

**SUBJECT OUTLINES
OF
KNOWLEDGE AND SKILLS
FOR
SAFETY AND HEALTH PRACTICE**

February 2007 Edition



**Board of Certified Safety Professionals
BCSP**

208 Burwash Avenue
Savoy, IL 61874

Phone: 217-359-9263 • Internet: www.bcsp.org

**Council on Certification of Health, Environmental and Safety Technologists
CCHEST**

208 Burwash Avenue
Savoy, IL 61874

Phone: 217-359-2686 • Internet: www.cchest.org

Introduction

Background

People often ask the following about their field of practice:

- What do people do in this practice?
- What do people need to know for this practice?
- What skills are needed to be effective in this practice?

Answers come from studies of practice. Accredited certification programs must conduct comprehensive studies of the practices covered by their certifications. These are often called job analysis studies. They are a primary source of answers to these questions. The study results provided answers for two purposes:

- What is covered on the certification examinations.
- What people should master in training and education programs in preparing for practice.

While the certification examination outline (called an examination blueprint) has a structure consisting of the functions and tasks people in a practice perform and the knowledge and skills required to be able to do those things, the examinations most often test on knowledge.

For organizations and instructors wishing to prepare people for practice or a certification examination, most want to know what subjects to offer or cover. The students also want to know what subjects to learn or what skills to master to be successful in the practice or on an examination.

Using this Publication

This publication outlines the knowledge and skills for various kinds of safety and health practice. The outlines cover knowledge and skills. They cover progressive levels of responsibility in safety and health: Managers and supervisors, technicians and technologists, and professionals.

This publication provides outlines of knowledge and skills organized by subjects for the different safety and health responsibilities. The outlines help individuals preparing for certification examination and those involved in preparing people for safety and health practice. The information sources are the job analysis studies for the following certifications.

- Certified Safety Professional (CSP)
- Occupational Health and Safety Technologist and Certified Loss Control Specialist (OHST/CLCS)
- Construction Health and Safety Technician (CHST)
- Safety Trained Supervisor (STS)
 - Construction
 - General Industry
 - Petro-Chemical Industry

Please note that in the safety and health field, examinations typically cover knowledge only. Training and educational programs are able to develop applicable skills, also defined by the job analysis studies for these certifications.

For additional details about the certifications and full examination blueprints (found in certification application/examination publications) and to access the job analysis reports, visit the following web sites:

- www.bcsp.org for the CSP
- www.cchest.org for the OHST/CLCS, CHST, and STS

Contents

	Page
Certified Safety Professional Practice	
Subject Outline of Knowledge	2
Subject Outline of Skills	5
Occupational Health and Safety and Certified Loss Control Specialist Practice	
Subject Outline of Knowledge	9
Subject Outline of Skills	12
Construction Health and Safety Technician Practice	
Subject Outline of Knowledge	15
Subject Outline of Skills	18
Safety Trained Supervisor	
STS Construction Practice	
Subject Outline of Knowledge	21
Subject Outline of Knowledge by Task	22
STS General Industry Practice	
Subject Outline of Knowledge	24
Subject Outline of Skills	26
STS Petro-Chemical Practice	
Subject Outline of Knowledge	27
Subject Outline of Skills	29

Certified Safety Professional Practice

Subject Outline of Knowledge for Certified Safety Professional Practice

[xx] is number of times a knowledge statements appears in the blueprints.

GENERAL

Laws, Regulations, Standards, Government

Statutory and case law regulating safety, health and the environment

Laws, standards and regulations [7]

Laws, standards and regulations which require employee participation

Mathematics, Statistics, Physical & Chemical Sciences

Mathematics and statistics [3]

Basic sciences: chemistry, biology, physics, physiology and anatomy [4]

Methods and techniques for measurement, sampling and analysis

Sampling techniques

Statistical analysis [2]

Technology (Engineering, Facilities, Equipment, Processes, Computers & Systems)

Operational process to design/develop safe work practices

Material process flow

Methods and techniques for evaluation of facilities, products, systems, equipment, workstations and processes

Specifications and drawings [2]

Materials

Data management [2]

Computers, data transfer and storage hardware options

Data logging and monitoring equipment

Business software (e.g., database software)

Computer software concepts (databases, spreadsheets, word processing)

Internet resources

Information transfer and storage technologies Information acquisition (data logging) technologies

Telecommunications technology

Behavioral and Organizational Science

Organizational theory and behavioral science [3]

Behavior modification

Personnel development techniques

Drug/alcohol programs including Employee Assistance Programs

Labor relations, including union/management committees

Behavioral sciences [2]

Conflict resolution techniques [5]

Negotiation procedures [2]

Methods of facilitating teamwork

Business and Management

Quantitative and qualitative performance indicators

Management and behavioral sciences

Processing operations (e.g., critical inputs, assessment and inventory)

Business regulations and laws

Economics, accounting and statistics

Capital budgeting and long range planning

Economics and budgeting

Management principles

Procurement

Quality assurance and control

Organizational protocol [3]

Management principles of accountability and responsibility

Training/Education

Education and training methods [5]

Adult learning

Group dynamics [4]

Technical content

Needs analysis

Testing and measurement [2]

Adult learning

Target audience background and informational needs

Active learning techniques
Item writing and test construction
Methods for obtaining feedback

Communication

Communication and presentation techniques
Documentation protocol
Appropriate entities to contact for forms, approval and certifications
Graphic design [2]
English and grammar
Format for various types of media
Protocols for public announcements
Legal aspects of communication
Standards development
Data analysis and presentation
Formal and informal presentation techniques
Presentation media and technologies [2]

Security

Property protection (physical and intellectual) and security

SAFETY, HEALTH, ENVIRONMENT & ERGONOMICS

General

Safety, health and environmental sciences [2]
Safety, health and environmental issues
Sphere of influence

SHE in Design, Controls, Technology

Methods and techniques for achieving safety through design
Safety engineering
Safety through design process
Characteristics and hazards of materials
Applied engineering sciences: electronics, mechanics, thermodynamics, materials, structures, plant layout, etc. [2]
Equipment and facility safety requirements

Risk Management & Insurance

Insurance practices (types and premium calculations) [2]
Workers' compensation and case management
Risk management concepts [4]
Risk assessment techniques [4]

Safety Management

Design of record keeping systems that allow for collection, storage, interpretation and dissemination
Safety management systems
Safety management
Employee participation committees
Record keeping, data collection and retrieval systems
Methods and techniques for evaluating feasibility, effectiveness, reliability and cost-benefit
Record keeping and recording requirements (e.g., OSHA, EPA, workers' compensation, hazardous waste permitting and manifesting requirements, DOT)
Report development (e.g., training records, accident report forms, inspection forms)
Record retention requirements and management protocols (confidentiality, etc.)

Inspections, Investigations, Audits

Methods and techniques for accident investigation
Auditing techniques and management systems reviews
Inspection and auditing techniques
Chain of custody regard to incident investigation
Methods of identifying accident causation

Fire Protection

Fire prevention and protection including life safety [4]

Industrial Hygiene

Industrial hygiene including chemical, physical and biological agents [4]
Ventilation systems

Ergonomics

Ergonomics program management
Ergonomics and human factors [2]

Environmental

Environmental protection and pollution prevention
Physical and chemical characteristics of hazardous materials
Environmental protection and pollution prevention [2]

Emergencies

Crisis management
Post incident and loss mitigation
Governmental entities and responsibilities
Mutual aid agreements
Emergency response planning and communication

Professional Development and Ethics

Certification requirements
BCSP Code of Ethics and Professional Conduct [6]
General business ethics
Personal and professional limitations Competencies of other technical professionals with whom the safety professional interacts
Consequences of professional errors or omissions
Elements of a conflict of interest policy
Laws relating to conflict of interest
Sources safety, health and environmental literature and other information
Job authority, responsibility and accountability
Professional liability issues
General business ethics
Recent technical issues and advances in the safety, health and environmental profession
Continuing education sources in the safety, health and environmental profession (e.g., conferences, professional seminars, networking, textbooks, magazines, professional journals)
Specialty certification opportunities

Applied SHE - Construction

Construction safety [3]
Construction technology

Applied SHE - Transportation

Transportation/fleet safety management

Applied SHE - Product Safety

Product safety [2]

Applied SHE - Process/Petro-Chemical

Process management, material flow and procurement
Process safety [2]

Applied SHE - Systems

System safety [2]
System and occupational safety

Subject Outline of Skills for Certified Safety Professional Practice

[xx] is number of times a skill statements appears in the blueprints.

General and Applied Interpreting Skills

Interpreting and applying regulations
Interpreting and applying safety, health and environmental science data for process improvement Interpreting and applying laws, standards and regulations
Interpreting plans, specifications and drawings [2]
Interpreting laws, standards and regulations [6]
Interpreting analytical results
Interpreting data [2]
Interpreting regulations to ensure a compliant and effective system

Ethics Application Skills

Applying BCSP Code of Professional Conduct [7]

General and Applied Mathematical, Analytical and Scientific Skills

Mathematical and statistical analysis [5]
Sampling and making observations Utilizing basic science to explain safety, health and environmental issues
Calculating accident and incident rates [2]
Analyzing sampling results and other data to support decision making and prioritizing control recommendations Problem solving

Creative Skills

Designing safe work practices for systems, facilities and equipment
Managing safety through the design processes

General and Applied Verbal Communication Skills

Interpersonal communication [3]
Using interpersonal communication
Communication and presentation
Working with unions and management
Consulting with subject matter experts [4]
Consulting with equipment manufacturers/suppliers and construction contractors to assure safety control compliance
Consulting with subject matter experts Meeting with federal, state and local officials
Providing input during standards development
Negotiating with political entities
Negotiating compliance issues with government and other entities or affected parties
Using presentation technology: hardware and software [2]
Making effective graphics
Communicating effectively using verbal and nonverbal skills [3]
Using graphics, illustrations and other media
Using teleconferencing, email and other electronic media Interviewing people
Integrating cultural norms into communications
Communicating risks that are present and appropriate control measures to management
Applying risk communication strategies
Delivering the information in the language and media appropriate for the audience

General and Applied Written Communication Skills

Improving policies and procedures
Writing job descriptions which include safety accountability as a line item Exchanging information via the internet
Constructing reports and data collection forms
Writing procedures, policies, SOPs, etc
Creating labels and warnings
Item/question writing and test construction
Formatting of technical papers and other media
Writing and delivering public announcements
Applying international warnings and symbols
Applying proper format: color, lighting, placement, etc.
Establishing and working within mutual aid agreements
Constructing reports and data collection forms

General and Applied Training Skills

Designing effective training programs with emphasis on employee behavior
Teaching and training in safety, health and environmental science areas and how they apply to the management system
Organizing the results and recommendations into an effective training program
Applying appropriate lesson plans that include interactive learning (e.g., small exchange, case studies, experience sharing)
Item/question writing and test construction
Conducting audience needs assessments
Facilitating group interactions to maximize learning
Providing an effective learning environment (e.g., classroom layout, lighting, minimal distraction, etc.)
Organizing presentations
Using lesson plans
Soliciting audience feedback
Encouraging participation
Integrating critical thinking processing into presentations
Using sampling techniques to assess performance
Gathering feedback
Audience dynamics

General and Applied Computer and System Skills

Developing systems to track implementation
Using computers, data transfer and storage hardware
Using data loggers and monitoring equipment
Complying with confidentiality requirements
Complying with record retention protocols
Maintaining data integrity
Preserving chain of custody for evidence in incident investigation
Using standard business software
Using information transfer and storage techniques
Using data acquisition equipment
Using data collection, retrieval and analysis systems
Eliminating or controlling exposure to identified hazards by substitution, engineering or using PPE
Using data collection and retrieval systems
Using document processing protocols
Using computers, data transfer and storage hardware
Using data loggers and monitoring equipment

Applied Safety and Health Skills

Applying safety, health and environmental knowledge to determine system effectiveness
Utilizing accepted system safety techniques to compare system to industry/consensus systems
Quantifying loss data and trends
Analyzing production process hazards
Applying methods and techniques for hazard identification, hazard evaluation, risk assessment and control
Using analytical equipment: monitoring and sampling equipment
Benchmarking with other companies in same industry for safety equipment/facility design, engineering and controls
Applying methods and techniques for hazard identification, hazard evaluation, risk assessment and control
Testing and maintaining fire detection and suppression systems
Planning and implementing emergency response activities
Managing record keeping (e.g., OSHA, EPA, workers' compensation, hazardous waste permitting and manifesting requirements, DOT) [2]
Selecting appropriate professional development opportunities
Avoiding errors and omissions [2]

Inspection and Investigative Skills

Problem solving in incident investigation
Preserving chain of custody for evidence in incident investigation
Performing incident investigations, including root cause analysis
Applying inspection and control methods for potentially hazardous exposure
Performing compliance and conformance inspections and audits
Performing quality assurance audits and inspections

General and Applied Human Behavior Skills

Integrating safety system into the organizational culture
Behavior modification techniques
Resolving conflicts [4]
Resolving conflicts through negotiation
Applying team building and interpersonal techniques
Negotiating acceptance and/or ultimately assigning responsibility
Determining the most appropriate drug and alcohol testing programs
Acquiring, allocating and controlling human and material resources
Using performance evaluations to quantify the effectiveness of employee programs Implementing employee participation committees

General and Applied Business, Organization and Leadership Skills

Applying management principles of authority, responsibility and accountability [2]
Ensuring that delegation of authority and responsibility are in compliance with the management system design
Applying management and behavioral science to determine system effectiveness
Analyzing process flow, management of critical paths/systems
Quantifying the economic value of the safety process
Applying project controls (budgeting, scheduling, estimating) to maximize system efficiency
Using capital budgeting techniques, activity-based cost accounting and cost-benefit analysis [2]
Organizational development
Applying methods and techniques for evaluating feasibility effectiveness, reliability and cost-benefit
Applying economics analysis
Managing the approval process
Following organizational protocol [2]
Selecting consultants and outside resources and providing adequate support
Using laws, standards and regulations as benchmarks.

**Occupational Health and Safety Technologist
and
Certified Loss Control Specialist
Practice**

Subject Outline of Knowledge for Occupational Health and Safety Technologist and Certified Loss Control Specialist Practice

[xx] is number of times a knowledge statement appears in the examination blueprint.

GENERAL

Laws, Regulations, Standards, Government

Federal, state, and local regulations (e.g., FDA, OSHA, EPA, and DOT) [8]
Standard certifications and approvals (e.g., ANSI, ASTM, NIOSH, NFPA, and API) [3]
Benchmark standards (e.g., TLVs and PELs)
Consensus standards (e.g., NFPA)
Regulatory and consensus standards (e.g., EPA and OSHA)
Industry standards and best practices [3]
Industry standards [2]

Mathematics, Statistics,

Data sampling procedures
Basic mathematics (e.g., algebra and ratios) [4]
Formulas (e.g., mathematical, scientific, and statistical)
Basic statistics

Physical, Life & Chemical Sciences

Basic biological sciences, including toxicology and ergonomics [3]
Basic life and physical sciences [8]
Basic health concepts

Technology

Engineering

Industrial processes
Basic engineering concepts

Facilities

Basic building design and construction (e.g., blueprints and major systems)

Computers

World Wide Web
Internet search techniques
Computer databases
Spreadsheet, word processor, and database software

Behavioral and Organizational Science

Behavioral science, including human factors [5]

Business and Management

Business terminology (e.g., financial terms)
Basic financial terminology
Basic cost-benefit analysis [3]
Organizational types and structures [5]
Problem solving techniques
Necessary financial resources

Training/Education

Effective training solutions
Adult learning principles

Communication

Typical communication channels

Security

Physical and electronic security
Common methods of terrorism

SAFETY, HEALTH, ENVIRONMENT & ERGONOMICS

General

Safety and health regulations and best practices
Industry (e.g., NAISS, BLS) incidence rates
Types of medical surveillance

SHE in Design, Controls, Technology

Basic machine guarding techniques [2]
Engineering controls
Hierarchy of controls

Risk Management & Insurance

Insurance and loss control references
Acceptable ratios (e.g., loss ratios, incidence rates, and accident rates)
Strategies for prioritization of risks, hazard control measures, etc.
Basic risk assessment [2]

Safety Management

Administrative controls
Personal protective equipment
Hazard controls (e.g., engineering controls, administrative controls, and personal protective equipment)
Safety and health programs [2]
OSHA record keeping
Federal OSHA techniques for computing incident rates
Material safety data sheets [2]

Inspections, Investigations, Audits

Survey techniques (e.g., checklist, flow chart, and interviewing techniques)
Types of and methods for conducting audits (e.g., internal and regulatory)
Investigative techniques

Fire Protection

Fire prevention and suppression equipment
Life safety standards
Basic fire science

Industrial Hygiene

Sampling techniques (e.g., air sampling and noise monitoring)
Basic ventilation
Basic ventilation measurement
Protocols for the calibration, maintenance, and use of sampling and monitoring equipment
Industrial hygiene sampling techniques

Ergonomics

See: **Behavioral and Organizational Science**
Physical, Life & Chemical Sciences

Environmental

Properties of hazardous materials (e.g., basic chemistry and material safety data sheets) [3]

Emergencies

Modeling development
Local, regional, and federal resources (e.g., civil defense, FEMA, local fire and police, medical facilities)
Characteristics of emergencies and natural disasters [2]
Prior analyses conducted at the facility
Emergency equipment and supplies
Available emergency equipment
Community response plans [2]
Regulations (e.g., Incident Command System)
Administrative and engineering disaster response strategies
Mutual aid agreements
Procedure, process, and equipment evaluation
Evaluation of training methods (e.g., exercises, drills, and surveys)
Emergency equipment inspection and required performance tests

Professional Development and Ethics

Apply the Health and Safety Technologist/Technician Code of Ethics

Understand OHST disciplinary standards and practices.

Participate in professional development.

Applied SHE - Systems

Basic elements of risk analysis (e.g., failure mode and effects analysis, fault tree analysis, and root cause analysis)

System failures

Subject Outline of Skills for Occupational Health and Safety Technologist and Certified Loss Control Specialist Practice

[xx] is number of times a skill statement appears in the blueprint.

General and Applied Interpreting Skills

Analytical thinking (comparisons)
Reading blueprints
Interpreting regulations
Thinking critically [2]
Interpreting analytical data
Researching and gaining access to documents

Ethics Application Skills

Apply the Health and Safety Technologist/Technician Code of Ethics
Understand OHST disciplinary standards and practices

General and Applied Mathematical, Analytical and Scientific Skills

Computing sample sizes and interpreting data
Computing and interpreting statistical analyses
Computing cost-benefit analysis
Using statistical analytical techniques
Using qualitative analytical techniques [2]

General and Applied Verbal and Written Communication Skills

Communicating through talking and writing [8]

General and Applied Written Communication Skills

Combined with above

General and Applied Training Skills

Presenting
Teaching
Training
Training diverse populations [2]

General and Applied Computer and System Skills

Using computers and software packages [3]
Using Internet search engines
Using basic research techniques

Applied Safety and Health Skills

Calibrating test equipment
Interpreting exposure limits
Reading material safety data sheets
Selecting personal protective equipment
Calibrating, maintaining, and using sampling and monitoring equipment [3]
Computing incident rates using federal OSHA techniques
Using sampling protocols
Basic modeling
Performing basic risk assessments
Identifying risk
Planning and developing disaster plans and emergency response
Conducting and evaluating exercises, drills, and surveys

Inspection and Investigative Skills

Surveying facilities and operations
Measuring building dimensions
Conducting verification audits and site surveys
Inspecting and using emergency equipment

General and Applied Human Behavior Skills

Conducting interviews [3]

Negotiating

Influencing and persuading others

Listening actively [2]

Facilitating team process

Facilitating committees

General and Applied Business, Organization and Leadership Skills

Operating within the corporate environment [2]

Organizing

Managing projects

Construction Health and Safety Technician Practice

Subject Outline of Knowledge for Construction Health and Safety Technician Practice

[xx] is number of times a knowledge statement appears in the examination blueprint.

GENERAL KNOWLEDGE

Regulatory

Applicable regulations, consensus codes, best practices, and local codes [13]
Record keeping requirements
Record keeping and reporting of injuries and illnesses
Regulatory record keeping requirements
Regulations and best practices applicable to emergency planning
Regulatory jurisdictions

Technology

Construction means and methods [4]
Construction drawings

Behavior (individual & organizational)

Crisis management [2]
Disciplinary procedures
Substance abuse programs
Established discipline and accountability systems
Conflict resolution strategies [3]
Characteristics of worksite personnel (e.g., education level, language proficiency, English as a foreign language)
Demographics of employees and their skill level [3]
Human behavior, both safe and at-risk

Business and Management

General contract requirements
Relevant corrective actions and best practices
Time management strategies [2]
Scope of work for each craft on the jobsite
Other record keeping requirements (e.g., company protocol on accident investigation, audits, inspections)
Computer file management
Physical file management

Training and Education

Coaching, counseling, and education techniques
Effective training techniques
Training needs assessment procedures
Available delivery methods and instructional materials
Training objectives [3]
Instructional methods [2]
Audiovisual and other instructional equipment [2]
Assessment strategies to determine that jobsite supervisors are able to lead safety meetings

Communication (verbal & written)

Communication practices (e.g., vehicle to disseminate information) [2]
Coordination strategies for activities
Communications requirements
Types of consequences
Communication strategies [2]

Security

Security requirements and best practices [3]
Security and confidentiality requirements

SPECIFIC SHE KNOWLEDGE

General

Bloodborne pathogens [2]
Safety priorities

SHE in design, controls, technology

Hazards associated with falls, struck by, electricity, caught between/crushing [7]
Hazard recognition strategies
Hazard recognition and abatement strategies [4]
Sources of information about unanticipated hazards
Fall protection principles and application
Electrical safety and hazardous energy control (i.e., lockout/tagout)
Scaffolds, ladders, and mobile elevated work platforms
Machine guarding, hand, and power tool safety
Trenching and excavation
Confined spaces
Cranes and rigging
Powered industrial trucks (e.g., forklifts)
Steel erection

Risk management & insurance

Insurance loss control requirements

Safety management

Engineering and administrative controls [2]
Requirements and limitations of personal protective equipment [5]
Statistical tools for accident and claims analysis
Industry accident trends
Industry-related injury and illness trends [3]
Industry-related injury and illness trends and at-risk behavior
Craft-specific accident trends
Craft-specific injury and illness trends [3]
Hazard communication [2]
Site-specific safety planning and plans [7]
Testing equipment (e.g., electrical testing, measuring tape, dosimeters, air monitoring)
Management escalation processes
Location of program and certification documents and records
Job safety analysis content [4]

Inspections, investigations and audits

Principles of investigation
Investigation techniques (e.g., direct, indirect, root cause analysis)
Sources of information about accidents
Interviewing techniques
Audit documentation techniques
Regulatory inspection process, employer and employee rights, and expectations

Fire Protection

Fire prevention and protection

Ergonomics

Principles of ergonomics as applied to construction practices and material handling

Environmental

Common environmental hazards on construction sites (e.g., silica, asbestos, lead, noise)

Emergencies & emergency response

Components of emergency action plans
Medical/first aid procedures [2]
Emergency notification system (e.g., whom to call)
Types of emergencies (e.g., fire, medical, weather, power outage, workplace violence, environmental, terrorist threats)
Incident command system
Emergency equipment
Emergency medical equipment

Professional development & ethics

Maintain ongoing competence by participating in the Certification Maintenance program in order to ensure currency and adhere to best practices.

Adhere to ethical standards for behavior in accordance with the CCHESST Code of Professional Conduct in order to protect the interests of stakeholders.

Subject Outline of Skills for Construction Health and Safety Technician Practice

[xx] is number of times a skill statement appears in the blueprint.

Interpreting and Application

Reviewing applicable documents [2]
Reading construction drawings
Reading construction drawings and contract documents
Evaluating construction means and methods
Applying regulations [2]
Applying regulations and best practices
Applying regulations and consensus standards [2]
Applying regulations and standards
Evaluating job safety analysis information, observations, and trends for relevant information [2]
Interpreting job safety analyses
Thinking critically [2]

Ethics Application

Adhere to ethical standards for behavior in accordance with the CCHES Code of Professional Conduct in order to protect the interests of stakeholders.

Verbal and Written Communication

Communicating effectively in speech and writing [10]
Documenting identified hazards
Documenting observations and measurements
Using effective documentation techniques (e.g., note taking, photography, taking measurements)
Conducting perception surveys

Training

Coaching safe behaviors
Matching training to the characteristics and needs of worksite personnel
Teaching to achieve training objectives [2]
Using available multi-media training techniques to deliver the program [3]
Adapting structured programs to local needs [2]
Engaging the audience [2]
Facilitating discussion of topics identified by meeting participants

Computers & Systems

Accessing applicable documents
Using email
Using information technology systems [2]
Accessing current information (e.g., regulations) [2]
Using computers

Safety and Health

Setting safety priorities
Recognizing hazards
Recognizing imminent danger and applying stop-work techniques
Developing job safety analyses
Recommending engineering and administrative controls
Recommending personal protective equipment
Mitigating identified hazards in a timely manner
Complying with the client's safety guidelines and procedures
Maintain ongoing competence by participating in the Certification Maintenance program in order to ensure currency and adhere to best practices.

Inspection & Investigation

Motivating personnel to cooperate with investigations
Interviewing
Remaining objective
Finding facts
Conducting worksite assessments
Making observations to identify existing and foreseeable unsafe conditions and behaviors
Using measuring equipment

Human Behavior

Eliciting information from key personnel [2]
Interacting positively with others
Using conflict resolution techniques
Resolving conflicts [3]
Understanding human behavior in the context of worksite safety
Evaluating competence and employee feedback to determine if changes are needed [2]
Assessing the skill levels of crafts people and supervisors

Business, Organization & Leadership

Planning for emergencies
Coordinating activities
Exercising sound judgment
Responding to unanticipated situations
Recommending corrective actions
Escalating unresolved issues
Coordinating jobsite personnel
Organizing information
Organizing documents

Safety Trained Supervisor Practice

Subject Outline of Knowledge for STS Construction Practice

(Percent of Exam is an estimate of items devoted to each knowledge.)

1. OSHA regulations (All 10 Tasks)
2. Company safety rules and procedures (All 10 Tasks)
3. Communication at all organizational levels (All Tasks except 2 & 7)
4. Industry safety requirements (All 10 Tasks)
5. Potential hazards (All 10 Tasks)
6. Job, craft, and phases of construction (All Tasks except 1 & 10)
7. Observation techniques (All Tasks except 1, 5, 6, & 8)
8. Training methods (Task 5 only)
9. Job hazard analysis (Task 6 only)
10. Test equipment usage (Task 7 only)
11. Enforcement techniques (Task 8 only)
12. Proper tool and equipment selection (Task 7 only)
13. Reporting techniques (Tasks 9 & 10 only)
14. Accident/incident investigation techniques (Task 10 only)

Tasks ¹										Knowledge	% of Exam
1	2	3	4	5	6	7	8	9	10		
										1. OSHA regulations	14.3
										2. Company safety rules and procedures	14.3
										3. Industry safety requirements	14.3
										4. Potential hazards	14.3
										5. Job, craft, and phases of construction	11.4
										6. Communication at all organizational levels	11.4
										7. Observation techniques	8.6
										8. Training methods	1.4
										9. Job hazard analysis	1.4
										10. Test equipment usage	1.4
										11. Enforcement techniques	1.4
										12. Proper tool and equipment selection	1.4
										13. Reporting techniques	2.9
										14. Accident/incident investigation techniques	1.4

¹ Shading indicates that a knowledge applies to the task.

Subject Outline for Knowledge of STS-Construction Practice Organized by Task

[Tasks (in bold) and Knowledge]

(Percent denotes percent of examination items for task.)

Task 1. Conduct New employee safety and health orientation (9.5%)

- OSHA regulations
- Company safety rules and procedures
- Communication at all organizational levels
- Industry safety requirements
- Potential hazards

Task 2. Perform pre-task safety and health hazard analysis (10.6%)

- OSHA regulations
- Company safety rules and procedures
- Job, craft, and phases of construction
- Industry safety requirements
- Potential hazards
- Observation techniques

Task 3. Perform basic safety and health hazard recognition (10.7%)

- OSHA regulations
- Industry safety requirements
- Company safety rules and procedures
- Potential hazards
- Job, craft, and phases of construction
- Observation techniques
- Communication at all organizational levels

Task 4. Issue and monitor the use of personal protective equipment (9.6%)

- OSHA regulations
- Industry safety requirements
- Company safety rules and procedures
- Potential hazards
- Job, craft, and phases of construction
- Observation techniques
- Communication at all organizational levels

Task 5. Conduct safety and health meetings (9.3%)

- OSHA regulations
- Industry safety requirements
- Company safety rules and procedures
- Potential hazards
- Job, craft, and phases of construction
- Communication at all organizational levels
- Training methods

Task 6. Plan for safety and health hazard prevention (10.7%)

- OSHA regulations
- Industry safety requirements
- Company safety rules and procedures
- Potential hazards
- Job, craft, and phases of construction
- Communication at all organizational levels
- Job hazard analysis

Task 7. Inspect tools and equipment (9.7%)

- OSHA regulations
- Industry safety requirements
- Company safety rules and procedures
- Potential hazards
- Job, craft, and phases of construction
- Observation techniques
- Test equipment usage
- Proper tool and equipment selection

Task 8. Apply safety and health standards on job sites (11.1%)

- OSHA regulations
- Industry safety requirements
- Company safety rules and procedures
- Potential hazards
- Job, craft, and phases of construction
- Communication at all organizational levels
- Enforcement techniques

Task 9. Participate in job safety and health inspections (9.7%)

- OSHA regulations
- Industry safety requirements
- Company safety rules and procedures
- Potential hazards
- Job, craft, and phases of construction
- Observation techniques
- Reporting techniques
- Communication at all organizational levels

Task 10. Investigate accidents and/or incidents (9.3%)

- OSHA regulations
- Industry safety requirements
- Company safety rules and procedures
- Potential hazards
- Observation techniques
- Communication at all organizational levels
- Accident/incident investigation techniques
- Reporting techniques

Subject Outline of Knowledge for STS General Industry Practice

(Numbers in parenthesis indicate number of times the knowledge statement occurs.)

GENERAL

Mathematics, Statistics, Science

Basic mathematics

Behavioral and Organizational Science

Coaching techniques

Conflict resolution techniques (2)

Appropriate disciplinary policies and procedures

Organizational structure for the organization (e.g., hierarchy, chain of command)

Leadership techniques

Business and Management

Organizational policies and procedures (2)

Training and Education

Training and qualifications necessary for specific jobs and/or tasks

Communication

Facilitation and safety communication strategies

Organizational policies regarding communication with external entities

Facilitation techniques

Effective communication techniques (e.g., among shifts, simultaneous work groups, different levels of the hierarchy within the organization)

Ethics

Ethical considerations concerning the accuracy of information, conflict of interests, etc.

Ethical considerations concerning sources of data, accuracy of data, preservation of evidence, application of investigation techniques, reporting, etc.

SAFETY, HEALTH, ENVIRONMENT & ERGONOMICS

General

Hazards (e.g., biological, chemical, physical, ergonomic) related to work process, equipment, and tools needed (7)

Safety, health, and environmental requirements relevant to the work performed (e.g., regulations, consensus standards, best practices) (10)

Principles and applications of hazard control (5)

Risk Management and Insurance

Basic principles of risk assessment

Injury management/workers' compensation (working knowledge)

Safety Management

Limitations of personal protective equipment (2)

Requirements for the selection of personal protective equipment (2)

Safety resources (e.g., material safety data sheets, key personnel, experts)

Documentation of job safety analyses and procedures derived from the analyses

Characteristics of proactive safety cultures and reactive safety cultures

Industry-accepted performance measures (e.g., incidence rates)

Organizational record keeping systems (2)

Organizational record keeping requirements (2)

Security and confidentiality requirements of record keeping processes

Strategies for evaluating safety behavior, participation in safety culture, etc.

Organizational safety performance measures for employees

Techniques for safety performance recognition and reward or correction

Inspections, Investigations, Audits

Inspection and documentation process

Observation techniques

Purpose and principles of accident/incident investigations

Investigation techniques

Lessons learned from incidents at the worksites

Emergencies

Emergency action plans and procedures

Emergency action plans

Emergency procedures

Terminology used in emergency action plans

Techniques for implementing exercises

Subject Outline of Skills for STS General Industry Practice

(Numbers in parenthesis indicate the number of times the skill statement occurs.)

General and Applied Interpreting Skills

Making decisions (3)
Determining actions needed

Ethics Application Skills

Resolving ethical conflicts related to record keeping
Resolving ethical conflicts

General and Applied Mathematical, Analytical and Scientific Skills

Using basic mathematical formulas
Analyzing

General and Applied Verbal and Written Communication Skills

Communicating hazards
Communicating to employees effectively (3)
Using open, clear, and interactive communication (3)

General and Applied Training Skills

Assessing training needs based on requirements and hazards

Applied Safety and Health Skills

Recognizing hazards and mitigating exposure (4)
Facilitating job safety analyses (identifying job steps)
Communicating the purpose and effectiveness of job safety analyses
Selecting, using, and maintaining personal protective equipment
Using safety resources
Recognizing and evaluating high risk problems
Comparing safety performance to applicable standards
Accessing lessons learned at the worksite and in the industry
Recognizing the nature and severity of incidents
Using techniques for minimizing risk

Inspection and Investigative Skills

Using observation to identify unsafe behaviors (4)
Conducting worksite inspections
Selecting correct investigation techniques
Applying investigation techniques correctly
Analyzing and protecting evidence
Facilitating post exercise/incident evaluations

General and Applied Human Behavior Skills

Exercising leadership
Resolving conflicts
Listening to concerns and suggestions

General and Applied Business, Organization and Leadership Skills

Coaching safe behaviors (3)
Keeping records (5)
Distinguishing types of safety cultures
Resolving conflicts
Using facilitation skills
Facilitation techniques
Implementing organizational and regulatory requirements
Implementing organizational performance measurement procedures
Executing the emergency action plan

Subject Outline of Knowledge for STS PetroChemical Practice

(Numbers in parenthesis indicate the number of times the knowledge statement occurs.)

GENERAL

Laws, Regulations, Standards, Government

Manufacturers' requirements

Mathematics, Statistics, Sciences

Basic mathematics

Behavioral and Organizational Science

Coaching techniques

Conflict resolution techniques (2)

Appropriate disciplinary policies and procedures

Organizational structure for the organization (e.g., hierarchy, chain of command)

Leadership techniques

Business and Management

Organizational policies and procedures (3)

Organizational management of change procedures

Training and Education

Training and qualifications necessary for specific jobs and/or tasks

Evidence of required training (e.g., DOT operator qualifications, hazardous waste operations and emergency response (HAZWOPER), confined spaces, process safety management operator qualifications, welding, crane operation)

Communication

Facilitation and safety communication strategies

Organizational policies regarding communication with external entities

Facilitation techniques

Effective communication techniques (e.g., among shifts, simultaneous work groups, different levels of the hierarchy within the organization)

Ethics

Ethical considerations concerning the accuracy of information, conflict of interests, etc.

Ethical considerations concerning sources of data, accuracy of data, preservation of evidence, application of investigation techniques, reporting, etc.

SAFETY, HEALTH, ENVIRONMENT AND ERGONOMICS

General

Hazards (e.g., biological, chemical, physical, ergonomic) related to work process, equipment, and tools needed (7)

Safety, health, and environmental requirements relevant to the work performed (e.g., regulations, consensus standards, best practices) (10)

Principles and applications of hazard control (4)

Principles and applications of hazard control (e.g., energy isolation, permitting)

Safety, health, and environmental management systems

Specific topics: confined space entry, hot work permitting, energy isolation, excavation, crane operations, hoists and rigging, fall protection, hazardous waste operations and emergency response (HAZWOPER), personal protective equipment, handling compressed gases, atmospheric monitoring/gas testing, regulated hazardous materials, hazardous waste handling, hearing conservation, ionizing radiation safety (3)

Risk Management and Insurance

Basic principles of risk assessment

Injury management/workers' compensation (working knowledge)

Safety Management

Limitations of personal protective equipment
Requirements for the selection of personal protective equipment
Safety resources (e.g., material safety data sheets, key personnel, experts)
Documentation of job safety analyses and procedures derived from the analyses
Characteristics of proactive safety cultures and reactive safety cultures
Industry-accepted performance measures (e.g., incidence rates)
Purpose and organization of safety meetings
Organizational record keeping systems (2)
Organizational record keeping requirements (2)
Key personnel who are authorized to sign/issue permits
Security and confidentiality requirements of record keeping processes
Strategies for evaluating safety behavior, participation in safety culture, etc.
Organizational safety performance measures for employees
Techniques for safety performance recognition and reward or correction

Process Safety

Process safety management requirements
Applicable process safety management requirements
Specific process safety management record keeping requirements: process hazard analyses, process safety information, management of change, pre-start-up safety reviews, training, operations procedure verification, process hazard analysis revalidation, site access control
Process safety management incident investigation requirements (e.g., timeliness, investigation team make up)
Specific process safety management contractor requirements

Inspections, Investigations, Audits

Observation techniques
Purpose and principles of accident/incident investigations
Investigation techniques
Lessons learned from incidents at the worksites

Emergencies

Emergency action plans and procedures
Emergency action plans
Emergency procedures
Terminology used in emergency action plans
Techniques for implementing exercises

Subject Outline of Skills for STS Petro-Chemical Practice

(Numbers in parenthesis indicate the number of times the skill statement occurs.)

General and Applied Interpreting Skills

Making decisions (3)
Determining actions needed

Ethics Application Skills

Resolving ethical conflicts related to record keeping
Resolving ethical conflicts

General and Applied Mathematical, Analytical and Scientific Skills

Using basic mathematical formulas
Analyzing

General and Applied Verbal and Written Communication Skills

Communicating to employees effectively
Leading safety meetings
Communicating management of change procedures
Communicating to employees effectively (2)
Using open, clear, and interactive communication (3)

General and Applied Training Skills

Assessing training needs based on requirements and hazards

Applied Safety and Health Skills

Recognizing hazards and mitigating exposure (3)
Facilitating job safety analyses (identifying job steps)
Communicating the purpose and effectiveness of job safety analyses
Selecting, using, and maintaining personal protective equipment
Using safety resources
Recognizing and evaluating high risk problems
Comparing safety performance to applicable standards
Accessing lessons learned at the worksite and in the industry
Recognizing the nature and severity of incidents
Using techniques for minimizing risk

Inspection and Investigative Skills

Surveying the worksite
Reviewing documentation (e.g., logbooks, tags)
Using observation to identify unsafe behaviors (3)
Selecting correct investigation techniques
Applying investigation techniques correctly
Analyzing and protecting evidence
Facilitating post exercise/incident evaluations

General and Applied Human Behavior Skills

Taking appropriate action when observing possible alcohol or other drug abuse at the work place
Exercising leadership
Resolving conflicts
Listening to concerns and suggestions
Evaluating employee performance regarding confined space entry, hot work permitting, energy isolation, excavation, crane operations, hoists and rigging, fall protection, hazardous waste operations and emergency response (HAZWOPER), personal protective equipment, handling compressed gases, atmospheric monitoring/gas testing, regulated hazardous materials, hazardous waste handling, hearing conservation, and ionizing radiation safety.

General and Applied Business, Organization and Leadership Skills

Coaching safe behaviors (3)

Keeping records (4)

Distinguishing types of safety cultures

Resolving conflicts

Using facilitation skills

Facilitation techniques

Implementing organizational and regulatory requirements

Implementing organizational performance measurement procedures

Applying requirements for confined space entry, hot work permitting, energy isolation, excavation, crane operations, hoists and rigging, fall protection, hazardous waste operations and emergency response (HAZWOPER), personal protective equipment, handling compressed gases, atmospheric monitoring/gas testing, regulated hazardous materials, hazardous waste handling, hearing conservation, and ionizing radiation safety.

Executing the emergency action plan