GUIDE

ispring

WORKPLACE SAFETY TRAINING IN MANUFACTURING

How to build a practical online course

Introduction

For thousands of companies, especially those in highly regulated sectors like manufacturing, adhering to rigorous safety protocols is essential. However, ensuring consistent safety and compliance across multiple locations remains one of the biggest challenges in workplace management.

> In 2023, American private industry employers reported 2,569,000 nonfatal workplace injuries and illnesses, reflecting the ongoing risks that workers face on the job. Additionally, 5,283 fatal work-related injuries were recorded across all sectors, which underscores the urgent need for companies to prioritize safety training.

In this guide, we'll break down why ongoing compliance training is vital, outline the elements of effective safety materials, and provide a step-by-step tutorial on how to create an online course that will help you promote a safer and more productive workplace.

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The Top 8 Common Safety Hazards in Manufacturing

Manufacturing hazards include a wide range of potential dangers that can pose risks to employee health and safety. Below are the most frequent ones:

- Slips, trips, and falls
- Machine guarding
- Noise hazards
- Electrical hazards
- Fires and explosions
- Ergonomic hazards
- Chemical hazards
- Lockout/tagout

Slips, trips, and falls

Slips, trips, and falls are among the most common hazards in manufacturing, posing serious risks to worker safety. They often occur on wet, oily, or otherwise slick surfaces due to frequent spills, as well as from tools or materials that are left on walkways.

Falls, whether from the same level or from heights like platforms or ladders, are especially hazardous and can lead to severe injuries, including fractures, head trauma, and fatalities.

Slips, trips, and falls ranked third among the top employer-related workplace injuries and are the primary cause of lost days of work. According to the Bureau of Labor Statistics (BLS), slips, trips, and falls led to 450,540 work injuries and 865 work-related deaths.

Machine guarding

Machinery in manufacturing operates at high speeds and with immense force, meaning even a momentary lapse or accidental touch can have severe consequences. Without proper guarding, machine parts such as gears, belts, and blades pose serious risks such as cuts, fractures, and amputations.

Workers who operate and maintain machinery suffer approximately 18,000 amputations, lacerations, crushing injuries, abrasions, and over 800 deaths per year.

Noise hazards

Machinery like compressors, grinders, and engines often produce intense noise. When the levels stay above 85 decibels for long periods, it can lead to permanent hearing loss.

The problem is that hearing damage usually happens gradually, so many workers don't realize it's happening until it's too late. Besides hearing loss, loud noise can cause fatigue and stress, and make it harder to concentrate – factors that increase the chances of other accidents.

Electrical hazards

Accidents occur when workers come into contact with exposed cables, faulty wiring, overloaded circuits, or improperly used electrical equipment, resulting in serious injuries such as shocks, burns, or even electrocution. It's not only about getting zapped – electrical issues can also cause fires, making them even more dangerous.

Fire and explosions

Manufacturing environments often involve flammable materials, combustible dust, and high-heat equipment, all of which create a risk of fire and explosions. Sparks from welding, static electricity, or equipment malfunctions can ignite these materials, leading to rapid, uncontrolled fires, and even explosions.

Ergonomic hazards

Ergonomic hazards in manufacturing come from repetitive motions, awkward postures, and heavy lifting. These tasks can lead to injuries like back pain, carpal tunnel syndrome, and other musculoskeletal disorders (MSDs), causing chronic pain and reducing worker productivity.

Chemical hazards

Substances like solvents, acids, and gasses pose serious risks. Exposure can occur through inhalation of fumes, contact with the skin, or accidental ingestion, leading to burns, respiratory issues, and long-term health problems.

Some chemicals are also highly flammable or reactive, increasing the risk of explosions when not stored or handled correctly.

Real-world example: Bio-Lab chemical plant fire in Conyers, Georgia

In 2024, a significant chemical hazard incident occurred at a manufacturing facility in Conyers, Georgia. A fire at the BioLab plant, which produces pool sanitizers, resulted in the evacuation of approximately 17,000 residents and shelter-in-place orders for an additional 90,000 individuals. The fire released hazardous smoke plumes that persisted for days, causing respiratory issues among children and leaving lingering chemical odors in the community. This incident underscores the critical importance of stringent safety protocols and effective emergency response plans in manufacturing environments that handle hazardous chemicals.

Lockout/tagout

This risk is especially high in manufacturing, where routine maintenance and repairs often involve complex, high-powered equipment. Lockout/tagout hazards occur when machinery isn't fully de-energized during maintenance or repairs.

If energy sources like electrical, hydraulic, or pneumatic systems aren't properly shut off, the machinery can unexpectedly start, putting workers at risk of severe injuries.

5 Reasons to Invest in Manufacturing Safety Training

In manufacturing, the cost of neglecting safety is just too high. It's far more efficient to understand and prevent common hazards than to deal with the consequences later. A safe workplace starts with well-trained, competent employees who know how to handle risks.

If you're not prioritizing safety training for your workers yet, here are five compelling reasons to start soon:

1. Prevent accidents and injuries

Safety training helps workers identify risks and handle machinery, power tools, hazardous materials, waste, and complex systems properly, diminishing workplace accidents.

Fewer accidents mean fewer injuries, keeping workers safe and healthy and avoiding costly disruptions.

2. Ensure regulatory compliance

Manufacturing companies in the U.S. must adhere to strict safety standards, including Occupational Safety and Health Administration (OSHA), Hazard Communication Standard (HCS), and EPA Chemical Safety regulations. Regular safety training will ensure that employees understand and follow these protocols, thereby reducing the risk of accidents, legal penalties, and operational shutdowns.

3. Enhance emergency preparedness

Accidents like fires or chemical spills can occur suddenly, and a well-trained team knows how to respond quickly and effectively. For example, workers trained in emergency evacuation know exactly where to go and how to help others, which can save lives and minimize damage.

4. Promote a safe workplace culture

When a company invests in safety training, it sends a powerful message: safety is a priority. This creates a culture where employees look out for one another and feel responsible for maintaining a safe environment.

5. Reduce human error

Finally, ongoing training reinforces best practices, such as double-checking setups, following precise operating steps, and staying focused under pressure.

By building employees' technical knowledge and attention to detail, safety training helps prevent mistakes that could lead to costly rework, equipment damage, or accidents.

Best Practices for Designing Workplace Safety Courses

Many companies mistakenly believe that simply gathering all the necessary instructions and sharing them with employees is enough to prepare them for the job. But that approach doesn't actually work.

Any effective safety training program starts with a well-structured online course and requires careful planning and design. Fortunately, it doesn't have to be complicated if you understand the key principles behind developing effective training materials:

Keep training materials concise and focused

Clarity is everything! Focus on delivering short, straightforward content that covers essential safety protocols and actions that employees need to take. Use visuals, bullet points, and summaries to highlight key points, and avoid jargon or excessive details.

The more focused and to-the-point your training materials are, the more likely employees are to remember and apply what they've learned.

Expert tip

Make navigation intuitive so employees can scan the course or locate specific sections quickly. Workers aren't here to spend hours going through extensive explanations – presenting essential information in a direct way will help you achieve better knowledge retention.

Anna Poli, Senior Instructional Designer at iSpring

Vary content formats for deeper engagement

Safety training is often filled with text-heavy manuals and dense instructions that inevitably lead to employee resistance to learning. By moving beyond text and using a variety of content types, you can create a more engaging experience that helps employees better absorb and apply critical safety practices.

For example, incorporate videos to show real-life demonstrations of safety procedures, infographics to break down complex concepts visually, and quizzes for self-checking. Interactive simulations allow employees to practice handling hazardous situations in a risk-free environment and see the consequences of their behavior.

Webinar recording

"How to Choose the Training Format That Really Works"

Watch on YouTube →

Include examples and industry-specific case studies

Show real incidents from your industry or company to help employees understand the real-world impact of safety practices and how these lessons directly apply to their roles. When employees see how safety protocols could prevent specific accidents, they're more likely to take training seriously and retain the information.

Expert tip

One of the biggest challenges in safety training is making it stick. In my experience, a relevant real-life example can do more than countless pages of instructions.

Anna Poli, Senior Instructional Designer at iSpring

Ensure that essential information is easily accessible

When safety is an ongoing need rather than a one-time lesson, it's crucial to provide on-demand access to training materials. The ideal setup allows employees to access essential information on their mobile devices whenever and wherever they need it. This level of accessibility means workers can check safety guidelines right on the job floor.

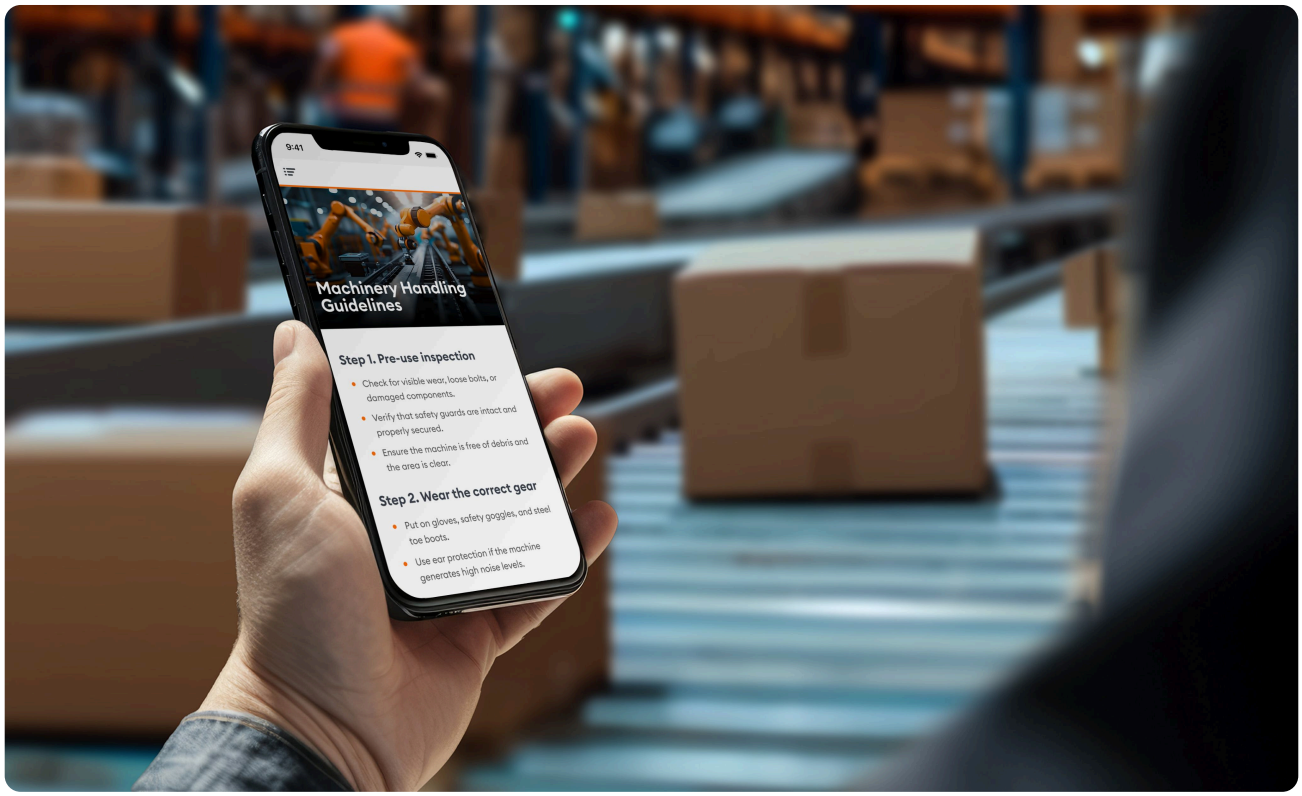
Expert tip

I honestly can't imagine a more convenient and efficient way for both trainers and employees to deliver training than through a learning management system.

An LMS like iSpring LMS makes safety training available 24/7, allowing workers to review essential information anytime they need it, right on their mobile devices.

This kind of accessibility is especially valuable in manufacturing, where quick access to safety protocols can make a huge difference.

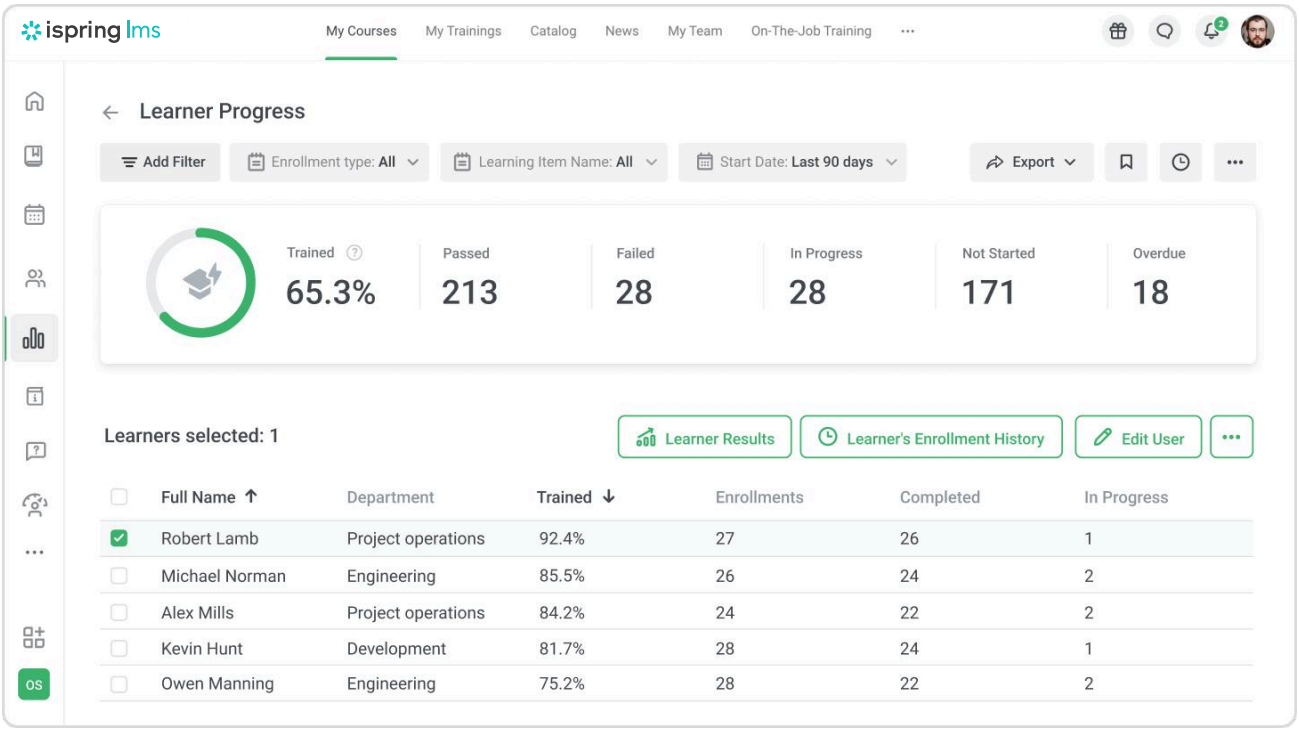
Natalie Taylor, Senior eLearning Consultant at iSpring



Assess knowledge and track progress regularly

Regular assessments and certifications allow you to identify knowledge gaps and overlooked risks in the workplace and ensure the entire team meets required safety standards.

Tracking progress also offers valuable insights into how well the training resonates with employees over time. For example, analyzing test scores and course completion rates can help you refine training materials, making them more effective and targeted. Consistent tracking also builds a culture of accountability, which is essential for a safe and efficient workplace.



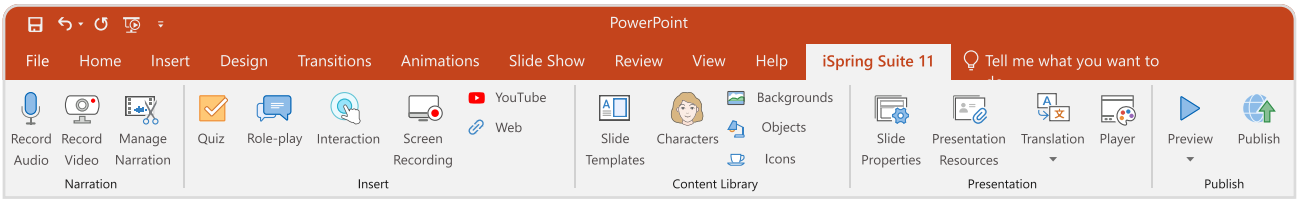
The iSpring LMS provides 20+ detailed visual reports, giving supervisors and instructors real-time insights into who is up to date with safety protocols and ready for their responsibilities.

How to Create a Workplace Safety Course with iSpring Suite

If you have dispersed teams across multiple locations or don't achieve the desired training results with traditional text-heavy tutorials, it's time to upgrade your approach.

Tens of thousands of manufacturing companies around the world build learning materials with iSpring Suite – an intuitive authoring tool for creating interactive content that helps engage employees, achieve better knowledge recall, and conduct comprehensive assessments.

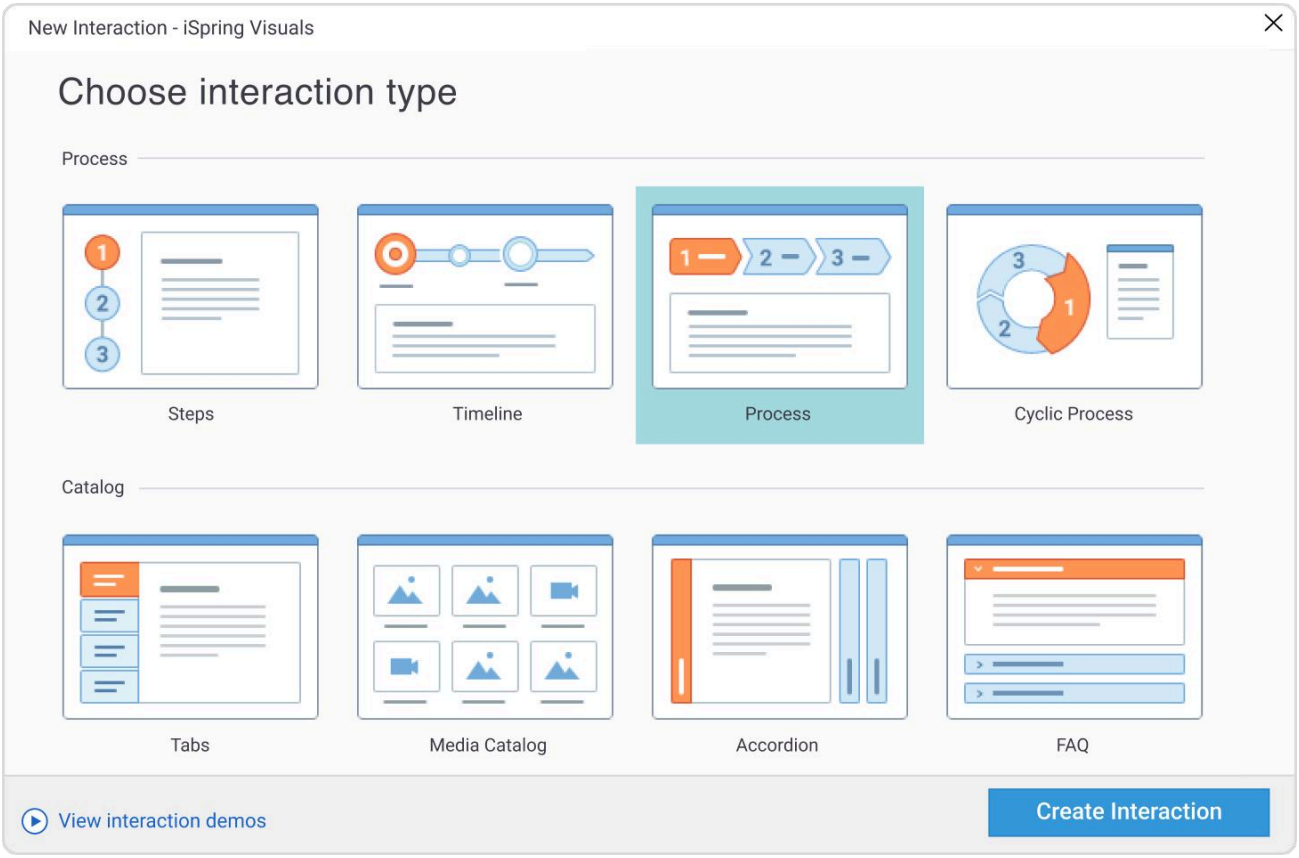
The biggest advantage is that the tool works right in MS PowerPoint, so you won't spend days learning how it works. The interface looks very familiar and straightforward. Plus, there's no need to start from scratch – you can always use your existing slides as a starting point.



Let's explore what you can do with iSpring Suite to make your manufacturing safety course more meaningful.

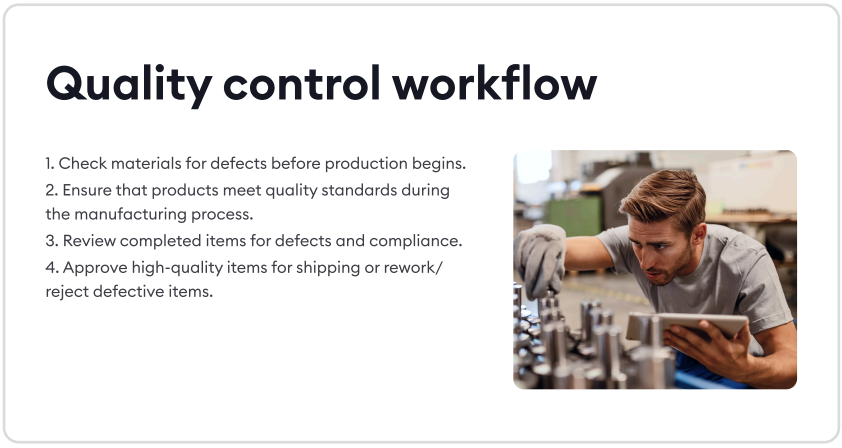
1. Replace text-based instructions with interactions

Interactions help organize information in a well-structured format and let learners engage with it. In iSpring Suite, there are 14 types of interactions, including clickable timeline, accordion, FAQ section, pyramid, circle diagram, and more:



You can simply choose one and customize it by adding your own content. Here's how quality control workflow can look visually as a process:

Before



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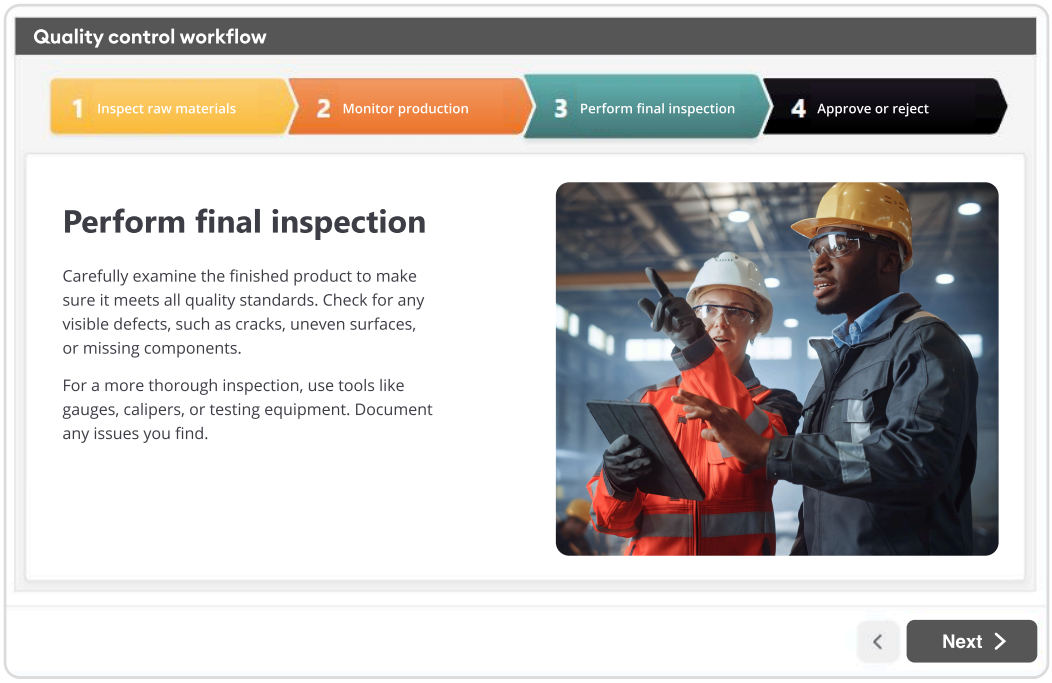
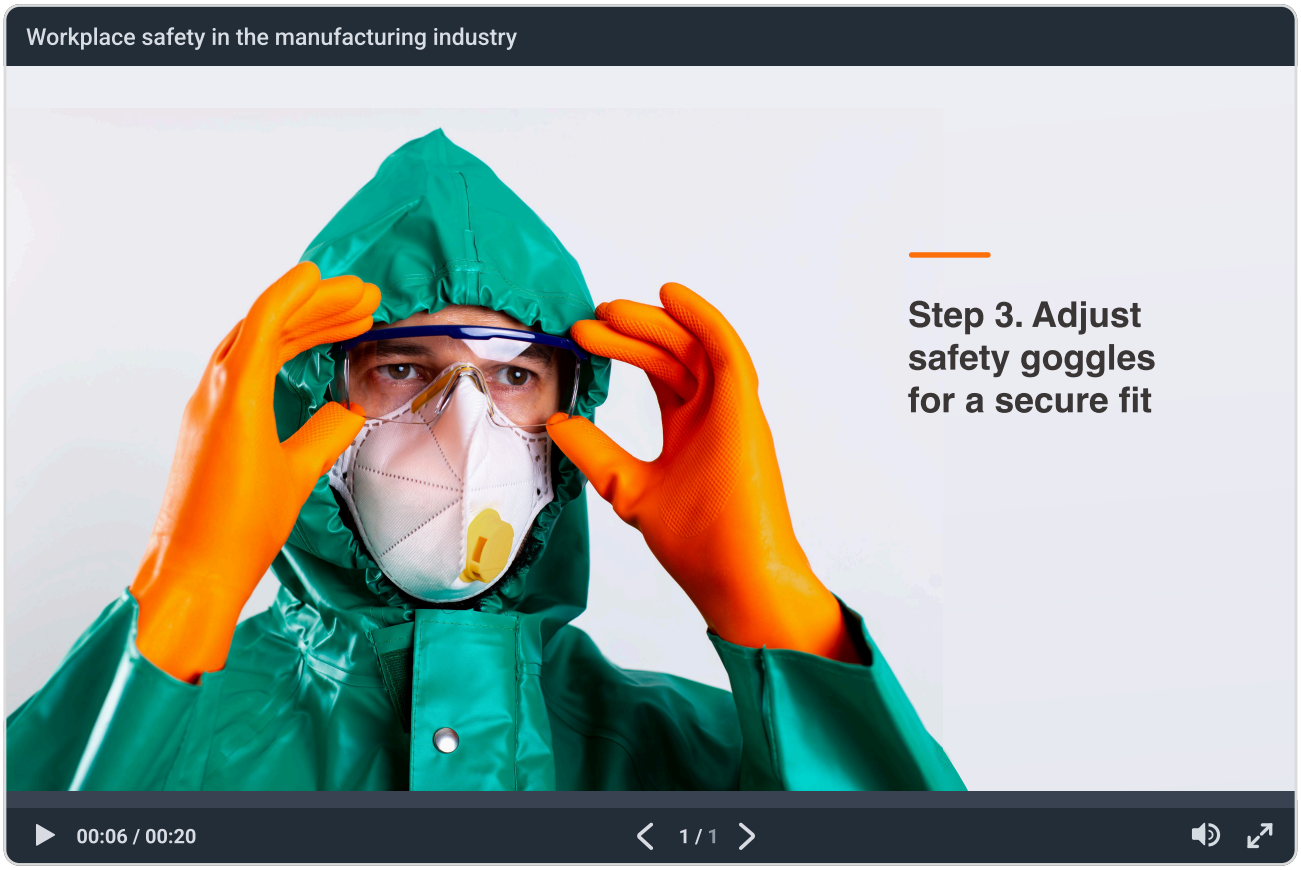


2. Explain complex ideas in a video format

Some things are just better shown than explained. Make complex ideas easier to understand and remember by showing how to operate a machine, put on a protective suit properly, conduct a safety check, or respond to an emergency.

With iSpring Suite, you can easily enhance your course with video explanations. Record a video and then quickly polish it for a professional look: add annotations and captions, and insert images, infographics, and other effects that will help learners focus on what matters:



Pro tip: Break longer videos into short, focused segments to keep employees engaged and make it easier to find what they need. Stick to this rule: one video = one topic.

Success story

ZOLTEK Toray Group

With iSpring, we've raised the bar for compliance training at chemical facilities.

iSpring Suite is an excellent addition for us to make our own learning content at a level of quality that has never been experienced before.

Learn more →

Pál Tamás Fábián

Learning and Development Specialist

3. Let employees practice in a risk-free environment

Learning safety protocols is one thing, but employees may often struggle to translate theoretical knowledge into real-world action, especially in high-stakes situations. That's where role-plays come in.

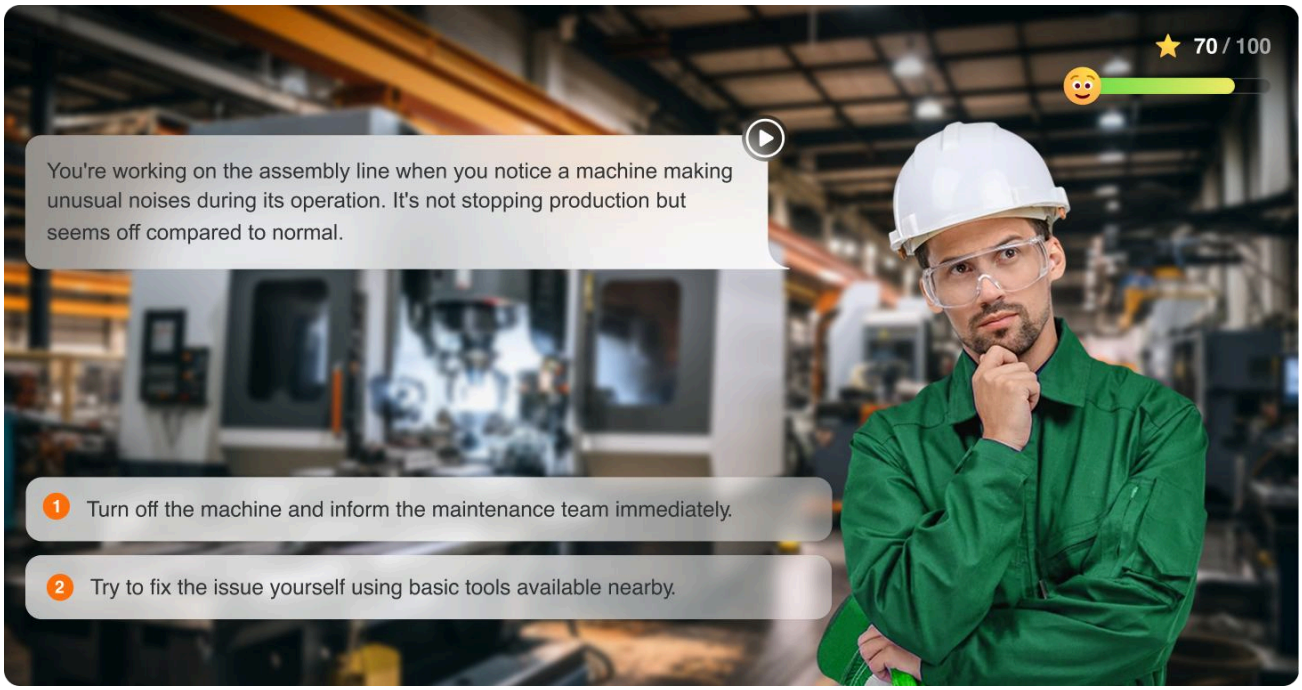
Role-plays are scenario-based simulations that allow employees to test their ability to follow procedures and react appropriately. Using iSpring Suite, you can easily design branching scenarios that adapt to an employee's choices, showing the consequences of each action.

Expert tip

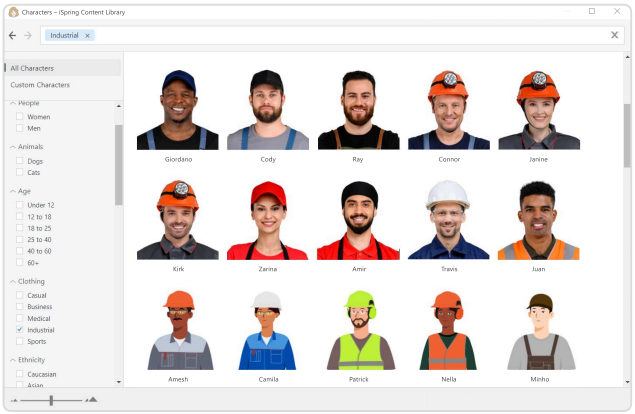
While role-play simulations won't fully replace hands-on training, they're an excellent way to reinforce knowledge and fine-tune behavior – all before stepping into the real-world workplace.

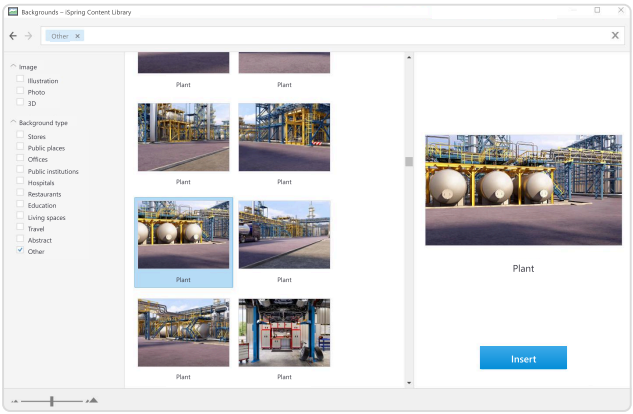
Anna Poli, Senior Instructional Designer at iSpring

Plus, the role-play format will add a personal touch to your course, lengthening attention span and making it easier to retain new knowledge.



The best thing is that creating such simulations with iSpring Suite is surprisingly simple. Thanks to the drag-and-drop interface, there's no need for technical or coding skills. And you won't have to create graphics from scratch, either – the tool includes a collection of 134,000+ pre-designed assets, including backgrounds, characters, and objects:



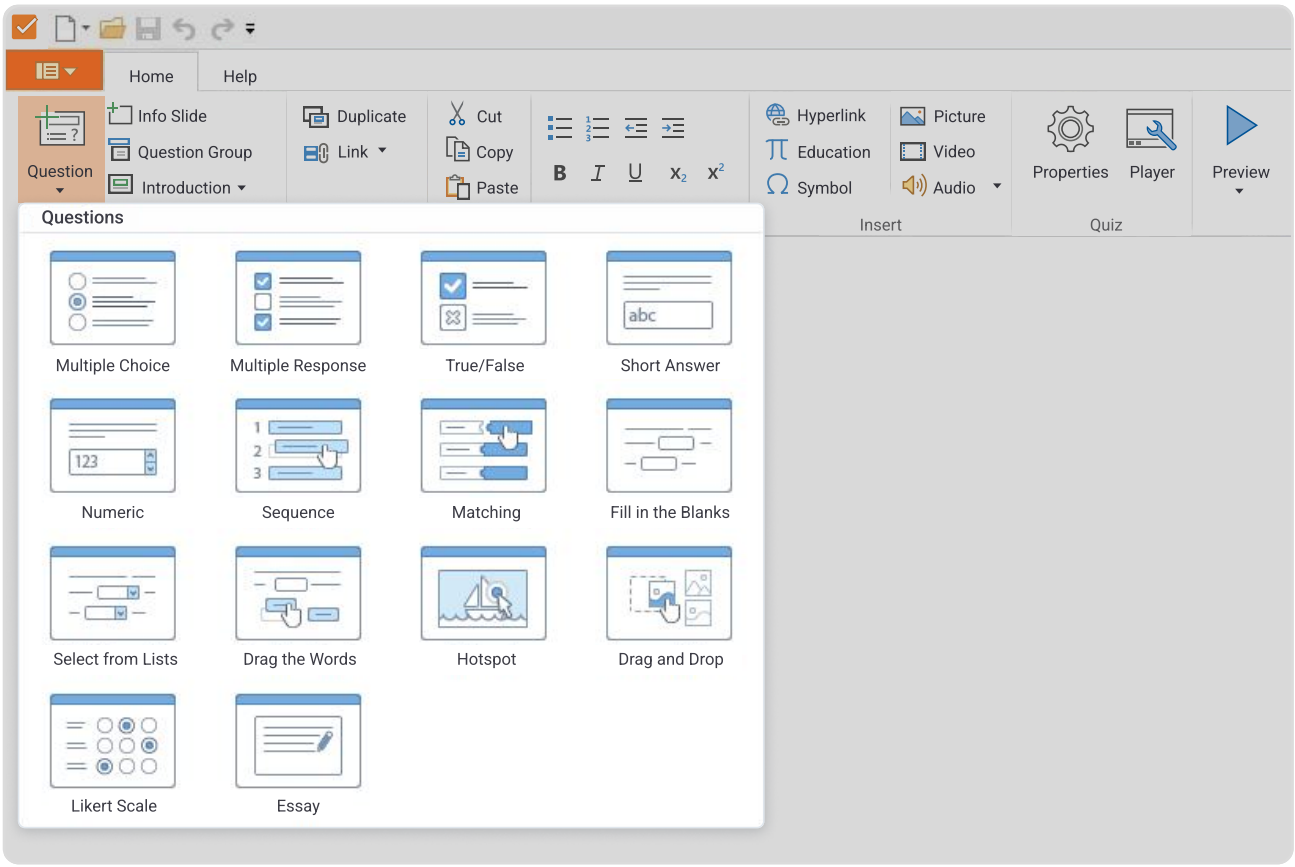


With just one click, you can adjust character poses and facial expressions to fit the scenario perfectly.

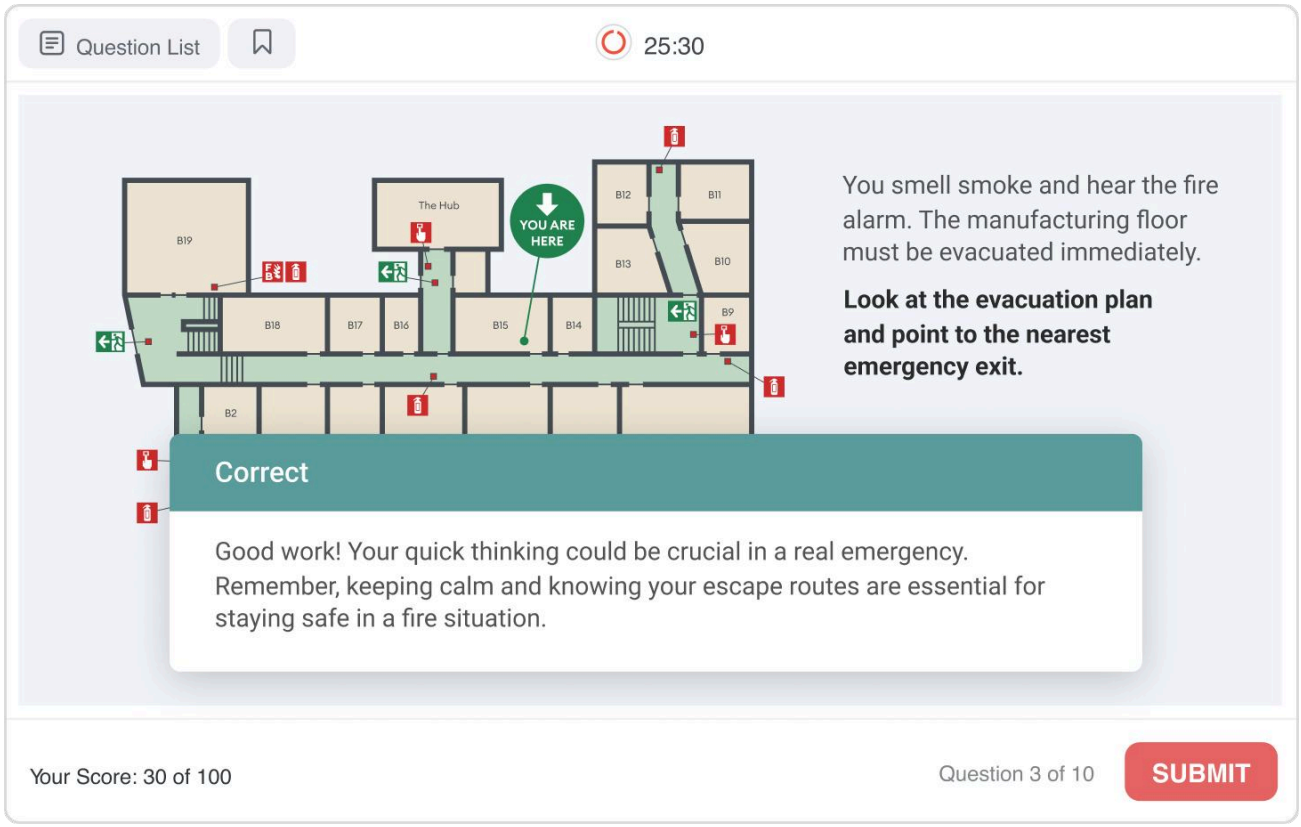
4. Conduct regular and secure assessments

You won't know how your training works or whether employees retain the necessary knowledge unless you conduct knowledge checks. Regular assessments ensure that employees are familiar with safety protocols and can identify potential hazards.

Use various quiz types for thorough testing, from classic multiple-choice and true/false questions to advanced drag-and-drop, Likert scale, and hotspot quizzes.



With iSpring Suite, you can also apply secure testing rules to avoid cheating and get reliable assessment results. For example, limit the time and number of attempts allowed, shuffle questions and answer options, set a passing score value, and apply penalty points for incorrect answers.



To make assessments more meaningful, provide feedback for the learner's answers with additional info that will help them understand their mistake. You can create a branching quiz path just as with role-plays.

For example, when a learner fails a question, you can send them to a slide with additional information on the subject, and correct answers can lead to more challenging questions. This will make the learning experience more personalized and feel unique each time.

Success story

CASTLE

With iSpring, we've revamped induction and compliance training to be cost-effective and burden-free.

We could potentially save thousands of dollars in costs associated with downtime thanks to iSpring.

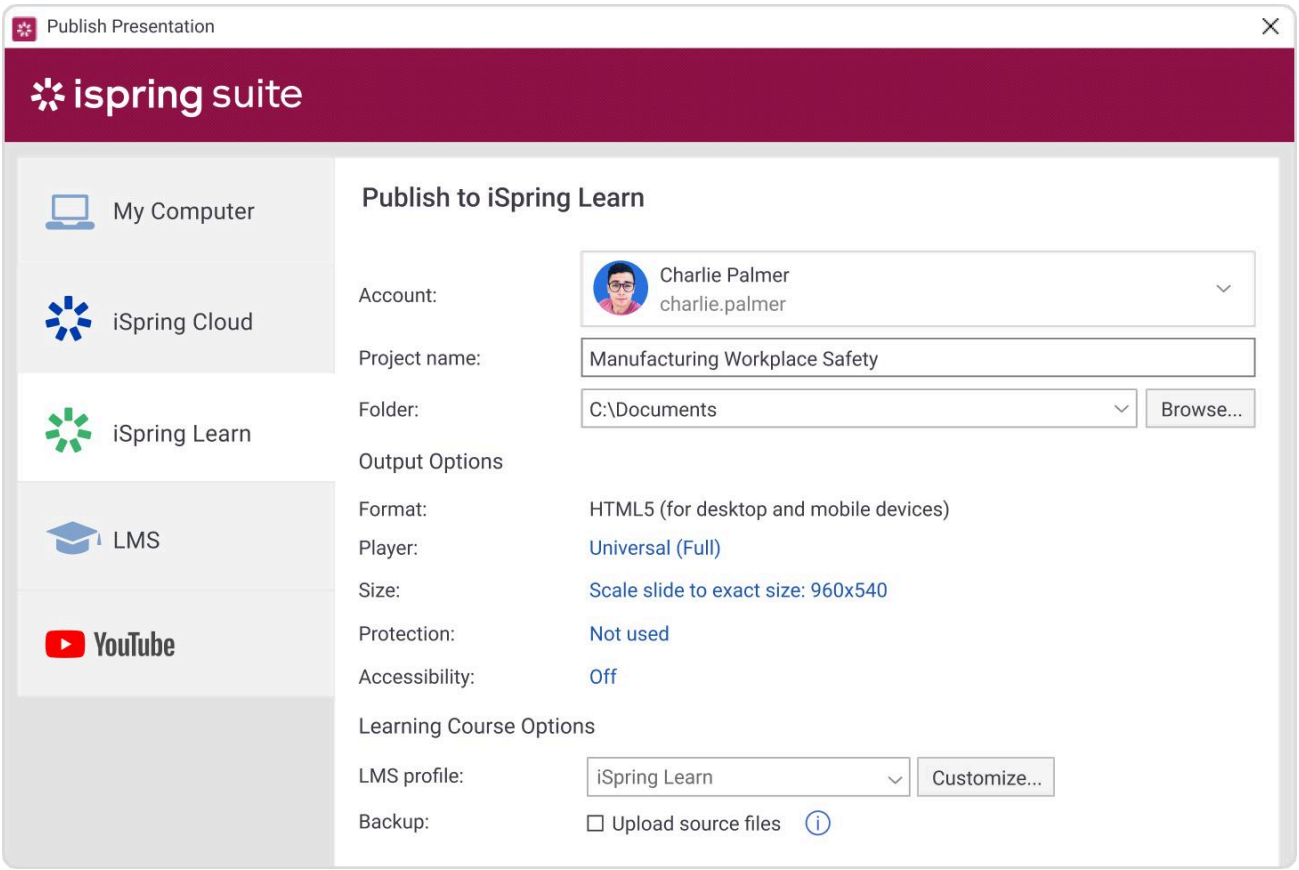
Learn more →

Jesse L. Dukes

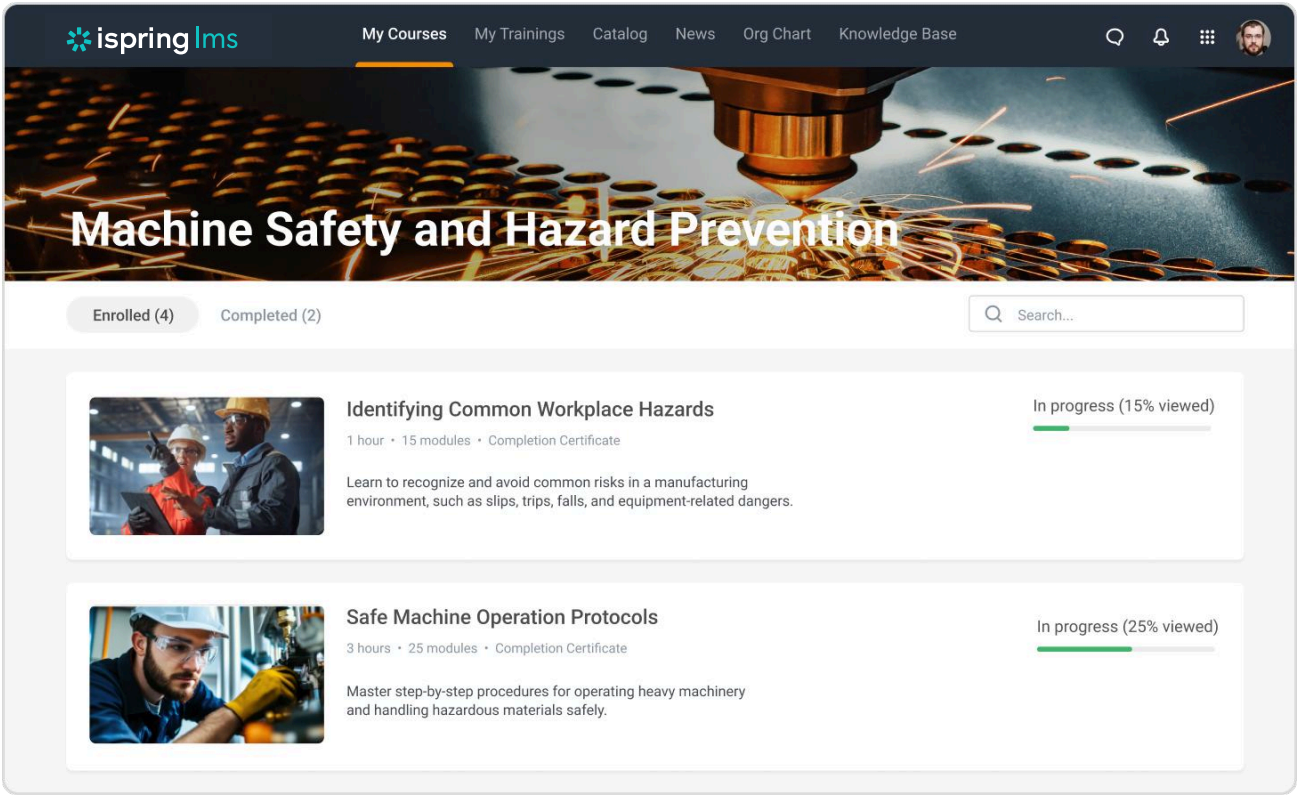
Training and Safety Manager

5. Provide quick 24/7 access to your course

Once your course is ready, publish it online to give workers instant access to training materials whenever they need it. iSpring Suite allows you to export courses in popular eLearning formats (SCORM, AICC, xAPI, or cmi5) and upload them to any learning management system (LMS) for seamless tracking and reporting.



iSpring Suite works perfectly with iSpring LMS – an intuitive learning platform for all manufacturing training scenarios. After uploading your course, you can assign it to individual employees, teams, or entire departments. You can even set up automated course enrollments on a quarterly or annual basis to ensure that employees stay updated with the latest safety protocols.



The LMS keeps learners on track with no manual involvement on your part. Workers receive email and push notifications about new assignments, scheduled in-person activities, and upcoming deadlines.

Training administrators and supervisors gain access to real-time data through 20+ detailed reports. This makes it easy to see who is ready to work safely on the production floor and who might need additional training or revision to meet safety standards.

Final Words

Ongoing safety training in manufacturing is much more than a regulatory requirement. By implementing the strategies and tools outlined in this guide, you'll create a robust safety training program that not only meets industry standards but also empowers your team to make safer, smarter decisions on the job.

Test-drive iSpring Suite during a free 14-day trial and see how you can easily upgrade your existing learning materials or build completely new ones in no time:

Start creating courses for free

14-day free trial. No credit card required.

And if you're interested in a complete solution for creating and launching online safety training, reach out to us! Book a free personalized call with our eLearning manager to discuss your training projects and see how iSpring can help:

Book a live demo of iSpring LMS

30-minute free online consultation.

Make Workplace Safety Your #1 Priority with iSpring

ispring suite
eLearning authoring tool
Learn more →

+

ispring learn
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Reduce training costs

Transition from in-person sessions to interactive courses you'll build in-house, eliminating the need for travel expenses and external trainers.

Automate the training routine

Put training on autopilot with an LMS that keeps employees on track without your constant follow-ups and manual involvement.

Enhance workplace safety

Reduce accidents and associated costs with well-trained employees who know how to identify hazards and respond to emergencies.

Provide 24/7 access to training

Give workers the flexibility to access safety instructions and refresh their knowledge when and where they need it, right from their mobile devices.

Streamline new hire onboarding

Let newcomers explore safety protocols and operational guidelines online completely prior to their first day on-site.

Achieve better knowledge recall

Turn dry protocols into immersive learning experiences that make training more interactive and help one retain information better.

Minimize downtime

Double employee productivity by preventing costly disruptions in production caused by breakdowns or absenteeism.

Measure training impact

Get in-depth LMS reports to see the true value of your compliance training and always know who's ready to work on the production floor.

Welcome to the iSpring Community!

Feel free to join and become a valuable part of a community of instructional designers and eLearning professionals who are taking training to the next level with iSpring.

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