



Course on **Metallurgy, solidification and modeling of cast iron castings** 4th edition

18th to 22nd of May 2015

Organized by the Department of Material and Manufacturing at School of Engineering, Jönköping University, Sweden.

Cast iron castings are one of the oldest cast materials explored in advanced engineering application. Scientific research performed in the field of cast iron development has contributed to expand the limits of this material. New investigation techniques and the increased use of computer simulation necessitate continuously revision of the knowledge's. A course on metallurgy, solidification and modeling of different cast iron types is offered with the scope to review the latest developments. The course will focus on both classic fundamental theories and newly developed models based on modern investigation and control methods. Cast iron costumers will give their feedback on the expected casting quality. A foundry visit to one of the most advanced cast iron foundries in Scandinavia will be included.

Who should attend?

The course is recommended for PhD students, engineers, technicians, quality and laboratory personal at Iron Foundries and Engineering Designers working with Cast Iron products who want to refresh and update their knowledge about cast iron.

PhD students can be examined according to the rules of the Research School at the School of Engineering at Jönköping University.

Separate diploma for participation and for successful examination will be issued.

Program

	Sunday 17 May	Monday 18 May	Tuesday 19 May	Wednesday 20 May	Thursday 21 May	Friday 22 May
8.00 – 9.30		Introduction to the Science and Engineering of Cast Iron. (history, basic solidification and microstructures, thermodynamics) <i>Doru Stefanescu</i>	Graphite formation mechanisms in Cast Iron (lamellar to nodular morphology, degeneration of graphite) <i>Jacques Lacaze</i>	Stable and metastable eutectoid transformations <i>Jacques Lacaze</i>	Heat treatment of cast irons part I <i>Roberto Boeri</i>	Modeling and Simulation of Solidification in Cast Irons <i>Doru Stefanescu</i>
	Coffee					
10.00- 11.45		Fundamentals of the Solidification and Metallurgy of Cast Iron. (advanced solidification, liquid treatment, melt control) <i>Doru Stefanescu</i>	How to explore cast iron Color etching / Microscopy <i>Attila Diószegi</i>	Mechanical Properties of As Cast produced Cast irons (LGI, CGI, SGI) <i>Ingvar L Svensson</i>	Heat treatment of cast irons part II <i>Roberto Boeri</i>	Modeling and Simulation of Microstructure in Cast Irons <i>Ingvar L Svensson</i>
11.45- 13.00	Lunch					
13.00 – 14.45		Molding materials & technologies at production of cast iron alloys. <i>József Svidró</i>	Surface quality: penetration, casting skin. <i>Doru Stefanescu</i>	Foundry Visit <i>Attila Diószegi</i>	Thermo Physical and Thermo mechanical properties <i>Taishi Matsushita</i>	Modeling and Simulation of Properties in Cast Irons <i>Ingvar L Svensson</i>
14.45 – 15.15		Coffee	Coffee		Coffee	Coffee
15.15 – 17.00		Macro and Microstructure formation in Cast Irons <i>Attila Diószegi</i>	Casting soundness: gas porosity, shrinkage porosity and metal expansion penetration in Cast Iron. <i>Attila Diószegi</i>		Fatigue of Cast Irons <i>Lucian Diaconu</i>	How to use Cast Iron in Engineering Design? <i>Invited Cast iron users' presentation.</i>
18.00	Registration Dinner		Dinner		Visit at Norrahammar Industrial Museum / Dinner	

References

The present course will be the fourth edition. The first edition has been given as separate seminars during 2008-2009. The second edition was given as a one week course in 2011 and were appreciated by both participants and

lecturers to be an excellent occasion to interact and discuss cast iron under a couple of intensive days.

More than 130 persons from world leader companies involved in production and using cast iron components and PhD students from universities involved in cast iron research participated in our courses. Participants come from: Volvo Powertrain (Sweden), Volvo Truck Corporation (Sweden), Volvo CE (Sweden), Scania CV (Sweden), Daros Piston Rings (Sweden), SKF Mekan (Sweden), Indexator (Sweden), MAN Diesel & Turbo (Denmark), Vestas Nacelles A/S (Denmark), Valdemar Birn (Denmark), Chalmers University of Technology Gothenburg (Sweden), Royal Institute of Technology Stockholm (Sweden), School of Engineering at Jönköping University (Sweden), Technical University of Denmark, University of Uppsala (Sweden), Linköping's Institute of Technology (Sweden), Korean Institute of Industrial Technology, KITECH (South-Korea), Swerea-SWECAST, Technical Research Institute of Sweden (SP), MAGMA Giesereitechnologie GmbH (Germany), SACMI Imola S.C. (Italy), Metso (Sweden), University of Miskolc (Hungary), Universitat de Barcelona (Spain), Funderia Condals (Spain), Fedrerall Mogul (Sweden), MAGMA Engineering Asia-Pacific Pte Ltd, (Singapur), MAGMA Engineering Asia-Pacific Pte Ltd. (China), Volvo Group Trucks Technology (Sweden), MAGMA Foundry Technologies, Schaunburg, (USA), MAGMA Bilişim ve Teknoloji Hizmetleri Ltd.Şti. (Turkey), LKAB (Sweden), University of Bologna (Italy).



Class room lecture during the Cast Iron course 2011

Teachers

Doru M Stefanescu, Ohio State University, USA

Roberto Boeri, Univ. Mar del Plata, Argentina

Jacques Lacaze, Université de Toulouse, France

Ingvar L Svensson, Jönköping University, Sweden

Attila Diószegi, Jönköping University, Sweden, *Course leader*

Taishi Matsushita, Jönköping University, Sweden

József Svidró, Jönköping University, Sweden

Lucian Diaconu, Jönköping University, Sweden

Peter Svidró, Jönköping University, Sweden, secretary.

Honorary Teachers, contributing in the previous years of teaching.

Jorge Sikora, Univ. Mar del Plata, Argentina

Juan Massone, Univ. Mar del Plata, Argentina

Hasse Fredriksson, Royal Institute of Technology, Sweden

Rudolf Sillén, Expert Products Sweden AB, Sweden

Werner Bauer, ÖGI, Austria

Fredrik Wilberfors, Scania CV AB, Sweden

Mathias König, Scania CV AB, Sweden

Lennart Elmquist, JTH, Sweden

Martin Selin, JTH, Sweden

Magnus Wessén, JTH, Sweden

Access to Jönköping:

By flight from Stockholm and Copenhagen 45'.

By train, from Copenhagen Airport 3h, Stockholm Arlanda Airport 3h,

By buss, from Gothenburg Airport 2h. Rental Car from Gothenburg Airport 1h 30'.

Limousine service is also available from Gothenburg Airport (For special price contact the organizers).

Accommodation:

Jönköping is an international exhibition center and the local hotels are crowded. For this reason please be in time with booking your hotel in Jönköping.

Registration and Dinner on 17th of May will be held at Jönköping University which is on walking distance from the recommended hotel.

Course fee:

The course fee is 2220 € + 25% VAT. (20 000 SEK +25% VAT for Swedish participants) and includes the registration fee, lecture notes, recommended literature, lunch, dinners, coffee breaks and foundry visit. Course fee for PhD students is 550 € + 25%VAT.

Registration

The number of students / participants are limited. The first 30 registrations will be considered. Admitted participation will be confirmed after registered payment.

Payment

The participation fee should be paid to the bank account latest on 9th May 2015:

Non-Swedish participants
SWIFT NDEASESS
Bank account 99604203265758
IBAN SE9495000099604203265758
Mark your payment with your name and "Cast Iron".

Swedish participants
Plusgiro 326575-8
Bankgiro 5328-2463
Mark your payment with your name and "Cast Iron".

Addresses:

Jönköping University
School of Engineering
Materials and Manufacturing
Box 1026, 551 11 Jönköping, Sweden

For further information call +46 36 10 16 56 or e-mail: attila.dioszegi@jth.hj.se

Registration to the course:

Metallurgy, solidification and modeling of cast iron castings, 18-23 May 2015 Jönköping University

Company

name: _____

Billing address

Your /VAT number:

Contact person:

Phone number:

E-mail:

Participants

Name: _____

Place and Date:

Signature: _____

Welcome!

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