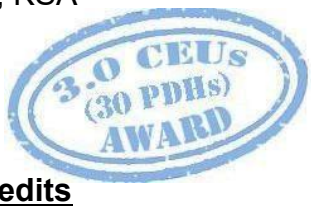
# COURSE OVERVIEW FE0335

# Effect of Ferro-Alloys in Steel Properties

**Course Title**
Effect of Ferro-Alloys in Steel Properties


**Course Date/Venue**
Session 1: February 23-27, 2025/
Boardroom 1, Elite Byblos Hotel
Al Barsha, Sheikh Zayed Road,
Dubai, UAE
Session 2: November 02-06, 2025/Crowne
Meeting Room, Crowne Plaza
Al Khobar, KSA




**Course Reference**
FE0335

**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 delegates with a detailed and up-to-date overview of Effect of Ferro-Alloys in Steel Properties. It covers the ferro-alloys production and concepts and the thermodynamic principles and techniques; the various furnace types and design refractories and ferro aluminum properties and uses; the control of ferro-alloys in large integrated steel mill; and the control of ferro-alloys in the manufacture of nickel alloys for nuclear applications.

During this interactive course, participants will learn the practices sampling ferro-alloys in determining chemical composition, testing ferro-alloys for size determination and for world production usage; the layout of ferro-alloy plant; and the ASTM 1025 standard specifications and requirements.

## Course Objectives

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

- Apply and gain an up-to-date knowledge on the effect of ferro-alloys in steel properties
- Discuss ferro-alloys production and concepts and employ the thermodynamic principles and techniques
- Differentiate and analyze various furnace types and design refractories and identify ferro aluminum properties and uses
- Distinguish the control of ferro-alloys in large integrated steel mill and the control of ferro-alloys in the manufacture of nickel alloys for nuclear applications
- Carryout systematic practices for sampling ferro-alloys in determining chemical composition, testing ferro-alloys for size determination and for world production usage
- Illustrate the layout of ferro-alloy plant
- Identify ASTM 1025 standard specifications and requirements

## 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 effect of ferro-alloys in steel properties for metallurgical engineers, materials engineers, corrosion engineers, welding engineers, inspection engineers and technicians.

## 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.

## 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 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 Instructor(s)**

Subject to availability, the following instructors will conduct the course:-

**Dr. Edmond Marks,** PhD, BSc, Dip, is a **Senior Metallurgy & Refinery Engineer** with over **40 years** of industrial experience within the **Oil & Gas**, **Refinery**, **Petrochemical** and **Utilities** industries. His expertise lies extensively in the areas of Advanced **Corrosion & Metallurgy**, **Corrosion** Control, **Stress Corrosion Cracking**, Hydrogen Attack & Naphthenic Acid **Corrosion**, **Corrosion** Inhibitors, **Corrosion** and **Corrosion** Prevention, **Refinery Inspection**, **Petroleum Refinery** Processing, **Refinery Material Balance** Calculations, Troubleshooting **Refinery Operations**, **Oil Refinery** Processes & Integration, **Refinery Economics**, **Materials** Engineering & Selection, **Metallurgical** Studies & Failure Analysis, **Damage Mechanism**, **Materials Science & Corrosion** Engineering, **Corrosion Degradation** Mechanisms, H2S Cracking, , **Metallic Coating**, **Distillation Columns**, **Reliability Maintenance & Refinery** Management, **Reliability** Engineering & Troubleshooting, **Turnaround** Maintenance & Management, **Asset** Management, **Failure** Analysis, **Plant** Inspection, **Quality Control**, **Risk** Assessment, **Atmospheric & Vacuum Distillation**, FCC, Visbreakers, HF Alkylation, **Hydro-Treaters**, **Catalytic Reformer**, **Sulfur Recovery**, Hydrogen, Merox, Amine & Caustic Treaters, Sour Water Stripper, LPG, **Storage Tanks**, **Piping**, **Heat Exchangers**, **Furnaces**, **Pressure Vessels**, **Accident** Investigation and **Total Quality** Management.

During his career life, Dr. Marks held significant positions as the **Managing Director**, **Chairman** of the Refinery Purchasing & Contracting Out Committees, **FCC Turnaround Manager**, **Refinery Turnaround Manager**, **General Services Manager**, **Maintenance Manager**, **Technical Manager**, **Total Quality Manager**, **Senior Corrosion Engineer**, **Corrosion & Inspection Head**, **Reliability Superintendent**, **Research & Technical Engineer**, **Research Engineer**, **Senior Consultant/Technical Advisor**, **Advisor**, **Technical Representative**, **Keynote Speaker**, **Technical Consultant**, **Materials Science Lecturer** and **Senior Instructor/Trainer** from various international companies such as the Dentons' International Arbitration Group, Refineria Isla Curacao B.V. (formerly **Shell**), Asesoría Tech C.A. Venezuela, INTEVEP S.A. (Research & Technical Center of Petróleos de Venezuela S.A.), Centre de Recherche Du Creusot Loire, Firminy and Universidad Simón Bolívar, just to name a few.

Dr. Marks has a **PhD** in **Physics-Chemistry**, **Diplome d'Etudes Approfondies** (**DEA**) [Diploma of Advanced Studies] and **Bachelor's** degree of **Materials Science & Specialization** in **Metallurgy** from the **Universite De Bourgogne** [**The University** of **Burgundy**], **France** and the **Universidad Simon Bolivar**, **Venezuela**, respectively. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**), a member of **NACE Technical Committee** and the **Author** of E-Learning courses for Refining, Petrochemicals and Corrosion Control in Oil Refineries in Texas, USA. He has further published several scientific journals and papers and has delivered numerous trainings, courses, workshops, conferences and seminars internationally.

## 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***

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|---|---|
| *0730 – 0800* | *Registration & Coffee* |
| *0800 – 0815* | *Welcome & Introduction* |
| *0815 – 0830* | ***PRE-TEST*** |
| *0830 – 0930* | ***Basics of Ferro-Alloys Production*** |
| *0930 – 0945* | *Break* |
| *0945 – 1100* | ***Thermodynamic Principles & Techniques*** |
| *1100 – 1215* | ***Existing Production Processes of Fe-Mn, Fe-Si, Fe-Cr*** |
| *1215 – 1230* | *Break* |
| *1230 – 1420* | ***Production Processes for Noble Ferro-Alloys*** |
| *1420 – 1430* | ***Recap*** |
| *1430* | *Lunch & End of Day One* |

***Day 2***

| | |
|---|---|
| *0730 – 0930* | ***Recent Advances in Ferro-Alloys Technologies*** |
| *0930 – 0945* | *Break* |
| *0945 – 1100* | ***Production of Fe-W, Fe-Mo, FE-Nb*** |
| *1100 – 1215* | ***Production Fe-Ti, Fe-B, Ca-Si*** |
| *1215 – 1230* | *Break* |
| *1230 – 1420* | ***Physicochemical Aspects of Ferro-Alloys*** |
| *1420 – 1430* | ***Recap*** |
| *1430* | *Lunch & End of Day Two* |

***Day 3***

| | |
|---|---|
| *0730 – 0930* | ***Furnace Types and its Design Refractories*** |
| *0930 – 0945* | *Break* |
| *0945 – 1100* | ***Ferro Aluminum Properties and Uses*** |
| *1100 – 1215* | ***Control of Ferro-Alloys in Large Integrated Steel Mill*** |
| *1215 – 1230* | *Break* |
| *1230 – 1420* | ***Control of Ferro-Alloys in the Manufacture of Nickel Alloys for Nuclear Applications*** |
| *1420 – 1430* | ***Recap*** |
| *1430* | *Lunch & End of Day Three* |

***Day 4***

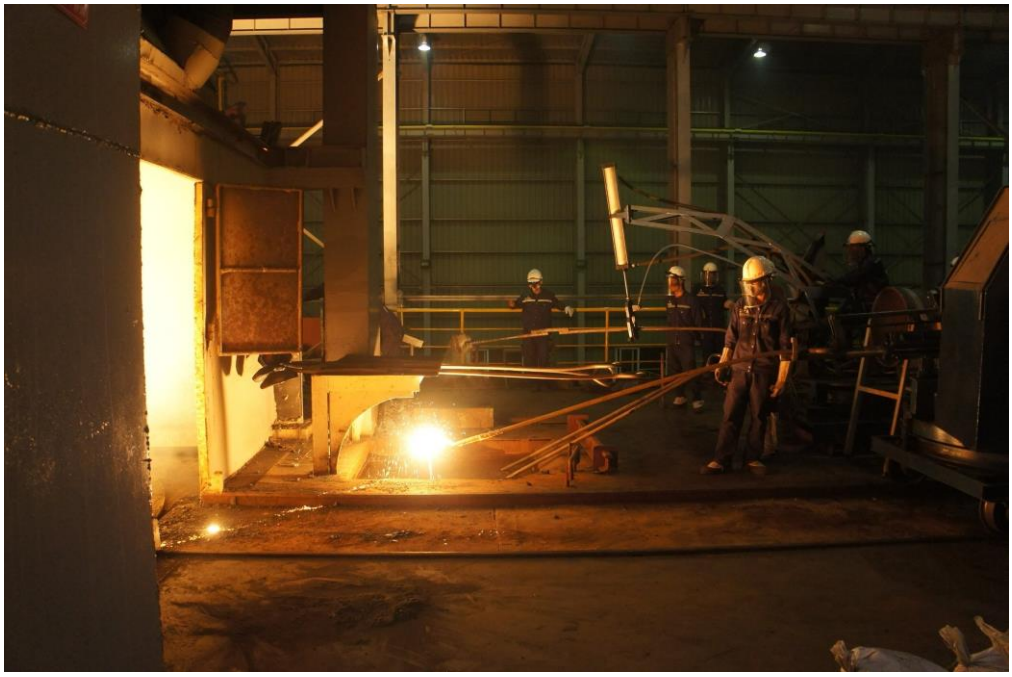
| | |
|---|---|
| *0730 – 0930* | ***Ferro-Alloys for Improved Machinability of Steel*** |
| *0930 – 0945* | *Break* |
| *0945 – 1100* | ***Practices for Sampling Ferroalloys for Determining Chemical Composition*** |
| *1100 – 1215* | ***Testing Ferro-Alloys for Size Determination*** |
| *1215 – 1230* | *Break* |
| *1230 – 1420* | ***Ferro-Alloys World Production and Usage*** |
| *1420 – 1430* | ***Recap*** |
| *1430* | *Lunch & End of Day Four* |

***Day 5***

| | |
|---|---|
| *0730 – 0930* | ***Layout of Ferro-Alloy Plant*** |
| *0930 – 0945* | *Break* |
| *0945 – 1100* | ***ASTM 1025 Standard Specifications and Requirements*** |
| *1100 – 1215* | ***Specification of Ti, AL Scrap for Use in Steel Alloying*** |
| *1215 – 1230* | *Break* |
| *1230 – 1400* | ***Plant Economics*** |
| *1400 – 1400* | ***POST-TEST*** |
| *1400 – 1415* | ***Course Conclusion*** |
| *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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