EXAMINATION BLUEPRINT CHANGES

Every five years, or more often if necessary, BCSP revalidates all certification examinations. During the revalidation process a new blueprint is created that reflects the consensus of the profession as to the key elements a minimally qualified candidate must possess to be deemed competent.

The Associate Safety Professional® (ASP®) examination began its revalidation process in 2024 and a new blueprint was generated. The following is a synopsis of the changes:

- Overall, most of the concepts identified in the current blueprint carried over to the new blueprint; however, there was content added or redefined in each domain, leading to a more detailed blueprint overall.
- In Domain 1, the title of the domain has changed; however, the content was mostly retained. The statements now focus on the calculations that would be associated with the topics rather than the previously used broader wording.
- Domain 2 also saw a title change; however, the biggest change was the addition of understanding safety management systems for development of programs and awareness of emerging technology. More subtle was the change to "implementing hazardous energy control programs" as opposed to "control of hazardous energy" and the shift to facilitating incident investigations rather than conducting.
- In Domain 3, while the content of this domain has been retained, its format is slightly different, breaking down the concepts into a more logical flow, starting with the elements of an ergonomics plan, identifying risk factors, and then applying related principles.
- In Domain 4, there were two minor additions: identifying fire extinguisher types and selecting appropriate fire prevention signs and labels.
- For Domain 5, the previous content is again still present; however, significant additions have been made, including the addition of the elements of emergency response planning, risks associated with specific sources of emergency, elements of disaster response and recovery, and lone worker safety.
- The content of Domain 6 was expanded to include fundamental requirements of industrial hygiene programs, general chemistry concepts, general human anatomy, Total Worker Health®, and fitness for duty (previously in Domain 3).
- Domain 7 saw the fewest changes with the addition of environmental, social, and governance (ESG).
- In Domain 8, assessing training effectiveness and knowledge retention, understanding and identifying human risk factors affecting performance, and understanding requirements for and differences between competent and qualified persons were added.
- The focus of Domain 9 has shifted and now includes expanded expectations around legal liability, contract management, record control, and risk transfer (previously in Domain 2).

As would be expected with the content changes seen in each domain, the percentage weights have also shifted with most of the domains seeing a small increase or decrease. Domain 2, however, saw the largest increase, from 17% on the current blueprint to 25% on this new blueprint.

The new ASP blueprint will go into effect on September 1, 2025.

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ASP® EXAMINATION BLUEPRINT
ASP11

Domain 1
Mathematical Calculations • 10%

1. Calculate storage capacity
2. Perform rigging and load calculations
3. Calculate flow rates (e.g., ventilation, hydraulic, pneumatic)
4. Calculate slope angle and depth ratio for trenching and excavation
5. Calculate noise hazards (e.g., Time-Weighted Average [TWA], dual machinery, noise reduction rates)
6. Calculate climate and environmental conditions (e.g., ambient temperature, wind chill, heat index)
7. Calculate fall protection parameters (e.g., free-fall distance, maximum arresting force, force of impact, total fall distance, clearance)
8. Calculate lagging indicators (e.g., incidence rates, lost time, direct costs of incidents)
9. Calculate manual lift parameters (i.e., NIOSH lifting equation)
10. Perform general physics calculations (e.g., force, acceleration, velocity, momentum, friction)
11. Calculate descriptive statistics (e.g., central tendency, variability, probability, standard deviation)
12. Calculate probability of failure mode
13. Calculate financial indicators (e.g., cost-benefit analysis, cost of risk, life cycle cost, return on investment, effects of losses)
14. Conduct exposure assessments (e.g., biological, chemical, Threshold Limit Value [TLV], Short-Term Exposure Limits [STEL], Time-Weighted Average [TWA])
15. Calculate radiation exposure (e.g., shielding, half-life, dosage)
16. Perform unit conversions (e.g., metric/imperial units)

Domain 2
Safety Programs and Concepts • 25%

1. Understand safety management systems for development of programs (e.g., ISO 45001, ANSI Z10.0)
2. Apply the hierarchy of hazard controls
3. Apply appropriate hazard and risk analysis methods (e.g., hazard analysis, failure modes and effects analysis, fault tree analysis, fishbone, what-if and checklist analysis, change analysis)
4. Apply risk matrix methodology for ranking and mitigation of risks
5. Implement the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
6. Implement hazardous energy control programs (e.g., electrical, hydraulic, thermal, kinetic, mechanical, magnetic)
7. Understand general electrical principles (e.g., Ohm's Law, power, impedance, energy, resistance, circuits)
8. Understand the key safety fundamentals of:
   a. Trenching and excavations
   b. Working at heights
   c. Slips, trips, and falls
   d. Machine guarding
   e. Powered industrial trucks
   f. Hoisting and rigging
   g. Scaffolding
   h. Process safety
   i. Confined spaces
   j. Fleet and driver safety
   k. Personal protective equipment (PPE)
   l. Compressed gasses/pressure vessels
9. Facilitate incident investigations (e.g., root causes, contributing factors, data collection, analysis, chain of custody, high risk incidents)
10. Understand key concepts regarding management of change
11. Interpret leading and lagging indicators
12. Have awareness of emerging technologies (e.g., data mining, robotics, drones, artificial intelligence)

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Domain 3
Ergonomics • 8%

1. Understand elements of an ergonomics program
2. Identify ergonomic risk factors
   a. Repetition
   b. Force
   c. Awkward/static postures
   d. Other stressors (e.g., contact, vibration, lighting, temperature conditions)
3. Define work-related musculoskeletal ergonomic injuries
4. Apply ergonomic principles for workspace design (e.g., in-office, remote, field, assembly station, bench/hood)
5. Apply ergonomic principles to manual material handling (e.g., safe lifting)
6. Identify ergonomic work practice controls (e.g., exoskeleton, job rotation, early symptom intervention)
7. Identify ergonomic qualitative and quantitative analysis methods (e.g., NIOSH Lifting Equation, anthropometry, Rapid Entire Body Assessment [REBA], Rapid Upper Limb Assessment [RULA])

Domain 4
Fire Prevention and Protection • 12%

1. Understand the fundamentals of fire science (e.g., classification, fire pentagon/tetrahedron, upper and lower explosive/flammable limits)
2. Understand flammable and combustible materials (e.g., chemical and physical properties, handling, compatibility)
3. Understand electrical hazards and applicable hazard controls:
   a. Electrostatic discharge
   b. Overcurrent protection
   c. Arc flash
   d. Ground fault circuit interrupter
   e. Grounding and bonding
   f. Hazardous area classifications (e.g., NFPA classifications, non-intrinsically safe)
4. Understand hazards during hot work operations
5. Identify combustible dust hazards (e.g., conflagration, sources of ignition)
6. Understand fire detection systems
7. Understand fire suppression systems
8. Identify fire extinguisher types, use, and requirements
9. Understand segregation and separation (e.g., flammable materials storage and ventilation)
10. Apply effective housekeeping practices (e.g., dust control, disposal of combustibles)
11. Select appropriate fire prevention signs and labels

Domain 5
Emergency Preparedness and Response • 10%

1. Understand the elements of an emergency response plan
2. Identify the risks associated with the following sources of emergencies and disasters:
   a. Natural
   b. Human
   c. Biological (e.g., pandemic, bioterrorism)
3. Understand the key elements of preparing for an emergency (e.g., drills, worksite security, evacuation routes, life safety, medical/first aid)
4. Identify the elements of disaster response and recovery (e.g., incident command, business continuity)
5. Identify the key elements of a workplace violence prevention program
6. Understand safety considerations for lone workers

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Domain 6

Industrial Hygiene and Occupational Health • 12%

1. Understand fundamental requirements of industrial hygiene programs (e.g., hearing conservation, respiratory protection, medical surveillance)
2. Understand general chemistry concepts (e.g., classification, composition, nomenclature, neutralization, reactions, ideal gas law, pH levels)
3. Understand general human anatomy and physiology related to occupational exposures
4. Identify and assess the sources, sampling, control strategies, symptoms, and target organs related to exposure hazards:
   a. Physical (e.g., noise, ionizing radiation, non-ionizing radiation, heat/cold stress, vibration, light, respirable dust, nanoscale)
   b. Chemical (e.g., asphyxiants, corrosives, reactive, irritants, sensitizers, carcinogens, mutagens, teratogens)
   c. Biological (e.g., viral, bacterial, parasitic, fungus, mold)
5. Understand and differentiate among the types of occupational exposure limits (e.g., Short-Term Exposure Limits [STEL], Time-Weighted Average [TWA], Immediately Dangerous to Life or Health [IDLH], Ceiling)
6. Understand the routes of entry for hazardous substances
7. Understand and differentiate between acute and chronic exposures
8. Apply universal precautions for the control of pathogens (e.g., bloodborne, viral, bacterial)
9. Understand general ionizing radiation principles (e.g., decay, half-life, source strength, concentration, inverse square law)
10. Understand requirements for fitness for duty and return to work
11. Define key aspects of Total Worker Health®

Domain 7

Environmental Management • 7%

1. Understand environmental hazards (e.g., biological, chemical, waste, radon)
2. Understand environmental impacts and best practices (e.g., spill/release, conservation), related to:
   a. Water (e.g., drainage, waste)
   b. Air (e.g., quality, carbon footprint)
   c. Land (e.g., solid waste, recycling, soil)
3. Understand the hierarchy of conservation (e.g., reduce/reuse/recycle, waste energy)
4. Understand environmental management system standards for development of programs (e.g., ISO 14001)
5. Understand waste removal, treatment, classification, labeling, certification, and disposal
6. Understand the EHS role in environmental, social, and governance (ESG)

Domain 8

Training, Education, and Communication • 11%

1. Apply appropriate learning theory and techniques
2. Use appropriate training tools (e.g., instructor-led, computer-based, group meeting, virtual)
3. Understand how to create a positive safety culture (e.g., open feedback, effective communication, psychological safety, emotional intelligence)
4. Facilitate data collection, needs analysis, gap analysis, and feedback
5. Define baseline competency to determine training needs
6. Assess training effectiveness and knowledge retention
7. Understand and identify human risk factors affecting performance (e.g., behavior, decision making, situation awareness, workload management, risk perception, stress)
8. Understand the requirements for and differences between competent and qualified persons

Domain 9

Legal • 5%

1. Understand compliance requirements and legal liability of safety professional practices (e.g., audits, sampling, reporting, procedural review)
2. Understand legal liability regarding contractor management and multi-employer worksites
3. Understand contract terminology and contract management lifecycle
4. Understand records control (e.g., retention, chain-of-custody, worker privacy)
5. Determine appropriate actions based on knowledge and scope limitations (e.g., cybersecurity, insurance, legal)
6. Understand the principles of risk transfer (e.g., outsourcing, insurance)
7. Understand liabilities relating to worker impairment (e.g., drugs, alcohol, fatigue, stress)

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