



**Forging
University**



**ONLINE TRAINING
CENTER**



COURSE CATALOG

Forging Industry Association
6363 Oak Tree Blvd.
Independence, OH 44131
www.forging.org | 216.781.6260

Forging University Manager:
lolean@forging.org

Forging University is an online training center designed to assist in your training needs. Available 24/7 and in more than one sitting, Forging University allows for training to work around your employees schedule.

Forging University has diverse training topics that include forging fundamentals, materials, maintenance, safety, human resources, and sales & marketing.

Forging University is offered for **free to all FIA members** as a part of their membership, **free to students and educators** (with a .edu email address), and **free for all military personnel** with a .gov and .mil email address through the Forging Defense Manufacturing Consortium (FDMC).

Non-Member Pricing

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- pg. 3 **Forge Die and Component Welding Repair 101:** \$295
- pg. 3 **Forging 101:** 8 modules: \$95 per module or \$495 for entire class
- pg. 4 **Forging Design Seminar:** \$295
- pg. 4 **Theory and Applications of Forging and Die Design:** \$495
- pg. 4 **Upsetter Forging Courses:** \$495
- pg. 5 **Aluminum and Titanium Metallurgy and Forging 101:** \$495
- pg. 5 **Ferrous Metallurgy:** 7 modules: \$95 per module or \$495 for entire class
- pg. 5 **Heat Treatment of Carbon Steel Forging:** \$295
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- pg. 6 **Safety Courses:** \$295 for 3-pack
 - Hammer Safety in the Forge Shop
 - Press Safety in the Forge Shop
 - Safety & Health Orientation in the Forge Shop
- pg. 7 **Sales Training Workshop:** \$295
- pg. 7 **HR Courses:** 8 courses available: \$100 per course
 - Active Shooter and Workplace Violence (ENG & ESP)
 - Adult, Infant, and Child CPR and AED Awareness
 - Conflict Resolution - Industrial
 - Non-Verbal Communication - What Message are You Sending?
 - Respectful Workplace Communication
 - Identifying and Preventing Sexual Harassment
 - Workplace Harassment: Employee Training
 - Workplace Harassment: Management Training

**To Request Your New E-Learning Account and
Suggest New Course Content:**

Lorean Crowder: lorean@forging.org

Not a Member?

Forging University is offered free to members.

Contact Tricia Abruzzino for information on joining: tricia@forging.org

Forging Manufacturing & Tooling

Automation 101

This workshop is specifically developed to give forgers a first-hand look into how robotics and automation can help forging companies increase productivity, lower costs and improve workplace safety. Topics will include programming robots, automation of induction heating systems, automation in gas fired heat treat and forging operations, the lean side of automation, benefits of automated material handling and more.

Forge Die and Component Welding Repair 101 (Recording)

FIA's first die welding and repair webinar. Attendees will learn the theory of forge die and component welding repair from two industry veterans with over 30 years of forge die repair experience who've successfully repaired and maintained hundreds of forging dies and components.

Topics include:

- Increasing die life
- Component repair
- Alloy selection
- Welding procedures including partial weld repair
- Machining

Forging 101 - Module 1 - Forging Overview

Upon completion of this module, you will have a working familiarity with the most common equipment and processes used in the forging industry.

Forging 101 - Module 2 - Mechanical Fundamentals

Upon completion of this module, you will demonstrate a working understanding of the various mechanical stages of the deformation process and you will better understand the concepts of stress and strain as they relate to deformation.

Forging 101 - Module 3 - Physical Fundamentals

After completing this course, learners will have an enhanced understanding of the physical fundamentals of the forging process. They will be able to recognize the principles of work, force, and energy, as well as some of the basic laws of physics, at work in forging.

Forging 101 - Module 4 - Thermal Fundamentals

Upon completion of this course, users will demonstrate an enhanced understanding of the fundamentals of heat transfer and forging.

Forging 101 - Module 5 - Contact Fundamentals

This module is designed to heighten your understanding of the fundamental aspects of contact during the forging process.

Forging 101 - Module 6 - Forging Equipment

This module is designed to heighten your understanding of the various equipment used in a forging operation, including the practical/economical operating range, best practices for using equipment, applications, and benefits of the most common types of forging equipment.

Forging 101 - Module 7 - Forging Die Failure

This module is designed to heighten your understanding of the aspects of die failure.

Forging 101 - Module 8 - Forging Defects

This module is designed to heighten your understanding of forging defects—types, causes, and processes to help avoid defects.

Forging Design Seminar 2022 (Recording)

The Forging Industry Association (FIA) in partnership with FDMC, will be host a Forging Design Seminar (virtual webinar) with the objective of providing a basic understanding of forging design, processes, equipment and materials. Seminar attendees will gain technical expertise in forging design, forged material properties and the optimum utilization of forging in critical service applications.

Theory & Applications of Forging & Die Design 2021 (Recording)

This on demand course is taught by a team of industry experts and engineering professors who work together to carefully explain principles and practices. More than 2,500 forging professionals have attended this course over the last 50 years. This course continues to evolve, and provides insights into the latest forging technology and metal flow simulation software.

Upsetter Forging Courses

These workshops are designed to cover a wide range of topics related to Upsetter Forging, courses include:

- Introduction to Upsetters
- How an Upsetter Works
- Upsetter Brands and Styles
- Upsetter Maintenance and Repairs - Part 1
- Upsetter Maintenance and Repairs - Part 2
- Upsetter Modernizing Options

Forging Materials

Aluminum and Titanium Metallurgy & Forging 101 (Recording)

The Aluminum and Titanium Metallurgy & Forging 101 Workshop is a 3-hour virtual course focused on metallurgical technology and applications for aluminum and titanium alloys relevant to the forging industry.

- Part 1: Science & Engineering Background
- Part 2: Mechanical Properties
- Part 3: Heat Treatment, Metallurgical Details

Ferrous Metallurgy

Ferrous metallurgy is an intense and complex science. It is a process that combines sophisticated knowledge of steel classification, cutting and shearing, heating for forging, forging processes, heat treat and grain flow, testing for mechanical properties, and non-destructive testing. Ferrous Metallurgy for Forging Plant Personnel presents you with the essential theories behind ferrous metallurgy so that you can apply these theories in your workplace and grow in the forging industry. While the scope of this course is not all-inclusive, it provides a solid foundation for all forging plant staff members.

- Module 1: Forging and Metallurgy
- Module 2: Ferrous Alloys
- Module 3: Microscopic Structures
- Module 4: Forging, Grain Structure, and Forging Temperatures
- Module 5: Steel Phases and Properties
- Module 6: Steel Heat Treating
- Module 7: Mechanical Testing

Heat Treatment of Carbon Steel Forgings

Heat Treatment of Carbon Steel Forgings is a short introduction to the basics of heat treatment for forgings. The course covers basic metallurgy concepts and applications, including a discussion of microstructure of heat-treated steel forgings. Three heat-treatment processes are covered in the course — (1) full annealing, (2) normalizing, and (3) austenitizing, quenching, and tempering.

Induction Heating for Forging

You don't have to be an engineer to take Induction Heating for Forging. You don't even need to understand the mathematical principles behind electromagnetic induction to use induction-heating equipment. After taking this course you will come away with a layman's overview of the principles that drive the process and a better understanding of what really happens in induction heaters. In addition, you'll get the practical information you need for the appropriate selection, use, and maintenance of induction heating equipment.

Lubricants in Forging

Lubricants play a critical role in all four stages of the forging process — cavity loading, impact, metal flow, and part release. Lubricants in Forging is a short introduction to the basics of using lubricants in each of these phases. Three basic modes of lubrication are discussed as well as the relative film strength of each.

Optimizing Die Care

Optimizing Die Care is an introduction to the basics of die care with a focus on the critical concern of die temperature control. You will be introduced to the importance of Fracture Transition Temperature and learn the various factors that influence it. You will also cover concepts related to strain rate, energy dissipation, and the effects of high-energy finishing blows.

Maintenance

Hammer Maintenance Workshop 2021 (Recording)

FIA's Hammer Maintenance Workshop is designed to help you to understand, maintain, and improve your hammer operations. This on demand workshop features presentations from forging industry experts about hammer foundations, hydraulics, controls, frames, die alignment, tooling setup, wear parts, maintenance pain points and more.

Mechanical Press Maintenance Training 2022 (Recording)

The training (captured from a live workshop) provides an explanation of the various elements of the press to provide an understanding of how they work and their interaction and influence on other parts of the press forging process. The emphasis of the training is predictive and preventative maintenance of the elements of the press, how to improve the uptime of your machines, and items that should be taken into consideration when planning a repair.

Safety

Hammer Safety in the Forge Shop

This online course provides users with a general overview of safety precautions and practices associated with effective use of forging hammers. Nothing in this course should substitute for your own company's policies or training you have received on specific equipment. Major issues associated with safe hammer operation are covered.

Press Safety in the Forge Shop

This course provides a general overview for the safe and effective operation of forge presses. Nothing in this course should substitute for your company's policies or manufacturer guidelines specific to the equipment you use in your shop.

Safety & Health Orientation in the Forge Shop

This course will orient you to the most important aspect of your job: health and safety. Even though our industry, like most, has its risks, there is a safe way to perform every job. This course will help you better understand and practice some of the most critical health and safety practices for forge shops. Nothing in this course should override the policies and training you have received from your own company. If you have questions or concerns, please ask a company representative.

Sales & Marketing

Sales Training Workshop 2021 (Recording)

Most forgers have struggled to see customers and have meaningful meetings online. Now is a great time to hone your communication and sales skills when it comes to working with your customers over the phone, via email and on Zoom.

After attending this on demand workshop, you will be able to:

- Work more efficiently
- Make better decisions on what sales opportunities get your time
- Gain more meetings
- Ask better questions
- Enhance negotiation skills

Human Resources

Active Shooter and Workplace Violence (ENG & ESP)

Emergencies involving violence are unfortunately a real possibility in today's workplace. This can also include encountering an active shooter on the premises. One of your job responsibilities is to be prepared and know how to respond should such an emergency occur at your workplace. Knowing the proper procedures to follow during an emergency could mean the difference between life and death. The purpose of this program is to familiarize you with basic response practices when encountering workplace violence, practices that will help you to be prepared for and to respond to a violent emergency.

Adult, Infant, and Child CPR and AED Awareness

CPR: Knowing the correct steps involved in providing CPR can mean the difference between life and death. This comprehensive program trains employees on what these steps are, and the different CPR techniques required for adults, infants, & children. Included in this video is a step by step approach on what to do for a cardiac emergency, along with a comprehensive description and demonstration section on how to perform CPR for each appropriate age group. In addition, it provides a brief introduction to the importance and use of an AED (Automated External Defibrillator) along with how to assist someone suffering from an obstructed airway.

Conflict Resolution - Industrial

Whenever two or more people come together, eventually they will experience conflict. Give your employees the skills to work toward a solution in a productive, positive way with this comprehensive program. Techniques and strategies to limit the damage and disruption are discussed in this straightforward video.

Topics covered also include:

- Consequences of conflict and how it can disrupt the workplace
- The common causes of workplace conflict and how to recognize them
- Diffusing disagreements before they get out of hand
- How collaboration can be a tool in resolving conflicts
- And more!

Identifying and Preventing Sexual Harassment

One quarter of employees have experienced sexual harassment at some point in their career. While not all employees are equally offendable, every person can be offended or made uncomfortable in some way. This online course successfully trains employees on the key concepts of sexual harassment in a lighthearted way. This course starts by defining the main types of sexual harassment: quid pro quo and hostile work environment. Examples of each type are provided and discussed in detail. Viewers learn everybody is susceptible of being a victim or a harasser. Confrontation tactics are also discussed since it is recommended the victim address the harasser's behavior whenever possible. Reporting of sexual harassment must be done whether someone is a victim or a witness of harassment. Lastly, the course demonstrates how to avoid and prevent sexual harassment in the workplace, mostly by treating all co-workers with respect. With this training course, viewers learn how to identify and prevent sexual harassment.

Nonverbal Communication - What Message are You Sending?

Poor communication causes confusion. Inconsistent nonverbal language can lead to an entire message being lost. Learn how to present clear messages with this video-based training program on nonverbal communication. The best way to avoid miscommunication is to learn how to manage your nonverbal language and understand that of others. Nonverbal communication is instinctive and therefore present at every level of an organization. Once better understanding is achieved, clear concise communication can be attained.

Respectful Workplace Communication

You probably already know some things it takes to be a respectful communicator, such as don't interrupt, don't be rude, and make sure you listen well. However, with the diverse nature of today's workplace, those steps are just the beginning. This video teaches you five techniques to become a more respectful communicator. The five steps are: consider your audience,

talk with someone, not about them, understand what others are saying, know the boundaries of what's appropriate, and communicate respectfully during disagreements. The video provides instructions and other helpful pieces of advice for each step. Mastering each step, and utilizing them together, allows you to become a respectful communicator.

Workplace Harassment - Comprehensive Employee Training

Not dealing with workplace harassment can undermine the success and morale of any organization. We all want an environment where everyone is able to do their best and work together effectively as a team. To accomplish this goal we all need to be aware that harassment exists and it must not be tolerated on any level. In this video we'll define some common types of harassment and you will learn what to do in these situations. Failure to respond to a complaint can result in your company being liable for monetary damages when an employee has to seek intervention from a governmental agency or file a lawsuit. We all need to learn to recognize harassment and work together to stop it. This video is a great way to start.

Workplace Harassment - Comprehensive Management Training

Not dealing with workplace harassment can undermine the success and morale of any organization. We all want an environment where everyone is able to do their best and work together effectively as a team. To accomplish this goal we all need to be aware that harassment exists and it must not be tolerated on any level. In this video we'll define some common types of harassment and you will learn what to do in these situations. Failure to respond to a complaint can result in your company being liable for monetary damages when an employee has to seek intervention from a governmental agency or file a lawsuit. You may be personally liable if you harass an employee or if someone complains to you and no action is taken. By being prepared, you can take appropriate action to investigate and resolve claims of harassment. Early resolution of all harassment claims prevents costly administrative or legal action.

In Partnership With:



FDMC is the interface between the Forging Industry Association (FIA) and government agencies to create and deploy integrated solutions to challenging technical and enterprise problems. Military personnel with a .gov and .mil email address receive free limited-duration access to Forging University upon request. To request an account, contact: Dekland Barnum at dekland.barnum@ati.org or Charles Edens at charles.edens@ati.org.



Forging University: Registration Form

Automation 101: \$495

Forge Die and Component Welding Repair 101: \$495

Forging 101: \$95 per module or \$495 for entire class

- Module 1: Forging Overview
- Module 2: Mechanical Fundamentals
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- Module 4: Thermal Fundamentals
- Module 5: Contact Fundamentals
- Module 6: Forging Equipment
- Module 7: Forging Die Failure
- Module 8: Forging Defects
- Entire Class for \$495*

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Hammer Maintenance: \$495

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Sales Training Workshop: \$295

HR Courses: \$100 per course

- Active Shooter and Workplace Violence
- Adult, Infant, and Child CPR and AED Awareness
- Conflict Resolution - Industrial
- Non-Verbal Communication - What Message are You Sending?
- Respectful Workplace Communication
- Identifying and Preventing Sexual Harassment
- Workplace Harassment: Employee Training
- Workplace Harassment: Management Training

Company: _____

Contact Name: _____

Billing Address: _____

City: _____

State/Prov. _____ **Country:** _____

Zip / Postal Code: _____

Phone: _____

Email: _____

Please submit this form via email to kathy@forging.org.

To pay by credit card, please call the FIA office at 216-781-6260