HAZARD RECOGNITION IN INDUSTRIAL ENVIRONMENTS

COURSE OUTLINE

- **According to the Occupational Safety and Health Administration (OSHA), there is a significant number of workplace injuries and deaths a year.**
  - More than 3 million injuries and illnesses.
  - More than 5,000 deaths.

- **It's natural to think that all of these people are "unlucky".**
  - But "luck" has nothing to do with it.
  - The accidents and injuries that happen on the job are simply a matter of numbers.

- **The more hazards there are in a workplace, the greater the risk that goes with working there.**
  - All that risk is basically "accidents waiting to happen".
  - And if nothing is done to prevent them, eventually those accidents will occur.

- **There's a direct connection between the number of hazards in a workplace and the number of accidents, injuries and fatalities that occur there.**
  - We can see that connection in a "pyramid" diagram.

- **At the bottom is the total number of hazards that were found in a group of workplaces.**
  - The next level up is the number of accidents that almost happened as a result. These are called "near misses".
  - The level above that is the number of minor injuries that resulted from the accidents that did happen.

- **The fourth level shows the major injuries that were caused by the accidents.**
  - And at the top is the number of deaths that occurred.

- **As hazards increase at the bottom of the pyramid, the number of accidents, injuries and fatalities increase as well.**
  - For every 20,000 hazards that exist in a workplace, studies show there will be 1,500 "near misses", 300 minor injuries, 27 major injuries and one fatality.

- **Depending on your work environment, the ratios between these numbers may vary.**
  - But no matter what your job is, when hazards go unnoticed or unrecognized, and nothing is done to control or eliminate them… accidents will happen.

- **However, the diagram also illustrates something hopeful. When we drive down the number of hazards in the workplace…**
  - … the other numbers go down, too.

- **The more hazards we can identify, and control or eliminate, the fewer accidents, injuries and fatalities will occur.**
  - This is the goal of "hazard recognition"… to make the workplace safer by finding hazards and removing them or reducing their risk.

- **There are two types of hazards that cause workplace accidents and injuries…**
  - "Hazardous conditions".
  - "Unsafe acts".
  - Most accidents are caused by a combination of the two.

- **"Hazardous conditions" are any situations you can encounter that could harm you.**
  - Spotting these conditions might seem like a no-brainer… especially when they're right in front of you.
  - But many hazards are harder to identify than you'd think.

- **Hazard recognition takes a systematic approach to this process, dividing risks into general categories. One way to organize them is by…**
  - Physical hazards, such as things that have the potential to cause you to fall or be struck by something, crushed, cut, burned or electrocuted.
  - Ergonomic hazards, such as situations that require frequent lifting, awkward movements and repetitive motions, or tasks that subject you to vibration.
  - Chemical hazards, including flammables, cleaning solutions, solvents, pesticides, and any fumes that these substances produce.
  - And biological hazards, such as viruses, bacteria, mold, insects and parasites.

- **These are all hazardous conditions that become even more dangerous when they are combined with the "unsafe acts" that people perform.**

- **“Unsafe acts” are the opposite of "safe work practices", and they make bad things happen.**
  - For example, changing a ceiling light 15 feet above the floor creates the potential for the physical hazard of falling.
  - Having a forklift operator raise you up to the light fixture on the bare forks of his lift truck is an unsafe act… which makes falling a lot more likely.
  - Climbing up to the fixture on a ladder you know is damaged is another type of an unsafe act that can lead to trouble.

- **Other examples of unsafe acts are…**
  - Pulling the grounding prongs out of the cords on your electric tools so you can plug them into two-prong outlets or disconnecting a machine guard that “gets in the way”.

- **Unsafe acts are not only dangerous… they can also be “habit-forming”.**
  - Actions always have consequences, and often they're immediate. Normally, we only have to put our hand on a hot stove once to learn that we shouldn't do it again.
  - But at work, the consequences don't always occur right away.
  - So when we get away with an unsafe act, we may say to ourselves, "Hey, I saved a lot of time here, and nothing bad happened!"

- **Because we don't get “burned” the first time, we're tempted to do the same thing again.**
  - But every time we do it, we're coming closer to an accident, injury… or worse.

- **Another problem is that some hazardous conditions and unsafe acts can be so "obvious" or "general" in nature that we can tend to overlook them, like…**
  - Clutter or spills on the floor can lead to trips and falls.
  - Insufficient lighting can hide other hazards so you can't see to avoid them.
  - And exits that are locked or blocked can be lethal in an emergency.

- **Some unsafe acts can fly under the radar as well, such as…**
  - Having a couple of drinks before coming to work.
  - Not wearing personal protective equipment when you're in a hurry.
  - And assuming that "someone else" will deal with a hazard that you just noticed.

- **Obviously the best time to identify hazards is before they cause accidents or injuries. Hazard recognition uses three tools to do this…**
  - "Job hazard analysis".
  - Pre-shift and pre-operation inspections.
  - Work permits.

- **In "job hazard analysis", a manager or supervisor studies a planned project or new process ahead of time, to identify its potential hazards and develop ways to prevent or control them.**

- **Each job is broken down into a list of specific tasks. The supervisor then examines…**
  - Each step of every procedure.
  - The location where it will be done.
  - Any equipment that will be used to do it.

- **Once the hazards associated with the tasks have been identified, a plan is developed to control or eliminate them. The plan may include:**
  - "Administrative controls", such as safe work practices and policies.
  - "Engineering controls"… physical safety measures that are built into the workplace.
  - Having employees wear various types of personal protective equipment.

- **Employees can play an important part in job hazard analysis as well.**
  - Since no one knows your work better than you do, your supervisor may ask for your input on the job and how to best do it safely.

- **Hazard recognition uses pre-shift and pre-operation inspections to make this process systematic.**
  - With hazard recognition these inspections are required at the start of a shift or before beginning a particular task.
  - Detailed checklists are developed to make sure that they are thorough.
  - As with job hazard analysis you may be asked to contribute your knowledge of the equipment that you use or tasks that you perform to create these checklists.

- **The "work permits" that are required for some risky procedures are the third tool that a hazard recognition program uses to identify potential hazards.**

- **In filling out a permit, the person who will be doing the work must list…**
  - The task to be accomplished.
  - The hazards that will be involved.
  - The procedures that will control or eliminate the risks those hazards present.

- **A manager or supervisor must review and approve the permit before the work can proceed.**
  - This work permit process helps ensure that no one starts a hazardous job without a thorough understanding of what the risks are as well as how to avoid them.

- **It's important to identify hazards before we begin to work, to prevent as many accidents and injuries as possible.**
  - We also need to be able to identify and deal with them in "real time", as they develop.
  - The hazard recognition process can help with this as well.

- **At the start of the day and throughout your shift, you should make a habit of asking yourself… "What are the hazards here?"**

- **Try to spot all of the types of hazards that might exist in your workplace… physical, ergonomic, chemical and biological. This could include…**
  - Places where you could fall, such as a scaffold or a wet floor.
  - Situations where objects could hit you, like materials that are being transported, or equipment with unguarded moving parts.

- **Ask yourself what forms of hazardous energy may be present?**
  - Pay special attention when electricity, steam or hydraulic pressure is being used.

- **Identify tasks that require heavy lifting and repetitive or awkward motions.**
  - And power tools and machinery that could generate harmful vibration.

- **Make yourself aware of any potentially hazardous chemicals, cleaning products or pesticides that you could come into contact with.**
  - Remember, their fumes can be hazardous as well.

- **Look for biological hazards such as…**
  - Mold inside the ventilation system.
  - Ticks or fire ant colonies on the grounds.

- **Ask yourself if the tools and equipment you'll be using are appropriate for your job and location... and whether they are in good working order.**
  - For instance, a diesel-powered forklift should not be used where there's limited ventilation. And electric-powered hand tools should not be used in wet conditions.

- **Look for things such as rickety ladders, frayed power cords, hammers with loose heads and cutting tools with dull or broken blades.**
  - If you find any, fix them or take them out of service!

- **In addition to identifying hazardous conditions, you need to avoid unsafe acts as well.**
  - You can avoid doing them yourself by sticking to your company's "standard operating procedures" and "safe work practices".

- **Keep an eye on your coworkers too, to see if...**
  - They're following SOPs and safe work practices.
  - They're wearing proper PPE.

- **When you do identify a hazard, you need to take action.**
  - If you can remedy the situation, do it.
  - If you can't correct it yourself, speak up.
  - Report it to your supervisor, so they can take steps to control or eliminate the hazard.
  - Warn your coworkers about the risk as well, so they can avoid it too.

- **If you see a coworker doing something unsafe, call it to their attention.**
  - Make sure they understand why it's dangerous.
  - Remind them that doing things safely is the only responsible way to do them.

- **As hard as we may try, it's not always possible to eliminate risks before they cause problems.**
  - Recognizing hazards "after the fact" is better than not knowing why something happened at all.

- **When accidents or "near misses" do happen it's crucial to learn as much as possible about why they occurred, so they can be prevented from happening again.**
  - That's the goal of "accident investigation".

- **Accident investigation searches for the "root causes" of what happened.**
  - On the surface these might appear to be "obvious", but the circumstances behind accidents can be more complicated than you might think.

- **For example, take the case of a stockroom worker who fell off a stepladder.**
  - Coworkers say that the employee was standing on the very top step of the ladder when they fell.
  - That's an unsafe act, and it goes against the company's standard operating procedures… but is it the root cause of the accident?

- **When investigators looked more closely, they discovered that the step ladder was the tallest ladder in the facility, but was still not tall enough to reach the highest shelves in the stockroom safely.**
  - The employee who fell had to stand on the top step to get to those shelves.

- **This type of information can help determine what measures will really be effective in controlling or eliminating a workplace hazard.**
  - The "obvious" cause of the ladder accident was an employee performing an unsafe act.
  - But the root cause was an equipment problem.
  - In this situation, to prevent a similar accident from happening in the future, the company will need to buy a taller ladder.

- **It's important to remember that what you know could be essential to an accident investigation…**
  - Even if you do not witness the accident firsthand.

- **If you are familiar with the task being performed at the time of the accident, or the location where it occurred, you could provide valuable information.**
  - So let the people who are conducting the investigation know that you may have some insight as to why the incident occurred.

*** * * SUMMARY * * ***

- **Most workplace accidents and injuries result from a combination of hazardous conditions and unsafe acts.**

- **Hazard recognition tries to identify hazards and neutralize them ahead of time.**

- **The hazard recognition process looks for "categories" of risks, such as physical, ergonomic, chemical and biological hazards.**

- **Once you identify the potential hazards in your work area, you need to take steps to protect yourself and your coworkers from them.**

- **An accident investigation tries to determine an accident's root cause, so steps can be taken to prevent similar incidents from happening again.**

- **Now that you understand the principles and procedures behind hazard recognition, you have the tools you need to head hazards "off at the pass", and make your facility a safer place to work... for everyone!**