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# 22<sup>ND</sup> BLAST FURNACE IRONMAKING COURSE

May 13 – 18, 2012



## Course Objectives:

The blast furnace has been and will remain the “centrepiece” of integrated facilities in the steel industry. Present day Ironmaking technology has evolved over many years through innovations in raw materials preparation, blast furnace design and blast furnace practice. Improvements in blast furnace operation usually have significant impact on the well-being of the company.

The blast furnace and its ancillary facilities are very complex and dynamic systems. This course is designed to present “state-of-the-art” knowledge of the systems to operators, researchers and suppliers of refractories, raw materials and equipment to the industry. The course content is continuously updated by the expert lecturers.

## Lectures:

### Principles, Design and Raw Materials:

#### Historical Development and Principles of the Iron Blast Furnace

*John Ricketts, ArcelorMittal Steel USA*

#### Blast Furnace Reactions

*Wei-Kao Lu, McMaster University*

#### Environment Issues in Blast Furnace Ironmaking

*Frank W. Harrison, U. S. Steel Canada*

#### Incident and Accident Prevention in Blast Furnace Ironmaking

*Dan Lucas, U. S. Steel Canada*

#### Blast Furnace Energy Balance and Recovery: Rules of Thumb

*John Busser, Hatch*

#### Blast Furnace Design I

*Dave Berdusco, Paul Wurth Inc.*

#### Blast Furnace Design II

*Bob Helenbrook, Thermal Kinetics Engineering*

#### Ironmaking Refractories

*Floris van Laar, Allied Minerals Products, Inc.*

#### Iron-Bearing Burden Materials

*Marcelo Andrade, ArcelorMittal USA*

#### Blast Furnace Control - Measurement Data and Strategy

*Bob Nightingale, University of Wollongong/ (retired from Bluescope Steel)*

#### Maintenance Reliability Strategies in an Ironmaking Facility

*Roxie Graystone, ret. Algoma Steel*

## Operations:

#### Coke Production for Blast Furnace Ironmaking

*Hope Huntington, Clark Laboratories LLC*

#### Day-to-Day Blast Furnace Operation

*Art Cheng, Vesuvius USA*

#### Challenging Blast Furnace Operations

*Fred Rorick, Rorick Inc.*

#### Burden Distribution and Aerodynamics

*Stephen Yaniga, U. S. Steel USA*

#### Ironmaking/Steelmaking Interface

*Cam Howey, Hatch*

#### Fuel Injection in the Blast Furnace

*Donald Zuke, ArcelorMittal Steel USA*

#### Blast Furnace Slag

*John D'Alessio, U. S. Steel Canada*

#### Casthouse Practice and Blast Furnace

#### Casthouse Rebuild

*Barry Hyde, Hatch*

#### Ironmaking in Western Europe

*Hans Bodo Lungen, Steel Institute VDEH*

#### Chinese Blast Furnace Practice

*Dennis Lu, ArcelorMittal USA*

#### Japanese Blast Furnace Practice

*Takanobu Inada, Sumitomo Metal Industries*

#### Future Trends in Ironmaking

*Joe Poveromo, Raw Materials & Ironmaking*

#### Introduction to Ironmaking (Optional), Sunday Evening

*Gord Irons, McMaster University*

For those with no familiarity with the Blast Furnace

In addition to the lectures, there is a Blast Furnace Game, a Case Study related to Operations and, at the end of the Course, an optional Plant Tour. Lecture notes will be distributed at the beginning of the course.

The Organizing Committee reserves the right to modify course material or to substitute lecturers without notice.

## Organizing Committee

### John D'Alessio (Chair)

U. S. Steel Canada

### Angelo Petruccelli

Allied Mineral  
Technical Services, Inc.

### Randy Fischer

ArcelorMittal  
Dofasco

### Joe Poveromo

Raw Materials &  
Ironmaking

### Cam Howey

Hatch

### Gordon Irons

(Secretary)  
McMaster University

### Darcy Palmer

U. S. Steel Canada

## Contact Information

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## Course Information:

There is an enrollment limit of 100 registrants. The course fee is **\$1,750** CDN. This includes lectures, lecture notes, Sunday reception, Tuesday BBQ, Wednesday Banquet, lunches, coffee breaks and denim shirt. Cancellation after April 20, 2012 refund 50%; there will be no refunds after May 1, 2012. Substitutions can be made. To register for the course complete and return the attached registration form with payment details. Receipt of payment is the only guarantee of registration.

## On-Site Course Registration

Sunday, May 13 from 4:00 p.m. to 7:00 p.m. at the main lobby of Les Prince Hall (Sterling Street access). Monday, May 14, from 8:00 a.m. to 8:45 a.m. at the main lobby of the Michael G. DeGroote Centre for Learning & Discovery (MDCL) building. Lecture notes, name tags and programs will be distributed. For your convenience a desk will be open prior to lectures, during coffee and lunch breaks outside of the lecture room.

## Lectures and Case Study

Lectures will be held in Michael DeGroote Centre for Learning & Discovery (MDCL) room 1110. The Case Study will be held in T29.

## Accommodation

To promote interaction among registrants and lecturers, we strongly recommend accommodation in residence at the rate of **\$550.00** CDN. Accommodation fee includes 5 breakfasts and 2 dinners. Extra nights are available at **CDN \$90.00 + 13% taxes/night**; no food included

On site accommodation registration will be Sunday May 13 at the Les Prince Hall residence. Residence accommodation is comfortable but basic. The rooms are single rooms with private bathrooms. (Daily maid service, bed linens, and towels are provided). Please note there is no wake-up service available. Each room is equipped with an Ethernet connection. For your convenience there is a front desk open 24/7 in the main lobby of the commons building (905) 525-9140 Extension 27222.

## Reception – Sunday, May 13

A Welcome Reception will be held from 7 - 9 p.m. on Sunday, May 13 at the David Braley Centre – Fitzhenry Studio (2nd floor). Registrants are invited to meet lecturers, members of the Organizing Committee, and fellow participants.

## Banquet – Wednesday, May 16

A banquet is included in the course registration to be held at a Burlington Golf and Country Club. (Additional guests: \$75.00).

## Game

Monday, Tuesday and Thursday evening in T29. This is an excellent opportunity to meet and interact with colleagues from all over the world. Delegates found this the highlight of the course, and enthusiastic participation is expected.

## Optional Plant Tour – Friday May 18 ArcelorMittal Dofasco

Time: From 1:30 to 4:30 p.m.

Tour will be limited to 30 registrants on a first come, first served basis at a cost of \$30 CDN.

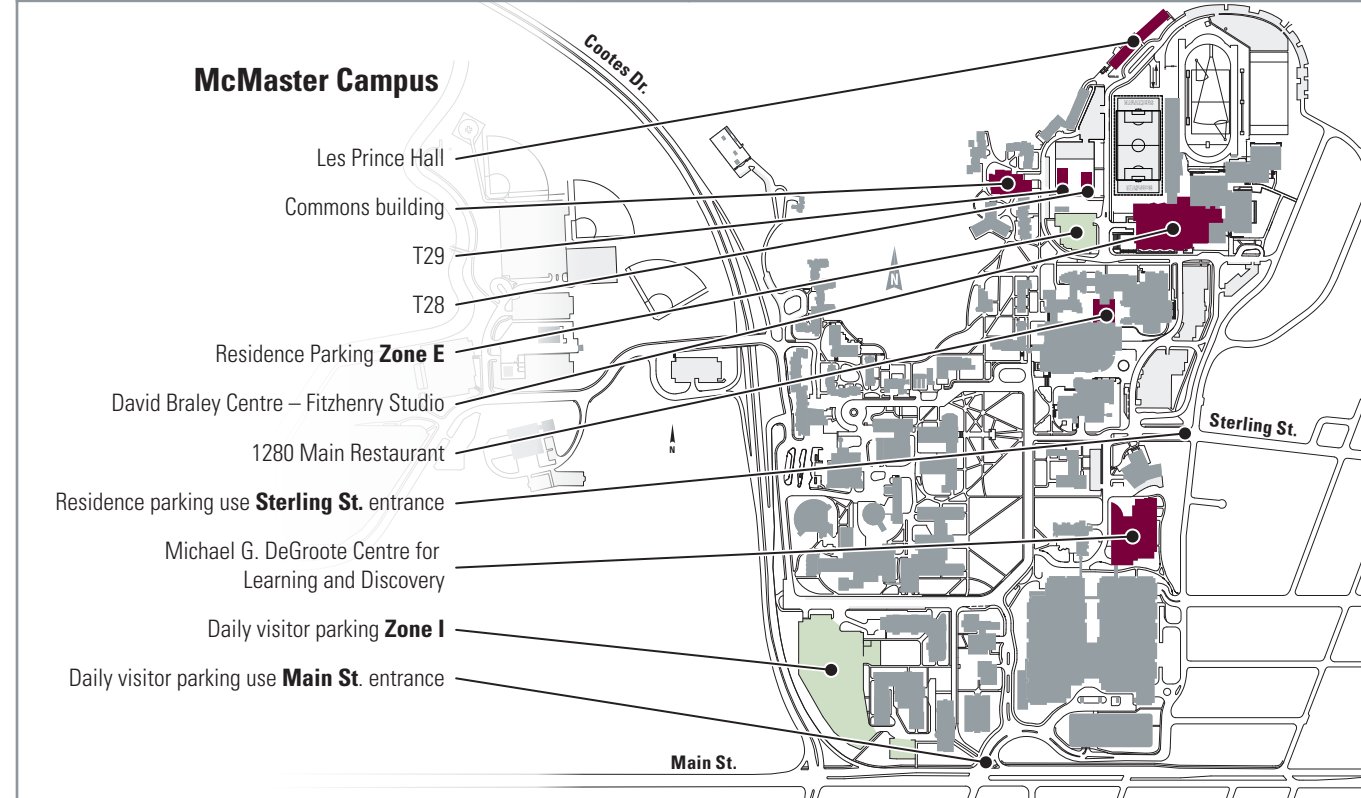
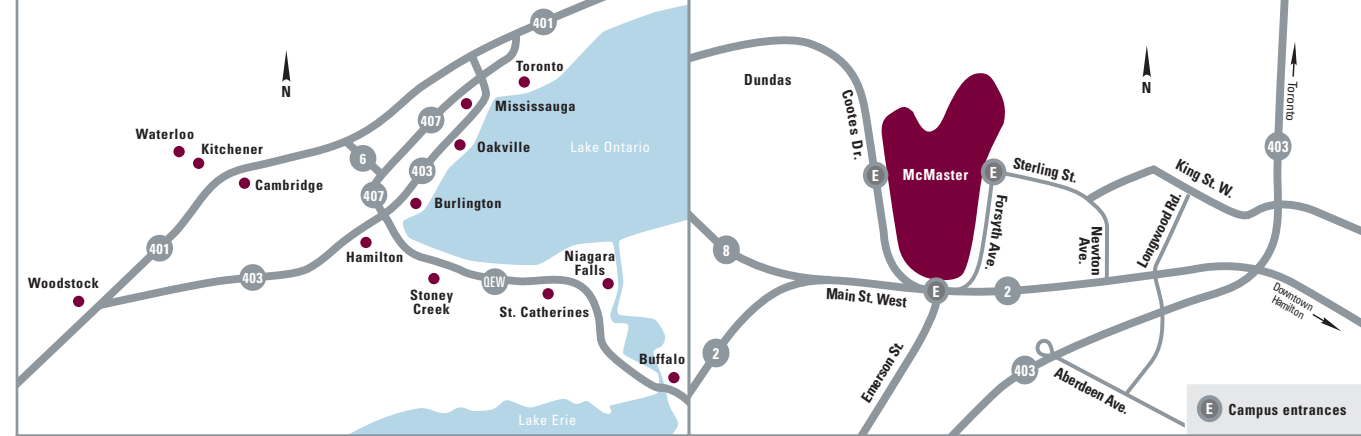
Bus will leave at 1:15 pm

Walking tour of #2 & 4 Blast Furnace casthouse, stockhouse, stove platforms and control room.

No short sleeves shirts, short pants or open shoes are allowed. Hard hats and safety glasses will be provided.

## Website

[training.mcmaster.ca](http://training.mcmaster.ca) will be updated as required.



## Travel Information:

**Location:** Hamilton is situated midway between Toronto and Niagara Falls. McMaster University is located in the west end of the city.

**Getting Here:** The nearest large airport is Pearson International in Toronto. Frequent limousine or bus service is available and it takes about one

hour. There are also flights to Buffalo NY which is approximately 120 km from Hamilton.

**Parking Fees:** Residents and non-resident attendees will be charged \$11.00/per day if purchased at course registration or course registration desk. McMaster University Parking fee: \$20.00/per day.