



**2016 Cast Shop Science and Technology Course**  
**May 23-27, 2016 • Renaissance Hamburg Hotel • Hamburg, Germany**

**Course Schedule**

*Schedule as of March 22, 2016*

**Monday, May 23 – Liquid Into Products Safely**

<b>07:00–08:00</b>	<b>Registration</b>	
<b>08:00–08:15</b>	<b>Welcome and Course Introduction</b>	
<b>08:15–08:45</b>	<b>Cast Shop Safety</b> <i>Includes molten metal hazards</i>	Grandfield
<b>08:45–09:45</b>	<b>Customer’s Products: Applications, Allows, Formats, &amp; Downstream Processes</b>	Grandfield
<b>09:45–10:00</b>	<i>Break</i>	
<b>10:00–11:30</b>	<b>Cast Shop Economics</b>	Grandfield
<b>11:30–12:00</b>	<b>Metal Supply- Primary Smelter</b>	Grandfield
<b>12:00–13:00</b>	<i>Lunch (provided)</i>	
<b>13:00–15:00</b>	<b>Metal Supply- Secondary: Melting, Furnaces, &amp; Refractory Technology</b>	Peterson
<b>15:00–15:15</b>	<i>Break</i>	
<b>15:15–16:15</b>	<b>Dross Generation &amp; Processing</b>	Peterson
<b>16:15–17:00</b>	<b>Group Work: Improvement Case Studies</b>	
<b>17:00–19:00</b>	<b>Welcome Reception</b>	

**Tuesday, May 24 – Preparing and Solidifying the Liquid**

<b>08:00–08:45</b>	<b>Trace Elements &amp; Impurities: Sources &amp; Effects</b>	Grandfield
<b>08:45–09:25</b>	<b>Furnace Fluxing &amp; Alloying</b>	Grandfield
<b>09:25–09:45</b>	<b>Inclusion Sources &amp; Measurement</b>	Grandfield
<b>09:45–10:00</b>	<i>Break</i>	
<b>10:00–11:00</b>	<b>Inclusion Removal</b>	Grandfield
<b>11:00–12:00</b>	<b>Degassing</b>	Peterson
<b>12:00–13:00</b>	<i>Lunch (provided)</i>	
<b>13:00–14:00</b>	<b>A Cast Microstructure</b>	Schumacher
<b>14:00–15:00</b>	<b>Aluminum Solidification Fundamentals</b>	Schumacher

15:00–15:15	<i>Break</i>	
15:15–16:15	<b>Grain Refinement- Theory</b>	Schumacher
16:15–17:00	<b>Grain Refinement- Practice</b>	Grandfield

### Wednesday, May 25 – DC Casting

08:00–09:00	<b>DC Casting Heat Flow</b>	Grün
09:00–09:45	<b>DC Water Cooling &amp; Water Systems</b>	Grün
09:45–10:00	<i>Break</i>	
10:00–11:00	<b>Billet Casting Mould Technology</b>	Grandfield
11:00–12:00	<b>Rolling Slab Mould Technology</b>	Håkonsen
12:00–13:00	<i>Lunch (provided)</i>	
13:00–18:00	<b>Tour of Hydro Aluminium Rolled Products GmbH (transportation provided)</b>	

### Thursday, May 26 – More DC Casting

08:00–09:00	<b>Macrosegregation in DC Casting</b>	Eskin
09:00–09:45	<b>DC Surface Defects</b>	Grandfield
09:45–10:00	<i>Break</i>	
10:00–11:00	<b>Heat Tearing Defects</b>	Eskin
11:00–12:00	<b>Slab Casting- Shape Control</b>	Håkonsen
12:00–13:00	<i>Lunch (provided)</i>	
13:00–14:00	<b>Slab Cracking Defects</b>	Eskin
14:00–15:00	<b>Q&amp;A: What’s My Defect?</b>	
15:00–15:15	<i>Break</i>	
15:15–16:00	<b>DC Casting &amp; Engineering Maintenance</b>	Grandfield
16:00–17:00	<b>DC Casting Variants- HDC, EMC, Etc.</b>	Grün
18:00–21:00	<b>Graduation Dinner with Special Guest Wolfgang Schneider: “Cast Shop Technology and Innovation”</b>	

### Friday, May 27 – Remelt Ingot Casting & Homogenization

08:00–09:45	<b>Sow &amp; Chain Conveyor Ingot Casting</b>	Grandfield
09:45–10:00	<i>Break</i>	
10:00–11:00	<b>DC Casting Productivity</b>	Grandfield
11:00–12:00	<b>Q&amp;A- Putting It All Together: Safe &amp; Profitable Casting</b>	
12:00–13:00	<i>Lunch (provided)</i>	
13:00–14:00	<b>Homogenization Principles: Practice, Problems, and Productivity (Optional Session)</b>	Grandfield
13:00	<b>Course Adjourn</b>	