



**Course on
Metallurgy, solidification and
modeling of cast iron castings
3rd edition**

13th to 17th of May 2013
Jönköping University, Sweden,
(Yellow building, Building E)
Room: E1405 "Gjuterisalen" (level I)

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 consumers 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 seminars are aimed 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.

Jönköping , 1st of February 2013

Program

	Sunday 12 May	Monday 13 May	Tuesday 14 May	Wednesday 15 May	Thursday 16 May	Friday 17 May
8.00 – 9.30		Introduction to the Science and Engineering of Cast Iron. (history, basic solidification and microstructures, thermodynamics) <i>Doru Stefanescu</i>	Phase transformations in Cast Iron. (primary and eutectic solidification, solid state transformation, influence of lattice defects.) <i>Hasse Fredriksson</i>	Mechanical Properties of As Cast produced Cast irons (LGI, CGI, SGI) <i>Ingvar L Svensson</i>	Fatigue of Cast Irons <i>Lennart Elmquist</i>	How to use Cast Iron in Engineering Design? <i>Invited Cast iron users' presentation.</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 Heat treated Cast Irons (ADI, DPDI) <i>JM Massone</i>	Modeling and Simulation of Solidification in Cast Irons <i>Doru Stefanescu</i>	Questions (Your own questions will be discussed with the teachers.) + Introduction to the Foundry Visit
11.45- 13.00		Lunch				
13.00 – 14.45		A practical guide to process control of cast iron alloys. <i>Rudolf Sillén</i>	Surface quality: penetration, casting skin. <i>Doru Stefanescu</i>	Mechanical Properties of Alloyed Cast Irons <i>Lennart Elmquist</i>	Modeling and Simulation of Microstructure in Cast Irons <i>Ingvar L Svensson</i>	Foundry Visit
14.45 – 15.15		Coffee				
15.15 – 17.00		Macro and Microstructure of Cast Irons <i>Attila Diószegi</i>	Casting soundness: gas porosity, shrinkage porosity and metal expansion penetration in Cast Iron. <i>Attila Diószegi</i>	Thermo Physical and Thermo mechanical properties <i>Lennart Elmquist</i>	Modeling and Simulation of Properties in Cast Irons <i>Ingvar L Svensson</i>	
18.00	Registration Dinner		Dinner		Visit at Huskvarna Industrial Museum	

References

The present course will be the third edition. The first edition has been given as separate seminars during 2008-2009. The second edition was given as a one week activity 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 100 persons from world leader companies involved in production and using cast iron components and PhD students from different universities participated in our courses. Participants come from: Volvo Powertrain, Volvo Truck Corporation, Volvo CE, Scania CV, Daros Piston Rings, SKF Mekan, Indexator, MAN Diesel & Turbo (Denmark), Vestas Nacelles A/S (Denmark), Valdemar Birn (Denmark), Chalmers University of Technology Gothenburg, Royal Institute of Technology Stockholm (KTH), School of Engineering at Jönköping University, Technical University of Denmark, University of Uppsala, Linköping's Institute of Technology, Korean Institute of Industrial Technology (KITECH), Swerea-SWECAST, Technical Research Institute of Sweden (SP), MAGMA Giesereitechnologie GmbH (Germany).



Class room lecture during the Cast Iron course 2011

Teachers

Doru M Stefanescu, Ohio State University, USA

Hasse Fredriksson, Royal Institute of Technology, Sweden

Rudolf Sillén, Expert Products Sweden AB, Sweden

Juan Massone, Univ. Mar del Plata, Argentina

Attila Diószegi, Jönköping University, Sweden

Lennart Elmquist, Jönköping University, Sweden

Ingvar L Svensson, Jönköping University, Sweden

Peter Svidró, Jönköping University, Sweden, secretary.

Access to Jönköping:

By flight from Stockholm and Copenhagen 45'.

By train, from Copenhagen Airport 3h, Stockholm Arlanda 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 during this part of the year. We have a reservation at **Best Western John Bauer Hotel** <http://www.johnbauer.se/> Tel: +46 36 34 90 00 for participants to our course for a rate of Single room 1295 SEK and Double room 1495 SEK.(includes breakfast + VAT). The participants can book directly their own rooms by using the booking nr: **G445482, latest 16th of April.**

Registration and Dinner on 12th of May will be held at Jönköping University which is on walking distance from the recommended hotel.

Departure:

The last day of the course 17th of May, will end up with a foundry visit in Skövde, 90 km from Jönköping. Bus will take the participants back to Jönköping arriving at 17: 30. For those who travel with train, has the opportunity to leave by train from Skövde from 16:00. (Gothenburg 1h, Stockholm 2h).

Course fee:

The course fee is 2000 € + 25% VAT. (18 000 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 500 € + 25%VAT.

Registration

The number of students / participants are limited. The first 20 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 5th May 2013:

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 - Casting
Box 1026, 551 11 Jönköping, Sweden

For further information call +46 36 10 16 56 or +46 36 10 16 62

attila.dioszegi@jth.hj.se or lennart.elmqvist@jth.hj.se

Registration to the course:

Metallurgy, solidification and modeling of cast iron castings, 13-17 May 2013

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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