

**subject to change*

2015 MBAA Brewery Engineering and Utilities Course

Radisson Hotel Roseville / U of M Continuing Ed & Conf. Ct ▪St. Paul, MN USA
September 13-25, 2015

*The shuttle departs from the Radisson for the university at 7:20 and 7:40 a.m. each morning of class.
Class will take place in room #42 at the university.*

WEEK ONE: September 13 – 19: Course Director Fred Scheer

Focus on engineering concepts, theories, calculations, and design while also covering theory and applications for control systems.

Sunday, September 13

3:00 p.m. Check In
7:00 p.m. Opening Reception

Monday, September 14: Overview, Maintenance Fundamentals & Piping

8:00 a.m. –9:00 a.m. **Introduction by Class Director**
Fred Scheer, Krones Inc

9:00 a.m. – 12:00 p.m. **Brewery Valves Applications: Workshop on Valves included**
Michael Brandt, Krones

12:00 – 1:00 p.m. Lunch

1:00 – 3:00 p.m. **Maintenance and Reliability Management**
Rob Fetters

3:15 – 5:00 p.m. **Materials and Piping System Design**
Jack Jordan & Josh Cornelius, Statco Engineering

Tuesday, September 15: Electrical Motors and Controls

8:00 – 10:00 a.m. **Motors, Starters, and Drives**
Thomas Steffen, Rockwell International

10:15 a.m. – 12:00 p.m. **Safety: Heaters, Disconnects, and Ground**
Thomas Steffen, Rockwell International

12:00 – 1:00 p.m. Lunch

1:00 – 3:00 p.m. **PLC Applications and Capabilities**
Thomas Steffen, Rockwell International

3:15 – 5:00 p.m. **Programming and Troubleshooting**
Thomas Steffen, Rockwell International

Wednesday, September 16: Pumps, Valves and Piping

8:00 a.m. – 12:00 p.m. **Pumps: Types and Sizing : Workshop on Pumps included**
Randy Verges and Bob Wells, Fristam Pumps

12:00 – 1:00 p.m. Lunch

1:00 – 5:00 p.m. **Brewery Design and Engineering; Basics in Theory and Practice**
Fred Scheer, Krones Inc

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Thursday, September 17: Brewery Utility Calculations

- 8:00 – 11:00 a.m. **Thermal Process Engineering: Wort Boiling, Mashing and Whirlpool**
Matthias Weinzierl, Krones
- 11:00 a.m. – 12:00 p.m. **Brewhouse and Cellar Design**
Fred Scheer, Krones
- 12:00 – 1:00 p.m. Lunch
- 1:00 – 3:00 p.m. con't: **Brewhouse and Cellar Designs**
Fred Scheer and Matthias Weinzierl, Krones
- 3:15 – 5:00 p.m. **State of the Art Energy Management in Modern Filling Lines**
Alois Monzel, KHS

Friday, September 18: Plant Layout and Sanitary Design and Instrumentation

- 8:00 – 10:00 a.m. **Plant Layout and Design**
Tobias Becher, Ziemann International GmbH
- 10:15 a.m. – 12:00 p.m. **Construction Materials**
Tobias Becher, Ziemann International GmbH
- 12:00 – 1:00 p.m. Lunch
- 1:00 – 3:00 p.m. **Brewery Solar Design Considerations**
Tobias Becher, Ziemann International GmbH
- 3:15 – 5:00 p.m. **Instrumentation Applications**
Seth Hanson, Anderson Controls

Saturday, September 19: Tours

- 7:45 a.m. Bus loads at Radisson for **Brewery Tour: Schell's Brewery, New Ulm, Minnesota** (lunch provided during tour)
- 3:00 p.m. Bus loads at Schell's Brewery for departure
- 4:45 p.m. Arrive back at Radisson

WEEK TWO: September 20-25: Course Director Darren Goodlin

Dive into the details on the major brewery utilities, including water and wastewater treatment, compressed air, steam boilers, refrigeration, CO₂ collection, and other aspects of utilities, etc.

Sunday, September 20: Free Day

- 8:00 a.m. – 12:00 p.m. Hotel check-out for students only participating in Week One
- 3:00 p.m. Check In for students participating in only Week Two

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Monday, September 21: Water and Wastewater

- 8:00 – 10:00 a.m. **Fresh Water Treatment Systems**
Jack Bland and Rick Brundage, Chemtreat
- 10:15 – 12:00 p.m. **Boiler, Tower, Pasteurizer Treatments**
Jack Bland and Rick Brundage, Chemtreat
- 12:00 – 1:00 p.m. Lunch
- 1:00 – 3:00 p.m. **Waste Water Systems Overview**
Jeff Van Voorhis, Symbiont
- 3:15 – 5:00 p.m. **Project, Operations, Troubleshooting**
Jeff Van Voorhis, Symbiont

Tuesday, September 22: Compressed Air

- 8:00 – 10:00 a.m. **Equipment Selection and Sizing**
Jeff Yarnall, Rogers Machinery
- 10:15 a.m. – 12:00 p.m. **Systems, Parts, and Pieces**
Jeff Yarnall, Rogers Machinery
- 12:00 – 1:00 p.m. Lunch
- 1:00 – 3:00 p.m. **Operations and Maintenance**
Jeff Yarnall, Rogers Machinery
- 3:15 – 5:00 p.m. **Best Practices**
Jeff Yarnall, Rogers Machinery

Wednesday, September 23: Steam

- 8:00 – 10:00 a.m. **Equipment Selection and Sizing**
Joel Carberry, PBBS
- 10:15 a.m. – 12:00 p.m. **Systems, Parts, and Pieces**
Joel Carberry, PBBS
- 12:00 – 1:00 p.m. Lunch
- 1:00 – 3:00 p.m. **Operations and Maintenance**
Joel Carberry, PBBS
- 3:15 – 5:00 p.m. **Best Practices**
Joel Carberry, PBBS

Thursday, September 24: Refrigeration

- 8:00 – 10:00 a.m. **Freon Chiller Selection and Sizing**
Damon Reed, Pro Refrigeration
- 10:15 a.m. – 12:00 p.m. **Systems, Operations, and Maintenance**
Damon Reed, Pro Refrigeration
- 12:00 – 1:00 p.m. Lunch
- 1:00 – 3:00 p.m. **Ammonia Chillers Selection and Sizing**
Chris Herzog, Perma Cold
- 3:15 – 5:00 p.m. **Chiller and Evaporator Maintenance**
Chris Herzog, Perma Cold
- 7:00 – 9:00 p.m. **Closing Dinner**

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Friday, September 25: CO₂/Check-out

7:00 – 8:00 a.m.	Finalize Hotel Check-out <i>Students (Radisson will store bags)</i>
8:00 – 10:00 a.m.	CO₂ Collection <i>Gabriel Dominguez, Union</i>
10:15 a.m. – 12:00 p.m.	CO₂ Distribution Systems <i>Gabriel Dominguez, Union</i>
12:00 – 1:00 p.m.	Lunch: Optional