

# Advanced Fundamentals & Brazing by Design

Lucas-Milhaupt® Brazing University

This course is a recent update of our popular and often requested seminar taught since 1982

**LEARN  
FROM  
THE  
BEST!**

Lucas-Milhaupt, Inc., a Handy & Harman Company, is one of North America's oldest and largest suppliers of brazing and soldering filler metals. Handy & Harman developed and patented many of the filler metals used by industry today. For thousands of companies around the world, we supply the brazing and soldering consumables that produce billions of successful joints every year.



## WHAT THE COURSE WILL COVER

2 ½ days of information packed classes covering the essential theoretical aspects of brazing technology combined with a real life applications, and case studies.

Completion of the course provides attendees with information to help increase brazing/soldering efficiency, reduce and control variable costs, eliminate costly rejects, and reduce field failures. Reduce your overall metal joining costs with the information shared and the knowledge from Lucas-Milhaupt's brazing experts!



## WHO SHOULD ATTEND?

The Brazing course offered by Lucas-Milhaupt would benefit individuals at all levels of brazing experience. The course is structured for designers; process, manufacturing and quality engineers; brazing technicians; managers and production supervisors; and brazing operations personnel.



## COURSE OUTLINE:

- Brazing Technology Overview – a comparison of brazing versus different joining techniques, i.e. welding, adhesive bonding, and mechanical fastening.
- Brazing Terminology and Definitions
- Six fundamentals of brazing – a detailed explanation of the proper brazing steps required in order to achieve successfully brazed assemblies.
- Brazing Design – an overview of a standard braze joint design terminology, and industry standards.
- Braze Filler Metals – a detailed look at various braze filler metals available including silver, copper, gold, aluminum and nickel based alloys, their use and application.
- Preform Design & Automation – an overview of various forms of braze filler metals available on the market today in terms of improved productivity and lower cost.
- Base Metals – a detailed overview of various groups of ferrous and non-ferrous alloys, refractory alloys, high temperature alloys and non-metallic alloys will be presented.
- Heating Methods: Torch, Induction, Furnace and Resistance Brazing - including an overview of different atmospheres and fluxes used in brazing operations.
- Joint Inspection and Discontinuities
- Corrosion Resistance of Filler Metals
- Real Life Applications and Case Studies

**REGISTER EARLY**  
Space is Limited



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## WHO ARE THE INSTRUCTORS?

Your instructors are Lucas-Milhaupt technical staff employees, degreed engineers and active members of the American Welding Society (AWS) brazing/soldering subcommittees including:

- Filler Metals and Fluxes for Brazing
- Brazing Handbook
- Brazing Specifications
- Soldering
- Brazing Conferences

Instructors are members of ASM International and have taught similar brazing fundamentals and brazing technology courses for ASM.



## WHAT IS INCLUDED:

- Continental Breakfast
- Lunch
- Morning and afternoon refreshments
- Brazing School Materials

## TAKE HOME MATERIALS:

- Brazing School binder of seminar materials
- HH Brazing Book
- Brazing Technical Bulletins, articles, others
- Case studies and sample applications



## ATTENDEES ARE RESPONSIBLE FOR:

- Hotel Accommodations
- Transportation
- Dinners and Incidentals
- Bring your applications for evaluation and discussion
- Optional: AWS Brazing Handbook, 5th Edition

## OTHER COURSE INFORMATION:

Course Schedule:      Tuesday:            8:00 a.m. – 5:00 p.m.  
                                 Wednesday:        8:00 a.m. – 5:00 p.m.  
                                 Thursday:         8:00 a.m. – 2:00 p.m.

Cost:    \$1250 per person  
          *Add \$50 for optional AWS Brazing Handbook (regularly \$136)*  
          *If two or more register from the same company at the same time,*  
          *your investment is \$1150 per person.*

**Register early - space is limited**

**LucasMilhaupt®**  
A Handy & Harman Company  
**Global Brazing Solutions®**

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Payment: Reservations require full payment in advance, and should be sent in as soon as possible if not paying by credit card. Cancellations two weeks before seminar forfeit one-third of the seminar fee, within one week of seminar will forfeit half of the fee, and during the week of the seminar will forfeit the entire fee. No-shows also forfeit entire fee. Lucas-Milhaupt, Inc. reserves the right to cancel seminars for lack of registrations. If that occurs, Lucas-Milhaupt, Inc. will notify you no later than ten days prior to the seminar dates, and either refund your money or re-schedule you to another seminar date if you prefer.