Ironmaking Course
13th to 16th May 2019

COURSE OVERVIEW
The ironmaking course provides an in-depth overview of the blast furnace process and raw materials considerations. The presentations are a combination of theoretical, practical and operational aspects. A key part is the group work using a process options model to investigate the effects of process and material changes on cost.

COURSE ORGANISER
Peter Warren - Former technical manager at Redcar Blast Furnace with over 25 years of ironmaking experience at Redcar, Scunthorpe and within British Steel research.

WHO SHOULD ATTEND
> Manufacturing and Operations Supervisors and Managers
> Technologists
> Engineers
> Researchers

CONTENT
> Overview of the current world scene and future of blast furnace ironmaking
> Raw materials preparation - coke oven, sinter and pellet plant operations
> Selection and characterisation of coking coals, ore fines and PCI coals
> Blast furnace process
> Blast furnace process control
> Burden distribution
> Cast House Operations
> Challenging operations and cost reduction opportunities
> Blast furnace refractories
> Slag markets and requirements
> The Steelmakers’ requirements
> Blast furnace design

GROUP PROJECT
Small groups will use the process options model to evaluate the effects of raw material and process changes on the cost of liquid steel. This will consolidate the learning from the lectures and will demonstrate the concept of value in use for raw materials.

LEARNING OUTCOMES
The course will provide the delegates with an in depth knowledge of the blast furnace process, an overview of the upstream processes, and understanding of ironworks costs and constraints.

SPEAKERS
The course will be delivered by experienced personnel from both operational and technical backgrounds selected from Materials Processing Institute, Tata Steel, raw materials supply, slag use, plant building and refractories consultancy.

ORGANISATION/REGISTRATION
Materials Processing Institute
Eston Road
Middlesbrough, TS6 6US
United Kingdom
Tel: + 44 (0)1642 382000
email: training@mpiuk.com
Website: www.mpiuk.com/training

COURSE VENUE & FACILITIES
The course will be held at the Materials Processing Institute, Middlesbrough, TS6 6US, United Kingdom.

COURSE PRICE
£870.00 + VAT / Subject to availability.
This price includes lunches and refreshments.
Ironmaking Course
COURSE PROGRAMME

Monday 13th May 2019
12:30  Arrival, reception and refreshments
12:45  Introduction to course and facilities
13:00  **Keynote address** - The world scene and the future of blast furnace ironmaking
13:30  **The blast furnace process** - chemistry, heat and mass balance, gas and liquid flows, cohesive zone, dead man. (Break in middle)
15:45  Introduction to the Project and Project Work
17:00  **Steelmaking requirements for the blast furnace** - chemistry specification, impact of variable quality, through cost optimisation
17:30  End of Day One

Tuesday 14th May 2019
09:00  Sintering and pelletising plant operation and requirements
10:30  Break
10:45  **Ferrous raw material selection, characterisation, testing** - standard and specific, quality requirements. World market trends.
12:15  Lunch
13:00  **Project work**
14:45  Break
15:00  **Selection of PCI coals** - value in use, combustion testing, char reactivity, blending
15:45  **Refractories requirements and performance** - cast house runner, clay, hearth and stack lining
17:15  End of Day Two

Wednesday 15th May 2019
09:00  **Coking coal selection, coke oven operation and the role of coke in the blast furnace.**
10:30  Break
10:45  **Cast house operations** - runner and equipment requirements, impact of clay quality, casting regimes.
12:15  Lunch
13:00  **Project work**
14:45  **Slag markets and requirements** - physical and chemical
15:30  Break
15:45  **Blast furnace design** - cooling systems, hearth, profile, campaign life, interim repairs
17:15  End of Day Three

Thursday 16th May 2019
09:00  **Burden distribution to control gas distribution** - charging systems, control of fines, segregation, layer shape, layer thickness, use of probes.
10:30  Break
10:45  **Blast furnace process control and tuyere injection** - standard procedures for aerodynamic and thermal control, considerations for tuyere injectants.
12:15  Lunch
13:00  **Project work and project review**
14:30  Break
14:45  **Challenging operations and low cost opportunities** - procedure to recover from severe instability, cost reduction opportunities in a depressed market.
16:15  Course review and feedback
16:30  Depart

**SPEAKERS:**
The course is delivered by very experienced steel industry experts from operational, technical and R&D backgrounds: Selected from the Institute, international steel companies, suppliers and steel industry consultancies.

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The Institute of Materials, Minerals and Mining
1946 - 2019
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