

## COURSE OVERVIEW ME0651 Steel Manufacturing & Process Troubleshooting

### Course Title

Steel Manufacturing & Process Troubleshooting

### Course Date/Venue

Session 1: February 23-27, 2025/Crowne Meeting Room, Crowne Plaza Al Khobar, KSA

Session 2: September 07-11, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



### Course Reference

ME0651

### 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 steel manufacturing and process troubleshooting. It covers the method of steelmaking; the iron production from ore; the conversion of iron to steel and continuous casting; the procedure on recycling scrap for liquid steel production and ingot casting; the hot rolling process of flat and long products; and the different post rolling processes that include cold rolling, shearing, heat treating and sawing including their features and functions.



During this interactive course, participants will learn the process troubleshooting of steel; the process monitoring through melting, casting, rolling and post rolling; the preventive measures in equipment issues and quality systems; the performance of non-destructive and destructive testing of products; and the importance of product testing.

### Course Objectives

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

- Apply and gain an in-depth knowledge on steel manufacturing and process troubleshooting including steelmaking, hot rolling and post rolling processes
- Employ the method of steelmaking particularly the iron production from ore, conversion of iron to steel and continuous casting
- Implement the procedure on recycling scrap for liquid steel production and ingot casting
- Review and improve hot rolling process of flat and long products and recognize its importance in steel manufacturing industry
- Identify the different post rolling processes that include cold rolling, shearing, heat treating and sawing and determine their features and functions
- Employ process troubleshooting of steel and analyze its common defects including chemistry defects, casting caused defects, rolling defects and post rolling induced defects
- Carryout process monitoring through melting, casting, rolling and post rolling and emphasize the preventive measures in equipment issues and quality systems
- Compare the performance of non-destructive and destructive testing of products and determine the importance of product testing

### 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 systematic techniques and methodologies on steel manufacturing and process troubleshooting for iron and steel industry production personnel such as managers, engineers, superintendents, supervisors, foremen and other technical staff. Further, the course is suitable for equipment and materials suppliers to the steel industry, steel marketing and sales personnel, machine shop personnel, quality control supervisors, component designers and engineers and other technical staff.

### Course Fee


**US\$ 10,000** 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. George Poulos**, MBA, MSc, BSc, CEng, is a **Senior Naval & Welding Engineer** with over **45 years** of extensive experience within the **Oil & Gas, Petrochemical, Refinery, Construction, Aircraft & Shipbuilding** Industry. His wide experiences covers in the areas of **Hot Rolling Process, Hot Strip Mill, Mill Operations, Roll Mill, Steel Making Process, Steel Manufacturing, Electric Arc Furnace (EAF), Steel Forging, Steel Manufacturing & Process Troubleshooting, Slit Rolling, Carbon Steel Pipe Wall Thickness & Grade**

**Selection, Ferro-Alloys, Steel Metallurgy, Steel Structure Welding, Steelmaking Slag, Steel Making Application, Heat Treatment & Prevention Techniques, Corrosion Fabrication & Inspection and Post Weld Heat Treatment.** Further, he is also well-versed in **Welding Inspection, Welding & Machine Techniques, TIG & Arc Welding, Shielded Metal Arc Welding, Gas Tungsten & Gas Metal Arc Welding, Welding Procedure Specifications & Qualifications, Aluminium Welding, Hot Work-Safety, SMAW, GTAW, Welding Techniques, Pipeline Welding Practices, Welding Engineering, Welding Fatigue & Fracture Mechanics, Welding Inspection Technology, Welding Safety, Welding Defects Analysis, Welding Technology, Welding Problems, Welding & Non Destructive Testing and Metallurgy Techniques.**

During his career life, Mr. Poulos has gained his practical and field experience through his various significant positions and dedication as the **Chief Executive, Head of Technical Studies, Manager, Senior Consultant, Lead Welding Engineer, Senior Welding Engineer, Design Engineer, Sales Engineer, Author, Welding Instructor, Visiting Lecturer and Technical Proposal Research Evaluator** from various international companies such as Greek Welding Institute, Hellenic Quality Forum and International Construction Companies such as Shipbuilding, Aircraft Industry and Oil and Gas Industry.

Mr. Poulos is a **Registered Chartered Engineer** and has a **Master's** degree in **Naval Architecture**, a **Bachelor's** degree in **Welding Engineering** and a Master of Business Administration (**MBA**) from the **Sunderland University, Aston University and Open University, UK**, respectively. Further, he is a **Certified Trainer/Instructor**, an active Member of Chartered Quality Institute (**CQI**), The British Welding Institute (**TWI**), The Royal Institution of Naval Architects (**RINA**) and American Welding Society (**AWS**), a Registered **EWFIW** (European Welding Federation-International Welding Institute W/E) and an **IRCA** Accredited External Quality Systems Auditor through BVQI. He is an **Author** of Technical Book dealing with Protection/Health/Safety in the Welding/Cutting domain and delivered various trainings, seminars, conferences, workshops and courses globally.



### 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	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Steelmaking</b> Iron Production from Ore • Conversion of Iron to Steel
0930 – 0945	Break
0945 – 1115	<b>Steelmaking (cont'd)</b> Continuous Casting
1115 – 1215	<b>Steelmaking (cont'd)</b> Recycling Scrap for Liquid Steel Production
1215 – 1230	Break
1230 – 1420	<b>Steelmaking (cont'd)</b> Ingot Casting
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day One

#### **Day 2**

0730 – 0930	<b>Hot Rolling</b> Flat Products
0930 – 0945	Break
0945 – 1100	<b>Hot Rolling (cont'd)</b> Flat Products (cont'd)
1100 – 1215	<b>Hot Rolling (cont'd)</b> Long Products
1215 – 1230	Break



1230 – 1420	<b>Hot Rolling (cont'd)</b> Long Products (cont'd)
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Two

**Day 3**

0730 – 0930	<b>Post Rolling Processes</b> Cold Rolling
0930 – 0945	Break
0945 – 1100	<b>Post Rolling Processes (cont'd)</b> Shearing
1100 – 1215	<b>Post Rolling Processes (cont'd)</b> Heat Treating
1215 – 1230	Break
1230 – 1420	<b>Post Rolling Processes (cont'd)</b> Sawing
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Three

**Day 4: Wednesday, 17<sup>th</sup> of May 2023**

0730 – 0930	<b>Defects</b> Chemistry Defects • Casting Caused Defects
0930 – 0945	Break
0945 – 1100	<b>Rolling Defects</b> Post Rolling Induced Defects
1100 – 1215	<b>Process Monitoring</b> Melting • Casting • Rolling
1215 – 1230	Break
1230 – 1420	<b>Process Monitoring (cont'd)</b> Post Rolling • Preventive Measures
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Four

**Day 5**

0730 – 0930	<b>Product Testing</b> Non-Destructive Testing
0930 – 0945	Break
0945 – 1100	<b>Product Testing (cont'd)</b> Dimensional and Shape Measuring
1100 – 1200	<b>Product Testing (cont'd)</b> Destructive Testing
1200 – 1215	Break
1215 – 1345	<b>Product Testing (cont'd)</b> Destructive Testing (cont'd)
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**

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