

BRIMACOMBE CONTINUOUS CASTING COURSE

Sponsored by the Brimacombe Continuous Casting Society

www.brimacombecourse.org

BRIMACOMBE CONTINUOUS CASTING COURSE

**Continuous Casting of
Steel Billets, Blooms and Slabs**

May 14 to May 18, 2012

Renaissance Vancouver Hotel Harbourside
1133 West Hastings Street, Vancouver, B.C. Canada V6E 3T3

COURSE LECTURE SCHEDULE

BRIMACOMBE CONTINUOUS CASTING COURSE 2012

Renaissance Hotel Vancouver Harbourside
1133 West Hastings Street
Vancouver, B.C. Canada V6E 3T3

Sunday, May 13th

6:00 - 9:00 p.m. COCKTAIL RECEPTION (with appetizers)
Renaissance Vancouver Hotel Harbourside
Ballroom Foyer, 2nd Floor

Monday, May 14th

7:00 - 7:30 a.m. Continental Breakfast and Registration Confirmation, Ballroom Foyer
7:30 - 7:40 a.m. Welcome to Course (ESS)
7:40 - 7:50 am Tribute to Keith Brimacombe (AWC)
7:50 - 8:45 a.m. Introduction to Continuous Casting Systems (ESS)
8:45 - 9:00 a.m. BREAK
9:00 - 10:00 a.m. Issues in Caster Operation (AWC)
10:00 - 11:00 a.m. Inclusion Defects (AWC)
11:00 - 12:00 p.m. Chemistry Control (IDS)
12:00 - 1:30 p.m. LUNCH BREAK
1:30 - 2:30 p.m. Slags for Ladle and Tundish (IDS)
2:30 - 3:30 p.m. Slag Emulsification (AWC)
3:30 - 3:45 p.m. BREAK
3:45 - 4:45 p.m. Cleanliness Control (IDS)
5:00 p.m. Walk to Bayshore Marina
6:00 - 9:00 p.m. COCKTAILS AND DINNER DURING HARBOUR CRUISE
(SPOUSES ARE WELCOME)

Tuesday, May 15th

7:00 - 8:00 a.m. Continental Breakfast, Ballroom Foyer
8:00 - 10:00 a.m. Caster Operation to Minimize Oxide Defects (AWC)
10:00 - 10:15 a.m. BREAK
10:15 - 12:00 p.m. Basic Aspects of Moulds (BGT)
12:00 - 1:30 p.m. LUNCH BREAK
1:30 - 2:30 p.m. Aspects of Mould Oscillation and Transverse Cracking (ESS)
2:30 - 3:30 p.m. Mould Powders (AWC)
3:30 - 3:45 p.m. BREAK
3:45 - 5:30 p.m.* I Fluid Flow in Slab Moulds (BGT)
II Billet Operations (IDS & AWC)

Wednesday, May 16th

7:00 - 8:00 a.m.	Continental Breakfast, Ballroom Foyer
8:00 - 9:45 a.m.	Strand Solidification, Shell Growth and Effects of EMS (ESS)
9:45 - 10:00 a.m.	BREAK
10:00 - 12:00 p.m.	Segregation Problems (ESS)
12:00 - 1:30 p.m.	LUNCH BREAK
1:30 - 2:45 p.m.	Heat Transfer in Continuous Casting (BGT)
2:45 - 3:00 p.m.	BREAK
3:00 - 4:00 p.m.	Grade Transitions (BGT)
4:00 - 5:30 p.m.	High Temperature Mechanical Properties of Steel (BGT)
6:30 - 9:00 p.m.	OPTIONAL NO-HOST DINNER AT A LOCAL RESTAURANT (SPOUSES ARE WELCOME)

Thursday, May 17th

7:00 - 8:00 a.m.	Canadian Breakfast in the Vistas 360 (19 th Floor)
8:00 - 9:30 a.m.	Crack Formation (IVS)
9:30 - 9:45 a.m.	BREAK
9:45 - 10:45 a.m.*	I Mould Friction in Billet Casting (ESS) II Mould Behaviour, Oscillation Mark Formation and its Influence on Cast Quality in the Continuous Casting of Slabs/Blooms (IVS)
10:45 - 12:00 pm	I Mould Maintenance and Optimum Design and Operation (IVS) II Slab Mould Behaviour (BGT)
12:00 - 1:30 p.m.	LUNCH BREAK
1:30 - 2:45 p.m.	I Mould Tapers, Oil Lubrication and Billet Quality (IVS) II Slab Mould Tapers (BGT)
2:45 - 3:00 p.m.	BREAK
3:00 - 4:00 p.m.	I Upsets in Billet Casting (IVS) II On-line Detection of Breakouts and Slab Quality Problems (BGT)
4:00 - 5:00 p.m.	Panel Discussion on Quality I Billets (IVS) II Slabs/Blooms (ESS/BGT)

Friday, May 18th

7:30 - 8:00 a.m.	Continental Breakfast, Ballroom Foyer
8:00 - 8:45 a.m.	Challenges in High Speed Casting (BGT)
8:45 - 9:00 a.m.	BREAK
9:00 - 10:00 a.m.	Spray Cooling and Related Defects (IVS)
10:00 - 11:30 a.m.	Containment in the Submould Region (ESS)
11:30 a.m.	COURSE ENDS

NOTE: Audio and/or video taping of lectures is not permitted.

***Groups divided into billets and slabs/blooms for simultaneous sessions.**

GENERAL INFORMATION

The Course will be held at the Renaissance Vancouver Hotel Harbourside in downtown Vancouver. The hotel is located at 1133 West Hastings Street, Vancouver, B.C. Canada V6E 3T3. A limited block of rooms has been reserved for course attendees at a reduced rate. This special rate only applies to room reservations made on or before April 1, 2012, so **MAKE YOUR RESERVATION EARLY!** Room reservations can most easily be made via links on our website <brimacombecourse.org>. The website also includes a phone number for the hotel. However, to obtain the special rate when making reservations by phone you must **STATE THAT YOU ARE ATTENDING THE BRIMACOMBE CONTINUOUS CASTING COURSE.** The most convenient means of transportation between the Vancouver International Airport and the Renaissance Hotel is by taxi (about \$35). An alternative means is via the Canada Line SkyTrain at a cost of \$8.75. The exit station is within 3 blocks of the Renaissance Hotel. You can buy tickets from the ticket vending machines located at the Canada Line Station in the airport. An informative guide to Vancouver travel and other attractions can be found at: <http://www.vancouver-travel-tips.com>. Many excellent restaurants are located within easy walking distance of the hotel. Western business casual is typical dress for the Course. **U.S. CITIZENS: PLEASE NOTE THAT YOU MUST POSSESS A VALID U.S. PASSPORT FOR CUSTOMS.**

INSTRUCTORS

Dr. I.V. Samarasekera: President & Vice-Chancellor, University of Alberta, Edmonton. Previously Vice President Research, University of British Columbia. Expert in heat flow and stress analysis with extensive experience in mould design and its effect on quality.
Dr. A.W. Cramb: Provost & Senior Vice President for Academic Affairs, Illinois Institute of Technology, Chicago. Previously Dean of Engineering at RPI and for 18 years before that POSCO Professor of Iron and Steelmaking in the Department of Materials Science and Engineering at CMU. In addition, he spent seven years with both Inland Steel and Bethlehem Steel (now parts of Mittal Steel). His 28-year industrial and research career has focused in the area of continuous casting of steel.

Dr. B.G. Thomas: Gauthier Professor, and Continuous Casting Consortium Director, University of Illinois at Urbana-Champaign. Over 25 years experience conducting research on the continuous casting of steel. Expert in computational modeling.

Dr. I.D. Sommerville: Professor Emeritus, University of Toronto. Extensive experience in the thermochemistry of steelmaking and ladle metallurgy.

Dr. E.S. Szekeres: Principal Consultant, Casting Consultants, Inc. His experience includes over twenty years at U.S. Steel Research plus twenty-five years as an independent consultant on continuous casting. Expert on solidification and caster design.

REGISTRATION

Registration can be made by filling out the form on our website or completing the form below. In either case, the full fee must be sent to the address given below. Registration by phone is also possible providing the course fee is received one week prior to the start of the course. A cancellation charge of 20% of the fee will be levied for withdrawal of a registration within seven days prior to commencement of the course. The Brimacombe Continuous Casting Society reserves the right to cancel or reschedule the course.

SEND COMPLETED REGISTRATION FORM EITHER BY FAX OR EMAIL OR APPLY ON-LINE AT www.brimacombecourse.org

THE BRIMACOMBE CONTINUOUS CASTING SOCIETY

Mary Jansepar, Course Coordinator
c/o Materials Engineering
The University of British Columbia
Frank Forward Building
Room 309 - 6350 Stores Road
Vancouver, B.C. V6T 1Z4
CANADA
Telephone: (604) 822-2676
Facsimile: (604) 822-3619
Email: info@brimacombecourse.org
Website: www.brimacombecourse.org

REGISTRATION FORM

I enclose _____ to cover the fee for the Continuous Casting of Steel Billets, Blooms and Slabs, May 14 - May 18, 2012
\$2,750 Canadian or \$2,800 U.S.

CHEQUE TO BE MADE PAYABLE TO THE BRIMACOMBE CONTINUOUS CASTING SOCIETY

First Name: _____ Middle Initial: _____ Surname: _____

Position or Title _____

Company _____ Plant _____

Address _____

Telephone No.: _____ Facsimile _____ Email: _____

MAIL REGISTRATION FORM & CHEQUE TO:

THE BRIMACOMBE CONTINUOUS CASTING SOCIETY
c/o Mary Jansepar, Course Coordinator
Materials Engineering
The University of British Columbia
Frank Forward Building
Room 309 - 6350 Stores Road
Vancouver, B.C. Canada V6T 1Z4

No credit card payments accepted. Fee must be received before the course. Personal cheques accepted.

Bank Information:

The Royal Bank of Canada
10th and Sasamat Branch
4501 West 10th Avenue
Vancouver, B.C. Canada V6R 2J2
Brimacombe Continuous Casting Society
Account Number: 07600-003-1016344
SWIFT CODE: ROYCCAT2

BRIMACOMBE CONTINUOUS CASTING COURSE – 2012

Continuous Casting of Steel Billets, Blooms and Slabs

TIME Monday, May 14 to Friday, May 18
7:00 a.m. to 6:00 p.m.

PLACE Renaissance Vancouver Hotel Harbourside
1133 West Hastings Street
Vancouver, B.C. Canada V6E 3T3

FEE **Either** \$2,750 CDN or \$2,800 US

WHO WILL BENEFIT

The Brimacombe Continuous Casting Course is designed for people who are concerned with controlling and improving the quality and production rate of continuously cast steel shapes. Persons who will benefit include shop floor operating personnel, quality control and research personnel, management personnel and individuals in support industries associated with continuous casting.

COURSE DESCRIPTION

Topics to be covered include chemical interactions, steel cleanliness, transfer operations, fluid flow, tundish metallurgy, mould design/behaviour, spray systems, heat extraction, solidification, segregation, electromagnetic stirring, crack formation and newer technologies such as thin slab casting. The Course offers a practical understanding of the continuous-casting process and quality based on fundamental principles, and deals with problems commonly experienced in production. Much of what will be presented and discussed is based on our research, some of it unpublished, which spans a twenty-five year time period.

CORRESPONDENCE AND INFORMATION

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Materials Engineering
The University of British Columbia
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Website: www.brimacombecourse.org

COURSE CO-DIRECTORS:

Dr. Edward S. Szekeres
Dr. Indira V. Samarasekera

**** *The Brimacombe Continuous Casting Society is a Canadian non-profit organization.* ****