



LIVONIA, MICHIGAN USA

*Levius, Fortior, Plus Exerat Obsistens*

# SEPT 25&26, 2018

# AP UNIVERSITY

**A two-day educational event intended for  
designers of castings and components in  
ductile iron and ADI.**

Applied Process  
12202 Newburgh Rd  
Livonia, MI 48150

This is an invitation-  
only, non-commercial  
event

AP will provide  
continental breakfast,  
and a catered lunch

Attendees are  
responsible for their  
own transportation  
and lodging.

Space is limited-  
Please contact Cindy  
Duman today at  
734-464-8000 or

[cduman@appliedprocess.com](mailto:cduman@appliedprocess.com)

The ductile iron casting process is often the fastest and most economical method to produce engineered components. Cast parts get closer to net shape earlier in the process compared to other manufacturing methods. To fully realize the benefits of this process requires understanding key factors in cast component design. **This class is made to equip engineers with the requisite knowledge to design components in ductile iron and Austempered Ductile Iron (ADI).** A properly designed part in these materials will result in parts that perform better for the end user while offering cost reductions throughout the value chain. **Such parts are lighter, stronger, less expensive, and more wear resistant.**

Applied Process is a global leader in metallurgical technology and training. The world-class instructors at this seminar will help you to meet your design goals. The agenda is as follows:

<b>Day 1</b>
Welcome and Introductions
Introduction to Casting Design: Casting a Framework
Break
Design Requirements: Functional
Design Requirements: Molding
Design of Iron Castings: Section Concerns
Use of Solidification Modeling
Lunch
Anatomy of Great Castings
Introduction to Foundry Processes
Ductile Iron Foundry Metallurgy and Variables
Tour of AP and R&D
Adjourn, Dinner at Aubree's (Excellent Pizza and Outstanding Beer Selection)
<b>Day 2</b>
Heat Treatment of Ductile Iron
Austempering 101
Break
Understanding Test Coupons and Iron Specifications
Lunch
Casting Producers Panel
Break
Machining of ADI
Depart for Joyworks Foundry Tour
Foundry Tour – Joyworks Studio

All education costs and materials will be covered by Applied Process. In addition, AP will provide box lunches both days as well as dinner on Tuesday (Aubree's Pizza- 37300 Warren Road, Westland, MI). Attendees are responsible for their own transportation and lodging.

For lodging, a block of rooms has been set up at the **Detroit Marriott Livonia, 17100 N. Laurel Park Drive, Livonia, MI 48152**. Guests can make reservations by one of the following methods:

1. Calling the reservations line at **800-228-9290** and asking for the **Applied Process Room Block**
2. Online reservations using this link – [Book your group rate for Applied Process University Room Block](#)

On Tuesday and Wednesday, September 26 and 27, classes and plant tour will be held at:

**Applied Process, Inc., Technologies Division, 12202 Newburgh Road, Livonia, MI 48150**

*Note: Attendees are responsible for their own transportation to and from AP. Carpooling is encouraged.*

On Wednesday, September 26, the foundry tour will be held at:

**Joyworks Studio, 1407 W. Joy Road, Ann Arbor, MI 48105**

## INSTRUCTOR BIOGRAPHIES

### John Keough, PE, FASM

John Graduated from the University of Michigan in 1977 with Bachelor's Degrees in both Mechanical and Materials/Metallurgical Engineering. In 1980 he became a Registered Professional Engineer. John has worked as a machine builder/welder, a customer service representative, a foundry technician, a supervisor in a gray iron foundry, and a process engineer in a super-alloy investment casting facility. He re-entered the heat treating industry in 1984, founding Applied Process Inc., a worldwide family of commercial heat treating facilities specializing in the Austempering process. After taking on a majority equity partner in 2014 John is now a board member of, and consultant to, Applied Process through his firm, Keotech Inc. John is also the Proprietor of Joyworks LLC, a design and prototype metal casting studio located in Ann Arbor, Michigan, USA. John has been a regular presenter and is widely published on foundry and heat treat related topics world-wide. He has received the Ductile Iron Society Award (1990), the American Foundry Society's Wm. J. Grede Award (1998), an ASM International Fellowship (1998), the AFS Marketing Committee's Jack F. Steele Award (2001), American Foundry Society's Ray H. Witt Award (2003), the University of Michigan Material Science & Engineering Alumni Award of Merit (2004), the American Foundry Society's Award of Scientific Merit (2005), the China Foundry Association Award of Merit (2010) and the Foundry Educational Foundation's 2014 E. J. Walsh Award. He is active in many industry technical associations and is a member of the Board of Trustees of ASM International. He is co-inventor on ten foundry and/or heat treat related patents. In 2008 John was honored to be named an Adjunct Professor to the Materials Science and Engineering Dept. at the University of Michigan where he is the FEF Key Professor. John and his wife, Nancy, split their time between their homes in Ann Arbor, Michigan and Leadville, Colorado and the far-flung locations of their children and grandchildren.

Kathy L. Hayrynen, PhD, FASM - Kathy has a BS, MS and PhD in Metallurgical Engineering from Michigan Technological University. Her graduate work focused on production of ductile iron and ADI. Following a post-doctoral research position on Ausformed/Austempered Ductile, Kathy joined the AP companies in 1995. She is currently the Director of Research & Development. Kathy is well known in the Austempering world having authored and co-authored many papers on ADI and frequently speaks on said topics. She is a past Chair of the AFS Cast Iron Division, a former President of the Foundry Educational Foundation and a member of the External Advisory Board for the Department of Materials Science & Engineering at Michigan Tech. Kathy has received several industry/academic honors including: an AFS Award of Scientific Merit, an AFS Ray H. Witt Management Award, 5 best paper awards from the AFS Cast Iron Division, the Ductile Iron Society Annual Award, ASM Fellow, ASM Education Foundation George Roberts Award and induction into the MSE Academy at Michigan Tech.

Steve Metz - Steve Metz has worked in the metals manufacturing industry for his entire 25-year career. He was with Kohler Company for 14 years where he gained significant experience in quality systems, pattern and tooling design, process engineering, gating/risering design (using traditional and computer modeling methods) and operations management. He then worked for Castalloy (a division of Wheelabrator) as director of engineering for a jobbing foundry specializing in alloy white iron, stainless steel, alloy steel and Manganese steel production. Steve joined Applied Process in 2011 after having been a customer of or supplier to the company for 19 years and holds a BS and MS degree in Materials Engineering and MBA from the University of Wisconsin Milwaukee. Steve Truly enjoys all aspects of the Applied Process value proposition, be it excellence in operations management, assisting customers in developing unique solutions to opportunities or problems as well as direct sales and educating customers through personal visits and presentations.

Rusty Rainbolt - Rusty has been in the metal working industry most of his life. His experience in machining began before graduation while working with Tool and Die makers in the aerospace and oil field industries. He continued his career in machining and metal working after college by going to work for Pryer Aerospace. During his 8 years at Pryer, Rusty began in the engineering department performing tool design and new part development, he then moved into the sales department where he generated production cost estimates and tooling recommendations, after this he served as the Sales Manager where he assisted customers with manufacturing recommendations as well as overseeing the corporate US and European sales development. Rusty moved into the iron industry in 2012 when he joined the Farrar Corporation, a ductile iron foundry and machine shop, as their Sales Manager. He later moved into the role of Operations Manager for Farrar where he oversaw the machining division of the company. Rusty joined Applied Process in 2015 and is excited about assisting customers through his varied experiences. Rusty holds a Bachelor's Degree from Oklahoma State University in Engineering & Marketing with a minor in Mathematics.



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## September 25&26, 2018

Please return to Cindy Duman at  
[cduman@appliedprocess.com](mailto:cduman@appliedprocess.com)  
+1 (734) 464-8000

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Phone #: \_\_\_\_\_

Email: \_\_\_\_\_

*AP will not distribute this information to third parties.*

Attendance, please circle all that apply:

Day One Class & Lunch                      Yes                      No

Day One Aubree's Pizza Dinner            Yes                      No

Day Two Class & Lunch                      Yes                      No

Day Two Foundry Tour                      Yes                      No

T-shirt size (circle one):            S            M            L            XL            XXL



Applied Process is a Defense Contractor and must know the citizenship status of all visitors. Please check the box which accurately describes your status (required):

United States Citizen  Green Card Holder  Visa  List type if applicable: \_\_\_\_\_

*Please report any dietary restrictions, including food allergies. We will do our best to accommodate you. We reserve the right to publish photos on our website and social media sites.*