

Domain 1

Advanced Sciences and Math • 11.55%

Knowledge of:

1. General chemistry concepts (e.g., nomenclature, balancing chemical equations, chemical reactions, ideal gas law, and pH)
2. Electrical principles (e.g., Ohms law, power, impedance, energy, resistance, and circuits)
3. Principles of radioactivity (e.g., radioactive decay, half-life, source strength, concentration, and inverse square law)
4. Storage capacity calculations
5. Rigging and load calculations
6. Ventilation and system design
7. Noise hazards
8. Climate and environmental conditions (e.g., Wet-bulb Globe Temperature [WBGT], wind chill, and heat stress)
9. Fall protection calculations
10. General physics concepts (e.g., force, acceleration, velocity, momentum, and friction)
11. Financial principles (e.g., cost-benefit analysis, cost of risk, life cycle cost, return on investment, and effects of losses)
12. Descriptive statistics (e.g., central tendency, variability, and probability)
13. Lagging indicators (e.g., incidence rates, lost time, and direct costs of incidents)
14. Leading indicators (e.g., inspection frequency, safety interventions, employee performance evaluations, training frequency, near miss, near hit, and close-call reporting)

Domain 2

Safety Management Systems • 17.22%

Knowledge of:

1. Hierarchy of hazard controls
2. Risk transfer (e.g., insurance and outsourcing – such as incident management or subcontracting)
3. Management of change
4. Hazard and risk analysis methods (e.g., preliminary hazard analysis, subsystem hazard analysis, hazard and operability analysis, failure mode and effects analysis, fault tree analysis, fishbone, what-if and checklist analysis, change analysis, energy trace and barrier [ETBS] analysis, and systematic cause analysis technique [SCAT])
5. Process safety management
6. Fleet safety principles (e.g., driver behavior, defensive driving, distracted driving, fatigue, and vehicle safety features)
7. Hazard Communication and Globally Harmonized System
8. Control of hazardous energy (e.g., lockout/tagout)
9. Excavation, trenching, and shoring
10. Confined space
11. Physical security
12. Fall protection
13. Machine guarding
14. Powered industrial vehicles (e.g., trucks, forklifts, and cranes)
15. Scaffolding

Skill to:

1. Use hazard identification methods
2. Assess and analyze risks (e.g., probability and severity)
3. Provide financial justification of hazard controls
4. Implement hazard controls
5. Monitor and reevaluate hazard controls
6. Conduct incident investigation (e.g., root causes, causal factors, data collection, analysis, and chain of custody)
7. Conduct inspections and audits
8. Evaluate cost, schedule, performance, and project risk

Domain 3

Ergonomics • 9%

Knowledge of:

1. Fitness for duty (e.g., fatigue and mental health)
2. Stressors (e.g., environmental, lights, noise, and other conditions)
3. Risk factors (e.g., repetition, force, posture, and vibration)
4. Work design
5. Material handling (e.g., manual, powered equipment, and lifting devices)
6. Work practice controls (e.g., job rotation, work hardening, and early symptom intervention)

Skill to:

1. Use qualitative and quantitative analysis methods (e.g., anthropometry and NIOSH lift equation)

Domain 4

Fire Prevention and Protection • 10.66%

Knowledge of:

1. Chemical (e.g., flash point and auto ignition)
2. Electrical (e.g., static electricity, surge, arc flash, ground fault circuit interrupter, and grounding and bonding)
3. Hot work (e.g., welding, cutting, and brazing)
4. Combustible dust
5. Fire science (e.g., fire pentagon, fire tetrahedron, upper and lower explosive limits)
6. Detection systems
7. Suppression systems, fire extinguishers, sprinkler types
8. Segregation and separation (e.g., flammable materials storage and ventilation)
9. Housekeeping

Domain 5

Emergency Response Management (ERM) • 9.57%

Knowledge of:

1. Emergency, crisis, disaster response planning (e.g., drills)
2. Workplace violence (e.g., shooting, bomb threat, vandalism, and verbal threats)

Domain 6

Industrial Hygiene and Occupational Health • 12.59%

Knowledge of:

1. Sources of biological hazards (e.g., viral, bacterial, parasitic, fungus, and mold)
2. Protocol for bloodborne pathogen control
3. Mutagens, teratogens, and carcinogens
4. Chemical hazards (e.g., sources, assessment, control strategies, symptoms, and target organs)
5. Exposure limits (e.g., Threshold Limit Value [TLV], Short-term exposure limits [STEL], Time-Weighted Average [TWA], Ceiling Limit, Immediately Dangerous to Life and Health [IDLH], and Action Level [AL])
6. Routes of entry (e.g., inhalation, ingestion, absorption, and injection)
7. Acute and chronic exposures (e.g., additive effect, synergistic effect, antagonistic effect, and potentiation effect)
8. Noise
9. Radiation
10. Heat and cold stress

Skill to:

1. Conduct exposure assessment

Domain 7

Environmental Management • 8.68%

Knowledge of:

1. Environmental hazards awareness (e.g., biological [mold], chemical, waste, and vermin)
2. Water (e.g., storm, waste, and best practices)
3. Air (e.g., quality and best practices)
4. Land and conservation (e.g., solid waste, recycling, and sustainability)
5. Hierarchy of conservation (e.g., reuse, recycle, and reduce)
6. Environmental management system standards
7. Waste removal, treatment, and disposal

Domain 8

Training, Education, and Communication • 12.35%

Knowledge of:

1. Adult learning theory and techniques
2. Presentation tools (e.g., computer-based and group meeting)
3. Safety culture/climate
4. Data collection, needs analysis, gap analysis, and feedback
5. Assessing competency

Domain 9

Law and Ethics • 8.38%

Knowledge of:

1. Legal liability
2. Ethical behavior (e.g., professional practice, audits, record keeping, sampling, standard writing, and BCSP Code of Ethics)
3. Protection of worker privacy (e.g., information)

Skill to:

1. Deal with unethical situations (e.g., employee putting others at risk)
2. Read and interpret regulations
3. Determine appropriate actions based on knowledge limitations (e.g., know when to get help)