

Tentative as of 8/29/2016

2016 MBAA Brewing Engineering and Utilities Course
Radisson Hotel Roseville/U of M Continuing Ed & Conf. Ct ▪ St. Paul, MN USA
September 25 – October 7, 2016

Week One: Sept 25 – Oct 1 | Course Director: Fred Scheer

Focus is on brewing and utility process systems, related sizing calculations, and common equipment.

Sunday, September 25

All day Students pick up course information packets when checking in at the front desk.
7:00 p.m. **Reception Dinner and Orientation**—Radisson Hotel Room “Salon D” (Casual Attire)
MBAA Technical Director & Course Director

All Classes are held in Room 42 of the Continuing Education & Conference Center.

Monday, September 26: Kickoff, Maintenance Fundamentals & Piping

8:00 a.m. – 9:00 a.m. **Course Introduction**
Fred Scheer, Krones, Inc.
9:00 a.m. – 12:00 p.m. **Brewery Design and Engineering: Basics in Theory and Practice**
Fred Scheer, Krones, Inc.
12:00 p.m. – 1:00 p.m. Lunch in CECC Dining Hall
1:00 p.m. – 5:30 p.m. **Brewery Piping & Insulation System Design Basics**
Dan Stromberg, George Fisher

Tuesday, September 27: Refrigeration Systems and Brewery Process Calculations

8:00 a.m. – 9:50 a.m. **Freon Chiller Selection and Sizing**
Damon Reed, Pro Refrigeration
10:10 a.m. – 12:00 p.m. **Systems, Operations, and Maintenance**
Damon Reed, Pro Refrigeration
12:00 p.m. – 1:00 p.m. Lunch in CECC Dining Hall
1:00 p.m. – 2:00 p.m. **Practical Brewing Calculations**
Fred Scheer, Krones, Inc.
2:15 p.m. – 5:30 p.m. **Excel Spreadsheets (Brewing Refrigeration Calculations)**
Damon Reed, Pro Refrigeration

Wednesday, September 28: Pumps and Valves

8:00 a.m. – 12:00 p.m. **Pumps: Types and Sizing**
Randy Verges and Bob Wells, Fristam Pumps
12:00 p.m. – 1:00 p.m. Lunch in CECC Dining Hall
1:00 p.m. – 5:30 p.m. **Brewery Valves Applications**
Michael Brandt, Krones, Inc.

Tentative as of 8/29/2016

Thursday, September 29: Brewery Utility Calculations

- 8:00 a.m. – 11:00 a.m. **Thermal Process Engineering: Wort Boiling, Mashing & Whirlpool**
Matthias Weinzierl & Fred Scheer, Krones, Inc.
- 11:15 a.m. – 12:00 p.m. **Brewhouse Cellar Design Considerations**
Matthias Weinzierl & Fred Scheer, Krones, Inc.
- 12:00 p.m. – 1:00 p.m. Lunch in CECC Dining Hall
- 1:00 p.m. – 2:00 p.m. **Brewhouse Cellar Designs Considerations (continued)**
Matthias Weinzierl & Fred Scheer, Krones, Inc.
- 2:15 p.m. – 5:30 p.m. **Electrical Requirements for the Brewery**
Henri Fischer, Krones, Inc.

Friday, September 30: Plant Layout, Sanitary Design, and Instrumentation

- 8:00 a.m. – 10:00 a.m. **Plant Layout and Design**
Tobias Becher, Ziemann
- 10:15 a.m. – 12:00 p.m. **Construction Materials**
Tobias Becher, Ziemann
- 12:00 p.m. – 1:00 p.m. Lunch in CECC Dining Hall
- 1:00 p.m. – 2:55 p.m. **Packaging Utilities Considerations**
Henri Fischer, Krones, Inc.
- 3:05 p.m. – 5:30 p.m. **Instrumentation Applications**
Joe Gamradt, Anderson Controls

Saturday, October 1: Local Brewery Tour

- 8:00 a.m. – 2:00 p.m. **Tour of Summit Brewery**

Sunday, October 2: Free Day! No Scheduled Activities

For students participating only in Week 1 of the course, you must check-out of hotel by 11:00 a.m.

Tentative as of 8/29/2016

Week Two: October 2-7 | 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, October 2: Free Day! No Scheduled Activities

For students participating only in Week 2 of the course, this is check-in day at the hotel.

All Classes are held in **Room 42** of the Continuing Education & Conference Center.

Monday, October 3: Incoming Water, Outgoing Wastewater, & Related Project

Considerations

- 8:00 a.m. – 10:00 a.m. **Incoming Brewery Water Treatment Systems**
Jack Bland & Rick Brundage, Chemtreat
- 10:15 a.m. – 12:00 p.m. **Water Treatment Associated w/Boilers & Pasteurizers**
Jack Bland & Rick Brundage, Chemtreat
- 12:00 p.m. – 1:00 p.m. Lunch in CECC Dining Hall
- 1:00 p.m. – 3:00 p.m. **Waste Water Systems Overview**
Jeff Van Voorhis, Symbiont
- 3:15 p.m. – 5:30 p.m. **Waste Water Projects, Operations, & Troubleshooting**
Jeff Van Voorhis, Symbiont

Tuesday, October 4: Compressed Air & Steam System Considerations

- 8:00 a.m. – 9:50 a.m. **Compressed Air Equipment Selection and Sizing**
Jeff Yarnell, Rogers Machinery
- 10:05 a.m. – 12:00 p.m. **Steam System & Steam System Calculations**
Steve Huffman, Mead O'Brien
- 12:00 p.m. – 1:00 p.m. Lunch in CECC Dining Hall
- 1:00 p.m. – 2:50 p.m. **Steam Systems, Parts, and Pieces**
Steve Huffman, Mead O'Brien
- 3:05 p.m. – 5:30 p.m. **Equipment/Process Maintenance & Reliability Management**
Darren Goodlin, GPS

Wednesday, October 5: CO₂ Systems, Instrument & IT Network Communication

Considerations

- 8:00 a.m. – 9:50 a.m. **CO₂ Collection**
Gabriel Dominguez, Union
- 10:05 a.m. – 12:00 p.m. **CO₂ Distribution Systems**
Gabriel Dominguez, Union
- 12:00 p.m. – 1:00 p.m. Lunch in CECC Dining Hall
- 1:00 p.m. – 2:50 p.m. **Instrumentation Field Bus Technologies & Tools**
TJ Trueblood, E&H
- 3:05 p.m. – 5:30 p.m. **Brewery IT Network Consideration/Security**
Dino Busalachi, Rockwell

Tentative as of 8/29/2016

Thursday, October 6: Brewery Process Automation & Inline Instrumentation TCO

- 8:00 a.m. – 10:50 a.m. **Inline Instrumentation: The Total Commitment of Ownership**
Darren Goodlin, GPS
- 11:05 a.m. – 12:00 p.m. **Brew Automation Considerations & Control Loops**
Stephen Carter, LT Software Solutions
- 12:00 p.m. – 1:00 p.m. Lunch in CECC Dining Hall
- 1:00 p.m. – 3:30 p.m. **Brewery Process Automation & Integrator Considerations**
Stephen Carter, LT Software Solutions
- 3:45 p.m. – 5:00 p.m. **2 Week Recap & Review**
TBD, Day & Zimmerman
- 7:00 p.m. **Reception Dinner**—Radisson Hotel Room “Salon D” (Casual Attire)
Closing Remarks and Awarding of Certificates

Friday, October 7: Brewery Safety

- 8:00 a.m. – 12:00 p.m. **Working Safe & Safety Considerations in a Brewery**
Mark Jaeggi
- 12:00 p.m. – 1:00 p.m. Lunch in CECC Dining Hall *(Optional)*
- 12:00 p.m. **Finalize Hotel Check-out**