COURSE OVERVIEW ME0651
Steel Manufacturing & Process Troubleshooting

Course Title
Steel Manufacturing & Process Troubleshooting

Course Date/Venue
May 04-08, 2025/Crowne Meeting Room,
Crowne Plaza Al Khobar, Al Khobar, KSA

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$ 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: -

- 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.

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 **EWF/IW** (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: ***Sunday, 04th of May 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Steelmaking*** *Iron Production from Ore • Conversion of Iron to Steel*
0930 – 0945	*Break*
0945– 1115	***Steelmaking (cont'd)*** *Continuous Casting*
1115 – 1215	***Steelmaking (cont'd)*** *Recycling Scrap for Liquid Steel Production*
1215 – 1230	*Break*
1230 – 1420	***Steelmaking (cont'd)*** *Ingot Casting*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Monday, 05th of May 2025***

0730 – 0930	***Hot Rolling*** *Flat Products*
0930 – 0945	*Break*
0945 – 1100	***Hot Rolling (cont'd)*** *Flat Products (cont'd)*
1100 – 1215	***Hot Rolling (cont'd)*** *Long Products*
1215 – 1230	*Break*
1230 – 1420	***Hot Rolling (cont'd)*** *Long Products (cont'd)*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3:	Tuesday, 06th of May 2025
0730 – 0930	***Post Rolling Processes*** *Cold Rolling*
0930 – 0945	*Break*
0945 – 1100	***Post Rolling Processes (cont'd)*** *Shearing*
1100 – 1215	***Post Rolling Processes (cont'd)*** *Heat Treating*
1215 – 1230	*Break*
1230 – 1420	***Post Rolling Processes (cont'd)*** *Sawing*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4:	Wednesday, 07th of May 2023
0730 – 0930	***Defects*** *Chemistry Defects • Casting Caused Defects*
0930 – 0945	*Break*
0945 – 1100	***Rolling Defects*** *Post Rolling Induced Defects*
1100 – 1215	***Process Monitoring*** *Melting • Casting • Rolling*
1215 – 1230	*Break*
1230 – 1420	***Process Monitoring (cont'd)*** *Post Rolling • Preventive Measures*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5:	Thursday, 08th of May 2025
0730 – 0930	***Product Testing*** *Non-Destructive Testing*
0930 – 0945	*Break*
0945 – 1100	***Product Testing (cont'd)*** *Dimensional and Shape Measuring*
1100 – 1200	***Product Testing (cont'd)*** *Destructive Testing*
1200 – 1215	*Break*
1215 – 1345	***Product Testing (cont'd)*** *Destructive Testing (cont'd)*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
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