, Ethylene Plant Panel & Fit Operator, Process Training & Development Coordinator, **Technical Consultant**, and **Instructor/Trainer** for Qatar Vinyl Company Limited and Qatar Petroleum Company (QAPCO).

Mr. Ersan is a **Registered Professional Engineer** and has a **Master's degree of Education in Educational Training & Leadership** and a **Bachelor's degree of Petrochemical Engineering**. Further, he is a **Certified Instructor/Trainer** and has delivered numerous trainings, courses, workshops, conferences and seminars 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 &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction</b> <i>Machine Shop Safety • Shop Layout • Need for Protective Gear • Types of Machines Encountered in a Machine Shop • Types of Operations that can be Performed in a Machine Shop • Standard Operating Procedures • Measurement Tools • OSHA Standards • Machine Control Softwares</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<b>The Lathe</b> <i>Nomenclature • Manual Lathe use &amp; Applications • Lathe Controls &amp; their Function • Commonly used Tool Holders for Lathes • Commonly used Cutting Tools for the Lathe • Use of 3 &amp; 4-Jaw Chucks on the Lathe • Collets, Face Plates &amp; Drive Plates for the Lathe</i>
1030 – 1230	<b>Industrial Saws</b> <i>The Various Types of Saws used by Industry • Safe Setup &amp; Operation of the Horizontal &amp; Vertical Band Saws</i>
1230 – 1245	<i>Break</i>
1245 – 1420	<b>Industrial Saws (cont'd)</b> <i>How to Prepare to Setup &amp; use the Vertical Band Saw • Personal Hazards &amp; Precautions</i>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

**Day 2**

0730 – 0930	<b>Drilling Machines</b> The Various Types of Drilling Machines used by Industry • The Various Types of Drills used by Industry • The Correct Setup & Operation of a Drilling Machine • Nomenclature of a Drilling Machine
0930 – 0945	Break
0945 – 1100	<b>Video Presentation</b>
1100 – 1230	<b>Lathe Controls &amp; Operations</b> Operation of the Various Lathe Controls • Facing & Center-Drilling on the Lathe • Lathe, Milling Machine & Drill Press Rpm Calculations
1230 – 1245	Break
1245 – 1420	<b>Cutting External Threads with the Lathe</b> Thread Types • Sixty-Degree Thread Calculations • The Setup & Cutting of a Sixty-Degree External Thread • In-Process Inspection or Inspection of a Completed Sixty-Degree External Thread
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Two

**Day 3**

0730 – 0930	<b>Cutting Internal Threads with the Lathe (cont'd)</b> Calculations for the Cutting of a Sixty-Degree Internal Thread • The Setting Up & Cutting of a Sixty-Degree Internal Thread • In-Process Inspection or Inspection of a Completed Sixty-Degree Internal Thread • UNC & UNF Threads
0930 – 0945	Break
0945 – 1100	<b>Use of Micrometer &amp; Vernier Tools</b> How to Read & Measure Parts with a Vernier, Dial or Digital Calliper • Application & Reading Outside, Inside & Depth with Micrometers • Application of Small Hole Gages, Telescoping Gages & Parallel Bars
1100 – 1230	<b>Milling</b> Different Types of Milling Operations • Milling Cutter Rpm & Feed Rate Calculations • Correct Set-Up for the Milling Machine • Inch/Millimeter Conversions • Surface Finish & Flatness Measurements • Hazards & Precautions when Operating the Milling Machine • Slab Milling Procedures • Cutters • Installing the Arbor & Cutter • Speed & Feed Selection • Depth of Cut Alignment • Trial Cut • Rough Cut • Finish Milling
1230 – 1245	Break
1245 – 1420	<b>Milling (cont'd)</b> Milling Slots & Angles • Straddle Side & Face Milling • Mounting & Aligning the Cutters • Making the First Cut • Using Trigonometry Functions for the Final Cut • Face Milling • Milling Keysets, Squares & Flats • Selecting & Installing the Cutter • Depth of Cut • Speeds & Feeds • Using Automatic Feed Controls • Milling Squares on Round Work • Milling Tangs & Flats
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Three

**Day 4**

0730 – 0930	<b>Drilling</b> Drilling Machine Nomenclature • The Correct Application, Set-Up & use of Counter-Boring, Counter-Sinking & Spot-Facing Tools • Standard Operating Procedures
0930 – 0945	Break
0945 – 1100	<b>Cutting With Band Saws</b> Sawing Variables • Blade Material Selection • Tooth Pitch & TPI • Speed & Feed • Shear Plane Angle • Vise Loading & Bundling • Overcoming Blade Limitations • Standard Operating Procedures • Advanced Cutting Technologies with Laser & Water Jets
1100 – 1230	<b>Grinding</b> Horizontal-Spindle • Reciprocating Table Surface Grinding • Components of the Machine • Work-Holding Components • Work-Holding Accessories • Mounting the Work Piece
1230 – 1245	Break
1245 – 1420	<b>Grinding</b> Settings & Roughing Grinding Flat Surfaces • Grinding & Finishing Parallel Sides • Grinding Edges • Mounting the Workpiece for Vertical Grinding • Grinding a Vertical Surface • Squaring the Fifth & Sixth Edges • Standard Operating Procedures
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Four

**Day 5**

0730 – 0830	<b>Automation &amp; Control Software</b> Computer Numerical Controls (CNC) • Motion Controls • Tool Management
0830 – 0930	<b>Automation &amp; Control Software (cont'd)</b> Networking • Data-Acquisition • Manufacturers • Standards
0930 – 0945	Break
0945 – 1230	<b>KPIs of Efficient Management of Workshop</b>
1230 – 1245	Break
1245 – 1345	<b>Class Forum</b> Topics Discussion Opportunities & Question & Answer Period
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

**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](mailto:mari1@haward.org)