High-Quality Approach to CTE Systemic Safety Program Development/Operation
Rationale/Resources

Purpose:

- Develop and implement Safety and Health Management Systems (SHMS) in CTE programs, so students learn the skills, knowledge, and abilities to work safely and productively in industry.
- Develop H&S education and training programs that introduce safety and health education at all levels, to improve safe teaching and learning environments within the career and technical education secondary and postsecondary CTE programs.
- Develop and implement workplace safety and health curricula that includes hazard recognition and control within the career and technical education secondary and postsecondary programs.
- Engage stakeholders to speak, exhibit, and appear at conferences, meetings, and events to raise awareness of and demonstrate commitment to workplace safety and health.

The National Institute of Occupational Safety and Health (NIOSH) states in its report presenting statistics for young workers (those under the age of 24): *"In 2014, the rate of work-related injuries treated in emergency departments for workers, ages 15–19, was 2.18 times greater than the rate for workers 25 years of age and older. In the same year, the rate of work-related injuries treated in emergency departments for workers, ages 20–24, was 1.76 times greater than the rate for workers 25 years of age and older."* (Ref: https://www.cdc.gov/niosh/topics/youth/default.html). This is particularly relevant because this age span is the main age range of students in CTE programs and for their initial entry into the workforce.

The Occupational Safety and Health Administration (OSHA) maintains a *Safe Work for Young Workers* webpage, with much information and many resources (Ref: https://www.osha.gov/youngworkers/workers.html). At a minimum, CTE programs should require that students have the appropriate OSHA 10-hour Outreach Training Program as part of foundational safety training, and before serving any business-industry work-based learning experience. OSHA developed the content for its 10-hour training as a result of years of examining statistics regarding safety violations, accidents and injuries, and fatalities. The OSHA 10-hour Outreach Training was developed for entry-level workers, to provide foundational training in recognition, avoidance, abatement, and prevention of workplace hazards. OSHA 10-hour Outreach Training classes also provide overview information regarding OSHA, including workers' rights, employer responsibilities, and how to file a complaint (Ref: https://www.osha.gov/dte/outreach/programoverview.html).

Safety plays an integral role throughout the CTE education and training process because students should first learn foundational safety, apply appropriate safety within the work processes they're learning, and continue to add learning and practice of additional work-process specific safety throughout their training. It's mandatory that CTE education and training take place in an industry-authentic environment, so students learn, practice, and prove attainment of SKA competencies in industry-relevant conditions. The CTE education and training provider must verify that all facilities and equipment provide a safe, authentic learning environment for apprentices, throughout the teaching and learning process that prepares them for their careers.

While OSHA regulations should be considered as minimum standards, OSHA states: *"While OSHA does not require employers to develop comprehensive safety and health programs, development and implementation of these programs is an effective way to comply with OSHA standards and prevent workplace injuries and illnesses."* The duty of CTE programs is to provide education and training in an authentic environment. Preparing students to work safely and productively in today's industries requires that they enter their careers with the skills, knowledge, and abilities (SKAs) to function within a Safety and Health Management System (SHMS).

Best practice requires CTE education and training providers to have a Safety and Health Management System in place – just as employers should. OSHA's Recommended Practices for Safety and Health Programs, or an approved equal, should serve as guidelines for implementing a safety and health program built around the seven core elements OSHA identifies for successful safety and health programs. This SHMS will work well as a framework when resourced with program components that CTE programs can use in the teaching, learning, and operation of their programs. Programs could implement the SHMS within their program, and have an operationalized safety plan that students would be using – with the same SHMS components that they need to learn and be able to use effectively to work safely in industry.

Through its SHMS, every CTE program must ensure facilities and equipment used in the program:

1. Reflects current workplace, industry and/or occupational practices and requirements;
2. Meets appropriate federal, state and local standards for occupational safety and health, as applied in the related industry;
3. Enables students to demonstrate safe and appropriate use and maintenance of facilities and equipment within the program;
4. Provides a safe environment for teaching and learning safety processes that are defined; and
5. Are regularly inspected and resourced with updates that include replacing facilities and equipment, as necessary.

OSHA's Recommended Practices for Safety and Health Programs provides the framework for developing a Safety and Health Management System (SHMS). This overall SHMS contains the following seven Core Elements:

1. Management Leadership
2. Worker Participation
3. Hazard Identification and Assessment
4. Hazard Prevention and Control
5. Education and Training
6. Program Evaluation and Improvement, and
7. Communication and Coordination for Employers on Multiemployer Worksites

Following describes the rationale and an application of OSHA's SHMS to CTE Programs.

Teaching and learning Safety Knowledge Skills and Abilities (SKAs) requires that a CTE program operationalize those processes within an industry-authentic, well-structured safety culture, and Safety & Health Management System. The document which follows adapts the *Recommended Practices for Safety and Health Programs* (the core elements OSHA's model SHMS) for use by Career and Technical Education (CTE) Programs. Reference: *Guidance on Safety and Health Management System (SHMS) - Best practices from OSHA's Recommended Practices for Safety and Health Programs Core Elements of the Safety and Health Program Recommended Practices; Pg. 7; Adapted for use by Career and Technical Education (CTE) Programs*.

As students learn and practice applying these core elements during their CTE education and training, they will become proficient in the SKAs they need to have in order to work safely, and mitigate potential safety hazards – for a safe training and worksite environment. The following four pages contain the guidance for OSHA's Recommended Practices for Safety and Health Programs, along with Recommendations for Operationalizing the OSHA 10-Hour Safety Outreach Training for the Construction and General Industries.

Guidance on Safety and Health Management System (SHMS)

Best practices from OSHA's Recommended Practices for Safety and Health Programs

Core Elements of the Safety and Health Program Recommended Practices; Pg. 7;

Adapted for use by Secondary and Postsecondary Career and Technical Education (CTE) Programs

Note: Theses Core Elements have been revised from OSHA's *Core Elements of the Safety and Health Program Recommended Practices*, to focus on student learning and function within an authentic CTE program Safety and Health Management System (SHMS). It includes essential leadership, faculty, staff, employer, and stakeholder roles and program operations.

Purpose: OSHA states that establishing a safety and health system is one of the most effective ways of protecting workers from injury, or worse. CTE programs that train students for careers strive to provide teaching and learning in an authentic industry environment. These best practices can assist CTE programs in their efforts to prepare students to have those career-ready skills, knowledge, and practices.

MANAGEMENT LEADERSHIP

Includes Administrators, Faculty, and Employers

Resources:

https://www.osha.gov/shpguidelines/docs/OSHA_SHP_Recommended_Practices.pdf

- Administration demonstrates its commitment to eliminating hazards and to continuously improving workplace safety and health, communicates that commitment to workers, and sets program expectations and responsibilities.
- The institution has a plan and system in place for employees/students/stakeholders to report hazards, close calls/near misses, injuries, illnesses and other safety and health concerns. The plan and system includes investigation, recordkeeping and reporting back to employees/students/stakeholders on what action was taken in response to the safety-related reports. The institution also observes OSHA Injury and Illness Recordkeeping and Reporting Requirements.
- Administration at all levels make safety and health a core organizational value, establish safety and health goals and objectives, provide adequate resources and support for the program, and set a good example.
- Efforts, activities, and policies, include the following:
  - ✓ Creating a positive health and safety culture; understanding legalities and responsibilities; ensuring reputation; supporting, planning, and resourcing; rewarding; assessing and monitoring.
  - ✓ Ensuring that administrators, faculty, staff, and students understand that it's their right to expect to perform all functions within a safe and healthy environment.
  - ✓ Administration implements safety as an accountability component within leadership, faculty, and staff annual performance reviews.
  - ✓ Administration requires that employee professional development plans identify safety knowledge, skills, and abilities needed by the individual, and provides support and resources so employees accomplish those identified goals.
  - ✓ Programs develop a S&H Plan. (Ref https://www.osha.gov/shpguidelines/docs/OSHA_SHP_Recommended_Practices.pdf).
  - ✓ Draft S&H Plan is reviewed by Program Advisory Committee, submitted to Administration for review and approval, then receives final approval by the Program Advisory Committee.
  - ✓ A hazard identification and analysis system is recognized as being foundational to a safe and healthy environment, and is implemented to identify basic and unforeseen safety and health hazards, evaluate risks, and prioritize methods to eliminate or control hazards. Leadership requires the program to conduct routine hazard assessments, utilizing processes described in OSHA's Job Hazard Analysis publication at: https://www.osha.gov/Publications/osha3071.pdf, and utilizing resources from the NIOSH's Hierarchy of Controls at: https://www.cdc.gov/niosh/topics/hierarchy/, Safety Checklist Program for Schools at: https://www.cdc.gov/niosh/docs/2004-101/, and other sources.
  - ✓ Employers and sites for internships and other Work-based Learning experiences are inspected and approved as safe for students.
  - ✓ Administrators and faculty provide positive communications to all employees and students.
  - ✓ Implementation of the program follows a research-based successful implementation strategy. Leadership support from positive formal and informal leaders (management, instructors, students, and stakeholders) will be recruited as leaders throughout implementation and operations efforts.
  - ✓ Annual S&H program review and improvement is conducted, using the OSHA's Safety and Health Program Audit Tool, at: https://www.osha.gov/shpguidelines/docs/SHP_Audit_Tool.pdf
  - ✓ Program leadership works with its Program Advisory Committee to identify a Safety Advisory subgroup of workers, including students participating in work-based learning (WBL); workers supervising students in WBL; and incumbent workers – to identify and address authentic worker-related safety issues. This subgroup serves as a subcommittee of the Program Advisory Committee, to review and make recommendations on program safety, content, and student attainment of skills, knowledge, and abilities to work safely in the industry.
  - ✓ Annual strategic plan is developed from the results of the S&H Program Audit.
  - ✓ Program leadership contacts their state OSHA Consultation Service for assistance with unresolved questions regarding identifying potential hazards, OSHA standards and compliance, for educational assistance, and for reviewing safety and health plans (Ref: https://www.osha.gov/dcsp/smallbusiness/consult_directory.html).

WORKER PARTICIPATION

Includes
Administrators, Faculty, Staff, and Students

Resources:
https://www.osha.gov/shpguidelines/worker-participation.html

- Workers and their representatives are involved in all aspects of the program—including setting goals, identifying and reporting hazards, investigating incidents, and tracking progress.
- All workers, including contractors and temporary workers, understand their roles and responsibilities under the program and what they need to do to effectively carry them out.
- Workers are encouraged and have means to communicate openly with management and to report safety and health concerns or suggest improvements, without fear of retaliation.
- Workers report all work-related injuries, illnesses, or "near miss" events (which could have caused an injury or illness) through the established institutional reporting system, on an Accident Investigation Form https://www.osha.gov/dte/grant_materials/fy11/sh-22224-11/3_Accident_Investigation_Form.pdf
- Any potential barriers or obstacles to worker participation in the program (for example, language, lack of information, or disincentives) are removed or addressed.
- Includes the following:
  - ✓ Leadership, faculty, staff, students, and workplace supervisors of students engage in required safety and health education and training.
  - ✓ Students keep a weekly job log (for program lab work and work-based learning) that includes identifying challenges and potential safety hazards and describing what they (students) did to meet the challenges and mitigate hazards.
  - ✓ Students regularly complete job hazard analysis process analyses, according to OSHA regulations, following OSHA's Job Hazard Analysis publication at: https://www.osha.gov/Publications/osha3071.pdf.
  - ✓ Employees and students report safety issues and concerns through a well-established, structured process that results in review and resolution of reported issues.

HAZARD IDENTIFICATION AND ASSESSMENT

Includes
Administrators, Faculty, Staff, and Students

Resources:
https://www.osha.gov/shpguidelines/hazard-Identification.html

- Procedures are put in place to continually identify workplace hazards and evaluate risks.
- Safety and health hazards from routine, nonroutine, and emergency situations are identified and assessed.
- An initial assessment of existing hazards, exposures, and control measures is followed by periodic inspections and reassessments, to identify new hazards.
- Any incidents are investigated with the goal of identifying the root causes.
- Identified hazards are prioritized for control.
- Includes the following:
  - ✓ Instructors assemble a safety inspection program utilizing resources from the NIOSH Safety Checklist Program for Schools. Instructors involve students in regularly inspecting program facility and operations.
  - ✓ Safety Advisory subgroup of workers, including students participating in work-based learning (WBL); workers supervising students in WBL; incumbent workers identified by advisory committee members, reviews reports and data to identify and address authentic worker-related safety issues.
  - ✓ The hazard identification and analysis system is recognized as being foundational to a safe and healthy environment, and is implemented to identify basic and unforeseen safety and health hazards, evaluate risks, and prioritize methods to eliminate or control hazards. Students learn and utilize the job hazard analysis process to identify potential safety hazards and mitigate them by utilizing OSHA's Hazard Identification Training Tool to engage students in training and exercises (Ref: https://www.osha.gov/hazfinder/index.html), and other resources.
  - ✓ Students conduct routine hazard assessments, utilizing processes described in OSHA's Job Hazard Analysis publication at: https://www.osha.gov/Publications/osha3071.pdf. JHA's are reviewed and discussed throughout the teaching and learning process.
  - ✓ Near misses are investigated in the same manner and process used to investigate accidents.
  - ✓ Program leadership contacts their state OSHA Consultation Service for assistance with unresolved questions regarding identifying potential hazards, OSHA standards and compliance, for educational assistance, and for reviewing safety and health plans (Ref: https://www.osha.gov/dcsp/smallbusiness/consult_directory.html).

HAZARD PREVENTION AND CONTROL

Includes Administrators, Faculty, and Employers

Resources:
https://www.osha.gov/shpguidelines/hazard-prevention.html

- Employers and workers cooperate to identify and select methods for eliminating, preventing, or controlling workplace hazards. OSHA's recommended practice for hazard identification, assessment, and control is utilized to predict and mitigate potential safety hazards. Ref: https://www.osha.gov/shpguidelines/hazard-Identification.html
- Controls are selected according to a hierarchy that uses engineering solutions first, followed by safe work practices, administrative controls, and finally personal protective equipment (PPE).
- A plan is developed that ensures controls are implemented, interim protection is provided, progress is tracked, and the effectiveness of controls is verified.
- Includes the following:

✓ Students demonstrate knowledge, skills, and abilities to predict potential hazards, use risk assessment processes, and hierarchy of hazard control to implement protections and control measures.

✓ Students utilize resources from the NIOSH's Hierarchy of Controls at: https://www.cdc.gov/niosh/topics/hierarchy/ to establish appropriate mitigation of hazards.

✓ Students utilize training tools, such as OSHA's Hazard Identification Training Tool, in order to learn how to identify hazards – Ref: https://www.osha.gov/hazfinder/index.html.

✓ Students learn about and utilize the NFPA 70E standards - requirements for safe work practices to protect personnel by reducing exposure to major electrical hazards, originally developed at OSHA's request, and free availability is at: https://www.nfpa.org/Login. Students are taught the lockout-tagout process in order to de-energize live and stored energy in electrical, mechanical, hydraulic, pneumatic, chemical, thermal, and other sources. Program utilize resources, such as OSHA's Lockout-Tagout Interactive Training Program (Ref: https://www.osha.gov/dts/osta/lototraining/index.html).

✓ Employers that provide work-based learning placements and supervision of students have a S&H Plan in place containing the Core Elements identified by OSHA in its *Core Elements of the Safety and Health Program Recommended Practices.*

✓ Student lab activities, work-based learning reports, and student job logs are regularly reviewed to ensure that hazards controls are in place, and potential safety concerns are being appropriately addressed.

✓ Employees/students/stakeholders report safety issues and concerns through a well-established, structured process that results in review and resolution of reported issues.

✓ Program leadership contacts their state OSHA Consultation Service for assistance with unresolved questions regarding identifying potential hazards, OSHA standards and compliance, for educational assistance, and for reviewing safety and health plans (Ref: https://www.osha.gov/dcsp/smallbusiness/consult_directory.html).

EDUCATION AND TRAINING

Includes Administrators, Faculty, and Employers

Resources:
https://www.osha.gov/shpguidelines/education-training.html

- All workers are trained to understand how the program works and how to carry out the responsibilities assigned to them under the program.
- Employers, managers, and supervisors receive training on safety concepts and their responsibility for protecting workers' rights and responding to workers' reports and concerns.
- All workers are trained to recognize workplace hazards and to understand the control measures that have been implemented.
- Includes the following:

✓ All students complete the OSHA 10-hour outreach training. 15-hour expanded OSHA 10-Hour Safety Training, Ref: *Operationalizing the OSHA 10-Hour Safety Outreach Training 15 Hours* concepts operationalize 10-hour training topics into CTE education/training, where applicable. (Ref: bottom of page)

✓ All instructors and on-site work-based learning supervisory personnel will complete the 30-hour OSHA Safety Training.

✓ Education and Training is informed by OSHA's Recommended Practices for Safety and Health Programs – Crosswalk to Existing Standards at: https://www.osha.gov/shpguidelines/docs/SHPs_and_Existing_OSHA_Standards_factsheet.pdf

✓ Instructors utilize the NIOSH Safety Checklist Program for Schools at: https://www.cdc.gov/niosh/docs/2004-101/ to teach students about how to understand safety regulations, perform safety inspections and maintenance, and comply with safety and health and environmental regulations.

✓ Students utilize training tools, such as OSHA's Hazard Identification Training Tool, in order to learn how to identify hazards – Ref: https://www.osha.gov/hazfinder/index.html.

✓ Training is provided, as required by specific OSHA standards (ref: *Training Requirements in OSHA Standards*; https://www.osha.gov/Publications/osha2254.pdf

✓ Safety training is identified and provided, as needed as part of each student's Professional Development plan. Specific additional third-part safety training may be required. Examples include: Job Safety & Environmental Analysis (delivered with the OSHA 10-hour); Arc Flash; Rigging, Lifting and Cribbing; Adult First Aid w/CPR; Forklift; Electrostatic Discharge; Fall Protection (including Nacelle Rescue, Top of the Nacelle Rescue, Hub Rescue, Ladder Climb, Ladder Rescue, and Tower Self Rescue). Students will develop the understanding, knowledge, skills, and abilities to function within a Safety and Health plan framework by graduation.

PROGRAM EVALUATION AND IMPROVEMENT

Includes Administrators, Faculty, and Employers

Resources:
https://www.osha.gov/shpguidelines/program-evaluation.html

- Control measures are periodically evaluated for effectiveness.
- Processes are established to monitor program performance, verify program implementation, and identify program shortcomings and opportunities for improvement.
- Necessary actions are taken to improve the program and overall safety and health performance.
- Includes the following:

✓ Safety becomes formalized within the annual program review and improvement process.

✓ Faculty complete an annual safety audit using the revised *Safety and Health Program Audit Tool*.

✓ Safety Advisory subgroup annually reviews safety audit, accident and near-miss reports, and reported safety issues, and makes recommendations for updating the program's strategic plan for the coming year.

✓ Program Advisory Committee considers Safety Advisory subgroup recommendations as it updates the program's annual strategic plan.

✓ Program review and improvement is conducted according to guidelines set forth by The Higher Learning Commission of the North Central Association of Colleges and Schools

✓ Administration reviews and, subject to any discussions/adjustments, signs off on the program's strategic plan.

✓ Advisory Committee receives routine updates on program improvement progress to strategic planning goals and objectives throughout the year at its regular meetings.

✓ Program leadership contacts their state OSHA Consultation Service for assistance with unresolved questions regarding identifying potential hazards, OSHA standards and compliance, for educational assistance, and for reviewing safety and health plans (Ref: https://www.osha.gov/dcsp/smallbusiness/consult_directory.html).

COMMUNICATION AND COORDINATION FOR EMPLOYERS ON MULTIEMPLOYER WORKSITES

Includes Administrators, Faculty, and Employers

Resources:
https://www.osha.gov/shpguidelines/communication.html

- General contractors, contractors, and staffing agencies commit to providing the same level of safety and health protection to all employees.
- General contractors, contractors, subcontractors, and staffing agencies communicate the hazards present at the worksite and the hazards that work of contract workers may create on site.
- General contractors establish specifications and qualifications for contractors and staffing agencies.
- Prior to beginning work, general contractors, contractors, and staffing agencies coordinate on work planning and scheduling to identify and resolve any conflicts that could impact safety or health.
- Includes the following:

✓ Administrators, faculty, and advisory committee work together to establish an effective communication structure for the program.

✓ All program stakeholders are included in the program communications structure, including administrators, faculty, advisory committee members, safety subgroup members, students, employers, work-based learning supervisors, etc.

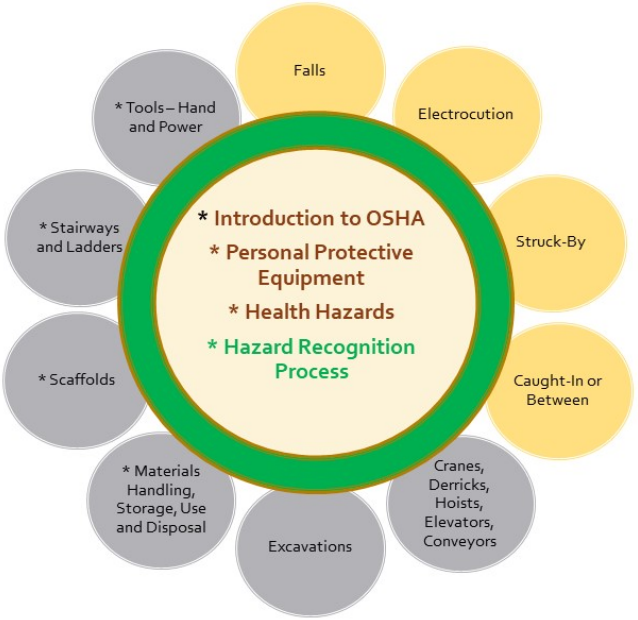
✓ Communication and coordination processes are focused on providing students with authentic industry learning and experience.

✓ Program leadership serves as the designated host employer for the communications and coordination processes.

✓ Program leadership coordinates student work-based learning activities to ensure appropriate learning placement.

Recommendations for Operationalizing the OSHA 10-Hour Safety Outreach Training for the Construction and General Industries

Operationalizing the OSHA 10-Hour Construction Safety Outreach Training
12+ Hours to Prepare Construction Students for Industry



Mandatory Topics
Introduction to OSHA – 2 Hours
Personal Protective Equipment - .5 Hours
Health Hazards - .5 Hours

Hazard Recognition Process
3 Hours

Focus Four Hazards
Falls – Min 1.5 Hours
Others – Min .5 Hours
4 Hours Total

Elective Topics
* 2-Hours; Min 2 Topics

Operationalizing the OSHA 10-Hour General Industry Safety Outreach Training
12+ Hours to Prepare General Industry (Manufacturing) Students for Industry

Mandatory Topics
- Introduction to OSHA – 2 Hours
- Protective Equipment - 1 Hours
- Walking-Working Surfaces – 1 Hour
- Exit Routes, Emergency Action Plans, Fire Prevention Plans & Fire Protection – 1 Hour
- Hazard Communication - 1 Hour
- Electrical – 1 Hour

Hazard Recognition Process
2 Hours (+ 1 hour Optional)

Elective Topics
- 2-Hours; Min 2 Topics
- ½ Hour/Topic min.
- 4 Topics Recommended

Optional Topics
* 1-Hour; Min 1 Topic