COURSE OVERVIEW

The Steelmaking & Continuous Casting course provides a comprehensive understanding of primary steelmaking, secondary steelmaking and continuous casting. The presentations combine both practical and theoretical aspects of steelmaking and casting, including laboratory activities and a tour of the Materials Processing Institute Plant.

COURSE ORGANISERS

David Stamp - Over 35 years of working in the steel industry; in both R&D and plant technical roles. Very experienced in both quality control and technical developments on both bloom and slab casters.

David Bruce - Over 45 years of working in the steel industry in both R&D and manufacturing steel/casting plants. Laterly Slab Caster Technical Manager at the Teesside Steelworks, with extensive knowledge and experience in all aspects of continuous casting and production.

WHO SHOULD ATTEND

> Manufacturing team leaders/supervisors
> Process & Plant Engineers
> Metallurgists, Technologists
> Research & Development personnel
> Equipment & material suppliers - sales & technical support
> Phd / Eng Doc students

CONTENT

> Overview of world steel production
> BOS Process - theory & practice
> Electric Arc Furnace Steelmaking
> Clean Steel - theory & practice
> Sampling and Sensors for improved process control
> Compositional Control – theory & practice, misfits
> Caster Metallurgy
> Casting of difficult steel grades
> Operation & design of Casting Machines
> Casting defects (surface & internal), Scarfing
> Casting Mould Powders

COURSE VENUE & FACILITIES

The course will be held at the Materials Processing Institute, Middlesbrough, United Kingdom.

COURSE PRICE

£995.00 + VAT / Subject to availability. This price includes lunches and refreshments.
# Indicative Course Programme

## Monday 8th June 2020
12:45 Arrival, reception and refreshments  
13:15 Introduction to course and facilities  
13:30 **World Steel Production** - output statistics, challenges, profitable steel companies  
14:15 Break  
14:30 **BOS Process** - theory & practice  
15:45 Break  
16:00 Practical Steelmaking considerations  
17:15 Discussion  
17:15 End of Day 1

## Tuesday 9th June 2020
09:00 **Electric Arc Furnace** - theory & practice  
10:10 Break  
11:20 **Electric Arc Furnace & BOS** - which is best?  
12:15 Lunch  
13:00 **Secondary Steelmaking** - theory & practice  
15:00 Course Review and Feedback  
12:30 Lunch  
13:10 **Continuous Casting Defects** - surface quality & scarfing  
14:00 Project Activities  
15:00 **Clean steel** - theory & practice, determination  
16:15 Lunch  
17:30 End of Day 2

## Wednesday 10th June 2020
09:00 **Caster Metallurgy** - solidification structures, phase diagrams, sulphur prints, forensic metallurgy  
10:15 Break  
10:25 **Casting of difficult steel grades** - machine design & condition, effect of steel composition, new technologies  
11:40 Break  
11:50 **Tour of Normanton Plant**  
12:20 Lunch  
13:00 **Project Activities**  
15:00 **Caster Instrumentation** - current and new measurement methods to improve process control  
16:20 Break  
16:30 **Continuous Casting Defects** - internal quality - types, causes and solutions  
17:20 Discussion  
17:30 End of Day 3

## Thursday 11th June 2020
09:00 **Casting Mould Powders** - functions, properties, selection criteria, determining performance  
10:20 Break  
10:30 **Fluid Modelling for Process Improvement**  
11:40 Break  
11:50 **Project Presentations**  
12:30 Lunch  
13:10 **Continuous Casting Defects** - surface quality & scarfing  
14:00 **Project Activities**  
15:00 Break  
15:10 **Clean steel** - theory & practice, determination  
16:15 **Project Activities**  
17:30 End of Day 4

## Friday 12th June 2020
08:45 **Alternative casting technologies** - thin slab, direct strip, 3D printing  
10:00 Break  
10:10 **Overview of Steelmaking & Casting Refractories**  
11:20 **Project Presentations**  
12:00 Course Review and Feedback  
12:30 Lunch/ End of Course

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**SPEAKERS:**  
The course will be delivered by very experienced personnel from operational, technical and R&D backgrounds; selected from the Materials Processing Institute, steel companies, suppliers and Steelmaking & Casting consultancies.