Online course

STEELMAKING, HOT ROLLING AND STEEL INDUSTRY PROCESSES

Del 11-mar-2024 al 12-jun-2024

Online: It is taken the ATEC+ID platform

'Practical knowledge to apply in your company'

Vision

Steelmaking continues to develop technologically, with the manufacture of new qualities and high levels of productivity and cost efficiency being fundamental aspects for companies.

The contents of this course offer a good balance between technical and administrative knowledge, and how said knowledge is transferred in its real and practical implementation in a steel company, both electrical route or integral route, showing practical cases. In this way, students will take with them a real idea of how activities and processes are structured, what functions are performed and how it is done, both to understand the processes and the sequential structure of processes in steel manufacturing. This course provides attendees with tools to address, identify, understand and overcome the activities, functions and problems that arise in the industrial activity of a steel mill, in its different areas or facilities.

The steel industry professional, or anyone who wants to enter the steel industry without having a strictly technical profile, should have a global vision of what a steel mill is like (electric or integral), a rolling mill, and what the production processes are like. business and industrial, to understand their contribution of value and participate both in the efficiency and productivity of their company, as well as in the contribution to improvement and innovation.

Objectives of this training action

Firstly, and to obtain a vision of the sector and its socioeconomic environment, of the steel manufacturing routes and what these processes are like, with a presentation of the state of the steel sector, on a global basis, in terms of market and production, to understand the strategic and evolutionary vision of it and the companies that make it up.

Next, the following modules describe what the processes of a steel company are like, not only the productive ones, but also other processes, both those that are directly related to the plant (collection/storage of raw materials, maintenance, environmental control, control quality, finished product warehouse, etc.), as well as those business processes of a more administrative nature (purchases, logistics, commercial, HR, management control, etc.).

With this type of structure and downloading the contents of the metallurgical-chemical complexity, of greater technical depth, it is sought that professionals with a technical-administrative profile can obtain training on the processes carried out in different areas or departments, and the content of exchanges between departments, to better understand the functions performed, and how they are done.

This course provides a book or pdf document with the contents.

ONLINE or E-LEARNING TRAINING

This type of course is called Online Training, and includes content for 24/7 online training access on our platform, platform messaging for any communication and questions, as well as an optional session in a virtual classroom, or webinar type session.

Training Plataform

https://aula.atecid.com

Recommendations for the course

The following recommendations seek to enable the participant to advance through the course continuously, taking advantage of its contents and transforming said contents into their knowledge:

- Try to enter the course daily.

- Try not to accumulate material for the last days.

- try to dedicate a certain time each day or each week

- participate in forums and tutorials

- raise your doubts or questions so that the tutor can identify the content to which the student refers

- make sure you do all the assessment exercises

Monitoring

During the planned duration of the course, you will have a tutor to answer your questions or concerns, for which it is necessary to use the platform's messaging system.

The videoconference, or webinar type platform is based in Go To Meeting system, so in case a session is set, setting is simple and easy, and better if accessed fron the platform. Javier Aseguinolaza Iriondo is the lecturer, whose qualifications and experience can be accessed his Linkedin profile.

COLABORATORS

This course has a series of collaborators who provide different material, especially photos.

If you want to be a collaborator, contact us. The list of collaborators is as follows

- Universidad de Cambridge
- Danieli
- Viktor Mácha – Fotógrafo www.viktormacha.com
- Sist. Engrase y Lubricación www.sistemasdeengraseylubricacion.es
- World Steel Association worldsteel.org
- NORD drive systems
- SMS Group
- KANTHAL
- MWE Gmbh
- Ingersoll Rand - CompAir
- CONECBAND
- UNESID
- British Steel
- Harald Finster, fotógrafo http://www.hfinster.de/
- ATOMAT https://www.atomat.com/
- Montanstahl

ANEX I. COURSE CONTENTS

Module 1: Steel industry vision

- Sector vision
- Global visión about the steelmaking processes in the Steelworks
- Energetic-Environmental visión
- Steel types

Module 2: Steel melting processes

- 1.A. Steel melting in the primary route BF-BOF
- 1.B. Steel melting in the electric route EAF
- 1.C. Steel melting in the "new" routes DRI/HBI-EAF
- 2.A. Process in the EAF
- 2.A.1. Electrodes
- 2.A.2. Energy input and environment in the EAF
- 2.A.3. EAF Parts and operations
- 2.A.4. Phases in the EAF process
- 2.A.5. Energy balance in an EAF
- 2.B. BOF process (primary route)
- 3. Refractories
- 4. Types of scrap and optimal mix
- 5. Dephosphorization and Desulfurization

- 6. Productivity and quality
- 7. Summary of processes and functions in steel melting

Module 3: Ladle Refining processes

- Ladle refining process and operations
- Slag control
- Deoxidation and addition of alloys
- Other additions and inclusion control
- Gas and decarburization control
- Homogenization and temperature control
- Refractories
- Productivity and quality

Module 4: Continuous casting

- Solidification
- Influences on product quality
- Cleaning defects in the mold foot
- Superficial defects
- Internal defects
- Productivity and quality

Module 5: Laminación en caliente

- 1.A. Metalurgy in hot rolling
- 1.B. Metallurgical strategy and quality
- 1.C. Chemical composition, alloying and properties
- 1.D. Thermo-mechanical treatments, steel properties and laboratory
- 2. Rolls and guides department: Roll pass design and roll mounting schedules
- 3. Hot Rolling defects
- 4. Reheating furnace and heating capacity
- 5. Rolling mill productivity and optimization
- 6. Rolling mill finishing

Module 6: Adyacent processes to production

- 1. Maintenance and the Technical Office

- 2. Quality
    - 2.1. ISO 9001:2015 and the steelworks
    - 2.2. ISO 9001:2015 and the Rolling mill
- 3. Environment
- 4. Human Resources
- 5. Purchasing
- 6. Finance and Management Control
- 7. Innovation