

Domain 1 Mathematics • 18%
Topic 1 Chemistry and Industrial Hygiene Calculations
Knowledge of: <ol style="list-style-type: none">1. Corrosives2. Flammables3. Toxic materials4. Chemical reactions
Topic 2 Electrical Calculations
Knowledge of: <ol style="list-style-type: none">1. Power, impedance, energy, and resistance2. Arc flash3. Circuits
Topic 3 Radiation Calculations
Knowledge of: <ol style="list-style-type: none">1. Decay2. Half-life3. Source strength
Topic 4 Structural and Mechanical Calculations
Knowledge of: <ol style="list-style-type: none">1. Loading and storage capacity2. Rigging and load
Topic 5 Engineering Control Calculations
Knowledge of: <ol style="list-style-type: none">1. Ventilation and system design2. Fire suppression and system design3. Noise4. Climate conditions (e.g., WBGT, wind chill, heat stress)5. Fall protection
Topic 6 Physics Calculations
Knowledge of: <ol style="list-style-type: none">1. Movement (e.g., acceleration, velocity, momentum)2. Friction3. Kinetic and potential energy4. Gas laws

<p>Topic 7 Financial Principles</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Cost benefit analysis (e.g., cost of risk) 2. Life cycle cost 3. Net present value 4. Return on investment
<p>Topic 8 Statistics</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Descriptive statistics (e.g., central tendency, variability) 2. Correlational statistics (e.g., Pearson's r, Spearman's rho) 3. Inferential statistics (e.g., chi-square, t-test) 4. Probability (e.g., odds of success, Poisson)
<p>Topic 9 Performance Metrics and Indicators</p> <hr/> <ol style="list-style-type: none"> 1. Lagging indicators (e.g., incidence rates, lost time, direct costs of incidents) 2. Leading indicators (e.g., inspection frequency, safety interventions, employee performance evaluations, training frequency, near miss, near hit, and close call reporting) 3. Effects of losses
<p>Domain 2 Safety Management Systems • 23%</p>
<p>Topic 1 Risk Management and Hazard Control Process</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Identification methods 2. Examine and analyze risks 3. Selection of control methods (e.g., financial justification, hierarchy of controls) 4. Implementation of controls 5. Monitor and reevaluate 6. Risk transfer (e.g., insurance, incident management)
<p>Topic 2 Management Processes</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Emergency, crisis, disaster response planning, business continuity 2. Incident investigation (e.g., data collection, analysis) 3. Inspections and audits
<p>Topic 3 Project Management</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Evaluation of cost, schedule, performance, and risk 2. Assigning responsibilities and accountability

<p>Topic 4 Systems Safety</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Risk analysis methods (e.g., job safety analysis, hazard and operability analysis, failure mode and effects analysis, fault tree analysis, fishbone, what-if and checklist analysis, change analysis) 2. Process safety management
<p>Topic 5 Fleet Safety</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Driver behavior (e.g., defensive driving, distracted driving) 2. Vehicle inspections 3. Safety features (e.g., restraint systems, automatic and anti-lock braking systems) 4. Crash and collision investigation
<p>Topic 6 Safety Programs</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Hazard Communication and Globally Harmonized System 2. Workplace violence 3. Control of hazardous energy 4. Excavation, trenching, and shoring 5. Confined space 6. Physical security 7. Fall protection 8. Wellness programs 9. Substance abuse
<p>Domain 3 Ergonomics • 13%</p>
<p>Topic 1 Human Factors</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Fitness for duty 2. Organizational, behavioral, and psychological influences 3. Stressors 4. Risk factors (e.g., repetition, force, posture, vibration) 5. Work design 6. Aging workforce
<p>Topic 2 Measurement and Monitoring</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Quantitative methods (e.g., anthropometry, NIOSH lift equation) 2. Qualitative methods (e.g., Rapid Upper Limb Assessment [RULA], Rapid Whole Body Assessment [REBA])

<p>Topic 3 Controls</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Material handling (e.g. manual, powered equipment, lifting devices) 2. User-centered design 3. Human-machine interface 4. Work practice controls (e.g., job rotation, work hardening) 5. Written plans, procedures, and training
<p>Domain 4 Fire Prevention and Protection • 11%</p>
<p>Topic 1 Fire and Explosion Hazards</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Chemical 2. Electrical (e.g., static electricity, surge) 3. Natural hazards (e.g., lightning, flooding, drought) 4. Structural (e.g., combustible, non-combustible) 5. Mechanical (e.g., heat generated by friction) 6. Hot work (e.g., welding, cutting, brazing)
<p>Topic 2 Fire Controls</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Fire Science (e.g., combustible dust fire pentagon, fire triangle, fire tetrahedron) 2. Detection 3. Suppression 4. Segregation and separation (e.g., flammable materials storage, ventilation) 5. Housekeeping 6. Grounding and bonding
<p>Topic 3 Fire and Emergency Management</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Written plans, procedures, and work practices (e.g., Incident Command system, fire brigade) 2. Life safety (e.g., elements of design)
<p>Domain 5 Occupational Health • 11%</p>
<p>Topic 1 Biological Hazards and Controls</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Sources (e.g., viral, bacterial, parasitic, fungus) 2. Exposure assessment 3. Control strategies

<p>Topic 2 Chemical Hazards and Controls</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Sources (e.g., assessment, control strategies, symptoms, target organs) 2. Exposure limits (e.g., PELs, TLVs, STELs, RELs) 3. Routes of entry (e.g., inhalation, ingestion, absorption, injection) 4. Acute and chronic exposures 5. Incompatibilities and reactivity of agents 6. Nano-technology
<p>Topic 3 Physical Hazards and Controls</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Noise 2. Vibration 3. Radiation 4. Electrical
<p>Domain 6 Environmental Management • 15%</p>
<p>Topic 1 Environmental Hazards</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Disaster preparedness (e.g., manmade, natural) 2. Environmental hazards awareness (e.g., biological [mold], chemical, waste, vermin) 3. Remediation 4. Water (e.g., storm, waste, permitting) 5. Air (e.g., quality, IAQ, permitting) 6. Land and conservation (e.g., solid waste, recycling, sustainability)
<p>Topic 2 Engineering Controls</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Air Pollution 2. Segregation and separation 3. Substitution and selection of alternative design strategies 4. Hazardous materials containment and design 5. Water pollution 6. Above ground (AST) and underground (UST) storage tanks 7. Ventilation (e.g., HVAC, local exhaust) 8. Land pollution
<p>Topic 3 Administrative Controls and Practices</p> <hr/> <p>Knowledge of:</p> <ol style="list-style-type: none"> 1. Conservation (e.g., reuse, recycle, reduce) 2. Housekeeping 3. Warnings (e.g., signs, signals) 4. Written plans, procedures, work practices (e.g., decontamination) 5. Environmental management system standards 6. Sustainability

Topic 4

Hazardous Waste Storage and Disposal

Knowledge of:

1. Transportation (e.g., placarding, manifesting)
2. Storage and documentation
3. Spill prevention, containment, and response
4. Waste removal, treatment and disposal

Domain 7

Training, Education, and Communication • 9%

Topic 1

Training and Education Methods

Knowledge of:

1. Adult learning theory and techniques
2. Data collection, needs analysis, and feedback
3. Behavior and performance modification
4. Presentation tools (e.g., computer based, group meeting)
5. Assessing competency

Topic 2

Communication and Group Dynamics

Knowledge of:

1. Interpersonal communication (e.g., cross generation)
2. Methods of facilitating teams
3. Multidisciplinary teamwork
4. Negotiation strategy
5. Conflict resolution
6. Mentoring