

COMPREHENSIVE PRACTICE EXAMINATION BLUEPRINT

BCSP examination blueprints are based on surveys of what safety professionals do in practice. The Comprehensive Practice examination is required for candidates to demonstrate knowledge of professional safety practice at the Certified Safety Professional® (CSP®) level. The table beginning below and continuing on the next several pages describes the subject matter covered by the Comprehensive Practice examination.

The top three levels, called domains, represent the major functions performed by safety professionals at the CSP level. Each domain is divided among several tasks. Within each task are lists of knowledge areas and skills necessary for carrying out the task in that domain. The knowledge areas for the Comprehensive Practice examination build upon the knowledge that candidates have already demonstrated by virtue of having passed the Safety Fundamentals examination, or by virtue of having earned one or more allied credentials or university degrees recognized by BCSP.

Each domain heading in this table is accompanied by a percentage label. This percentage represents the proportion of the actual Comprehensive Practice examination devoted to that domain.

<p>Comprehensive Practice Examination Domain 1 <i>Collecting Safety, Health, Environmental, and Security Risk Information</i> 28.6%</p>
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Task 1

Identify and characterize hazards, threats, and vulnerabilities using equipment and field observation methods in order to evaluate safety, health, environmental, and security risk.

Knowledge Areas

1. Types, sources, and characteristics of hazards, threats, and vulnerabilities
2. Job safety analysis and task analysis methods
3. Hazard analysis methods
4. Qualitative, quantitative, deductive, and inductive risk assessment methods
5. Incident investigation techniques
6. Methods and techniques for evaluating facilities, products, systems, processes, and equipment
7. Methods and techniques for measurement, sampling, and analysis
8. Sources of information on hazards, threats, and vulnerabilities (e.g., subject matter experts, relevant best practices, published literature)
9. Competencies of other professionals with whom the safety professional interacts
10. Information security and confidentiality requirements
11. Internet resources

Skills

1. Identifying hazards associated with equipment, manufacturing systems, and production processes
2. Recognizing external and internal threats to facilities, systems, processes, equipment, and employees
3. Conducting job safety analyses and task analyses
4. Performing hazard analyses
5. Leading incident investigations
6. Interviewing witnesses to incidents
7. Interpreting plans, specifications, technical drawings, and process flow diagrams
8. Using monitoring and sampling equipment
9. Communicating with subject matter experts
10. Consulting with equipment manufacturers and commodity suppliers
11. Finding sources of information on hazards, threats, and vulnerabilities
12. Interviewing people
13. Using the Internet to find information

Task 2

Design and use data management systems for collecting and validating risk information in order to evaluate safety, health, environmental, and security risk.

Knowledge Areas

1. Mathematics and statistics
2. Qualitative, quantitative, deductive, and inductive risk assessment methods
3. Chain of custody procedures
4. Electronic data logging and monitoring equipment
5. Data management software
6. Electronic data transfer methods and data storage options
7. Information security and confidentiality requirements

Skills

1. Calculating statistics from data sources
2. Determining statistical significance
3. Comparing statistics to benchmarks
4. Preserving evidence from incident investigations
5. Calibrating and using data logging and monitoring equipment
6. Using data management software
7. Creating data collection forms
8. Maintaining data integrity

Task 3

Collect and validate information on organizational risk factors by studying culture, management style, business climate, financial conditions, and the availability of internal and external resources in order to evaluate safety, health, environmental, and security risk.

Knowledge Areas

1. Mathematics and statistics
2. Qualitative, quantitative, deductive, and inductive risk assessment methods
3. Incident investigation techniques
4. Sources of information on hazards, threats, and vulnerabilities (e.g., subject matter experts, relevant best practices, published literature)
5. Organizational and behavioral sciences
6. Group dynamics
7. Management sciences
8. Management principles of authority, responsibility, and accountability
9. Budgeting, finance, and economic analysis techniques
10. Business planning
11. Competencies of other professionals with whom the safety professional interacts
12. Internet resources

Skills

1. Calculating statistics from data sources
2. Determining statistical significance
3. Comparing statistics to benchmarks
4. Leading incident investigations
5. Interviewing witnesses to incidents
6. Developing surveys to capture data related to organizational culture
7. Communicating with subject matter experts
8. Interviewing people
9. Using the Internet to find information

Task 4

Research applicable laws, regulations, consensus standards, best practices, and published literature using internal and external resources to develop benchmarks for assessing an organization's safety, health, environmental, and security performance and to support the evaluation of safety, health, environmental, and security risk.

Knowledge Areas

1. Benchmarks and performance standards
2. Mathematics and statistics
3. Sources of information on hazards, threats, and vulnerabilities (e.g., subject matter experts, relevant best practices, published literature)
4. Sources of information related to local laws, regulations, and consensus codes and standards
5. Product certification and listing agencies
6. Qualitative, quantitative, deductive, and inductive risk assessment methods
7. Competencies of other professionals with whom the safety professional interacts
8. Internet resources

Skills

1. Calculating statistics from data sources
2. Determining statistical significance
3. Using statistics to define benchmarks and performance standards
4. Comparing statistics to benchmarks
5. Interpreting local laws, regulations, and consensus codes and standards
6. Communicating with subject matter experts
7. Consulting with equipment manufacturers and commodity suppliers
8. Obtaining information on product certification and listing requirements
9. Using the Internet to find information

Comprehensive Practice Examination Domain 2

Assessing Safety, Health, Environmental, and Security Risk

36.6%

Task 1

Evaluate the risk of injury, illness, environmental harm, and property damage to which the public or an organization is exposed associated with the organization's facilities, products, systems, processes, equipment, and employees by applying quantitative and qualitative threat, vulnerability, and risk assessment techniques.

Knowledge Areas

1. Qualitative, quantitative, deductive, and inductive risk assessment methods
2. Root cause analysis methods
3. Mathematics and statistics
4. Basic sciences: anatomy, biology, chemistry, physics, physiology
5. Applied sciences: fluid flow, mechanics, electricity
6. Organizational and behavioral sciences
7. Agriculture safety (including food supply safety)
8. Biological safety
9. Business continuity and contingency planning
10. Chemical process safety
11. Community emergency planning
12. Construction safety
13. Dispersion modeling
14. Emergency/crisis/disaster management
15. Emergency/crisis/disaster response planning
16. Environmental protection and pollution prevention
17. Epidemiology
18. Equipment safety
19. Ergonomics and human factors
20. Facility safety
21. Facility security and access control
22. Facility siting and layout
23. Fire prevention, protection, and suppression
24. Hazardous materials management
25. Hazardous waste management
26. Healthcare safety (including patient safety)
27. Industrial hygiene
28. Infectious diseases
29. Insurance/risk transfer principles
30. Maritime safety
31. Mining safety
32. Multi-employer worksite issues
33. Mutual aid agreements
34. Physical and chemical characteristics of hazardous materials
35. Pressure relief systems
36. Product safety
37. Public safety and security
38. Radiation safety
39. System safety
40. Toxicology
41. Transportation safety and security
42. Ventilation systems
43. Workplace violence
44. Sources of information on risk (e.g., subject matter experts, relevant best practices, published literature)
45. Information security and confidentiality requirements

Skills

1. Leading comprehensive risk assessments
2. Leading threat and vulnerability assessments
3. Facilitating chemical process hazard analyses
4. Conducting root cause analyses
5. Estimating organizational risk
6. Estimating public risk
7. Estimating the risk of human error
8. Using statistics to estimate risk
9. Interpreting plans, specifications, technical drawings, and process flow diagrams
10. Evaluating facility fire risk
11. Evaluating life safety features in facilities
12. Calculating maximum occupancy and egress capacity
13. Calculating required containment volumes and hazardous materials storage requirements
14. Determining how released hazardous materials migrate through the air, surface water, soil, and water table
15. Determining occupational exposures (e.g., hazardous chemicals, radiation, noise, biological agents, heat)
16. Evaluating emergency/crisis/disaster management and response plans
17. Using chemical process safety information
18. Using dispersion modeling software
19. Communicating with subject matter experts
20. Consulting with equipment manufacturers and commodity suppliers
21. Interviewing people

Task 2

Audit safety, health, environmental, and security management systems using appropriate auditing techniques to compare an organization's management systems against established standards for identifying the organization's strengths and weaknesses.

Knowledge Areas

1. Safety, health, and environmental management and audit systems (e.g., ANSI/AIHA Z10, ISO 14000 series, OHSAS 18000 series, ISO 19011, U.S. Occupational Safety and Health Administration Voluntary Protection Programs)
2. Management system auditing techniques
3. Benchmarks and performance standards
4. Methods and techniques for evaluating facilities, products, systems, processes, and equipment
5. Methods and techniques for measurement, sampling, and analysis
6. Qualitative, quantitative, deductive, and inductive risk assessment methods
7. Root cause analysis methods
8. Mathematics and statistics
9. Basic sciences: anatomy, biology, chemistry, physics, physiology
10. Applied sciences: fluid flow, mechanics, electricity
11. Organizational and behavioral sciences
12. Management sciences
13. Management principles of authority, responsibility, and accountability
14. Budgeting, finance, and economic analysis techniques
15. Business continuity and contingency planning
16. Business planning
17. Business software
18. Change management
19. Emergency/crisis/disaster management
20. Emergency/crisis/disaster response planning
21. Group dynamics
22. Hazardous materials management
23. Hazardous waste management
24. Job safety analysis and task analysis methods
25. Multi-employer worksite issues
26. Report presentation strategies
27. Competencies of other professionals with whom the safety professional interacts
28. Sources of information on hazards, threats, and vulnerabilities (e.g., subject matter experts, relevant best practices, published literature)
29. Information security and confidentiality requirements
30. Internet resources

Skills

1. Leading management system audits
2. Comparing management systems with benchmarks
3. Comparing documented procedures and tasks with actual operations
4. Evaluating safety, health, environmental, and security plans, programs, and policies
5. Evaluating risk assessments
6. Evaluating the results of root cause analyses
7. Recognizing external and internal threats to facilities, systems, processes, equipment, and employees
8. Interpreting plans, specifications, technical drawings, and process flow diagrams
9. Recognizing management system changes
10. Using monitoring and sampling equipment
11. Determining statistical significance
12. Comparing statistics to benchmarks
13. Performing facility and equipment inspections
14. Evaluating business continuity and contingency plans
15. Communicating with subject matter experts
16. Consulting with equipment manufacturers and commodity suppliers
17. Using business software to present reports
18. Interviewing people
19. Using the Internet to find information

Task 3

Analyze trends in leading and lagging performance indicators related to safety, health, environmental, and security management systems using historical information and statistical methods to identify an organization's strengths and weaknesses.

Knowledge Areas

1. Types of leading and lagging safety, health, environmental, and security performance indicators
2. Benchmarks and performance standards
3. Safety, health, and environmental management and audit systems (e.g., ANSI/AIHA Z10, ISO 14000 series, OHSAS 18000 series, ISO 19011, U.S. Occupational Safety and Health Administration Voluntary Protection Programs)
4. Management system auditing techniques
5. Mathematics and statistics
6. Organizational and behavioral sciences
7. Management sciences
8. Management principles of authority, responsibility, and accountability
9. Budgeting, finance, and economic analysis techniques
10. Business planning
11. Business software
12. Change management
13. Competencies of other professionals with whom the safety professional interacts
14. Training assessment instruments (e.g., written tests, skill assessments)

Skills

1. Using statistics to show trends in performance indicators
2. Calculating statistics from data sources
3. Using statistics to define benchmarks and performance standards
4. Communicating with subject matter experts
5. Comparing statistics to benchmarks
6. Determining statistical significance
7. Evaluating management system audits
8. Evaluating risk assessments
9. Evaluating safety, health, environmental, and security plans, programs, and policies
10. Evaluating the results of root cause analyses
11. Interpreting organizational culture surveys and perception surveys
12. Measuring training program effectiveness
13. Recognizing management system changes
14. Using business software to present reports
15. Interviewing people
16. Obtaining meaningful feedback

Comprehensive Practice Examination Domain 3

Managing Safety, Health, Environmental, and Security Risk

34.8%

Task 1

Design effective risk management methods using the results of risk assessments to eliminate or reduce safety, health, environmental, and security risks.

Knowledge Areas

1. Engineering controls
2. Principles of managing risk throughout the design process
3. Administrative controls
4. Personal protective equipment
5. Qualitative, quantitative, deductive, and inductive risk assessment methods
6. Root cause analysis methods
7. Risk-based decision-making tools
8. Mathematics and statistics
9. Applied sciences: fluid flow, mechanics, electricity
10. Basic sciences: anatomy, biology, chemistry, physics, physiology
11. Organizational and behavioral sciences
12. Management sciences
13. Management principles of authority, responsibility, and accountability
14. Budgeting, finance, and economic analysis techniques
15. Business planning
16. Business software
17. Adult learning
18. Cultural norms and population stereotypes
19. Training methods
20. Training assessment instruments (e.g., written tests, skill assessments)
21. Agriculture safety (including food supply safety)
22. Biological safety
23. Business continuity and contingency planning
24. Change management
25. Chemical process safety
26. Community emergency planning
27. Construction safety
28. Education and training methods
29. Emergency/crisis/disaster management
30. Emergency/crisis/disaster response planning
31. Employee assistance programs
32. Employee/stakeholder incentive programs
33. Environmental protection and pollution prevention
34. Epidemiology
35. Equipment safety
36. Ergonomics and human factors
37. Facility safety
38. Facility security and access control
39. Facility siting and layout
40. Fire prevention, protection, and suppression
41. Hazardous materials management
42. Hazardous waste management
43. Healthcare safety (including patient safety)
44. Incident command methods
45. Industrial hygiene
46. Infectious diseases
47. Insurance/risk transfer principles
48. Labels, signs, and warnings (including international symbols)
49. Maritime safety
50. Mining safety
51. Multi-employer worksite issues
52. Mutual aid agreements
53. Physical and chemical characteristics of hazardous materials

Skills

1. Recommending effective engineering controls
2. Developing effective administrative controls
3. Developing procedures that incorporate risk management controls
4. Developing safety, health, environmental, and security plans, programs, and policies
5. Designing effective labels, signs, and warnings
6. Performing training needs assessments
7. Developing training programs
8. Developing training assessment instruments
9. Applying risk-based decision-making tools for prioritizing risk management options
10. Interpreting plans, specifications, technical drawings, and process flow diagrams
11. Creating emergency/crisis/disaster management and response plans
12. Performing financial analyses of risk management options
13. Evaluating the costs and benefits of risk management options
14. Organizing chemical process safety information
15. Performing gap analyses
16. Determining hazardous materials storage requirements
17. Recommending facility life safety features
18. Recommending methods to reduce the risk of occupational exposures (e.g., hazardous chemicals, radiation, noise, biological agents, heat)
19. Reducing the risk of error-likely situations
20. Selecting appropriate personal protective equipment
21. Using sampling and measurement devices
22. Using statistics to understand risk
23. Using the results of risk assessments to support risk management options
24. Using the results of root cause analyses to support risk management options
25. Communicating with subject matter experts
26. Consulting with equipment manufacturers and commodity suppliers
27. Interviewing people

Task 1 (CONTINUED)

Design effective risk management methods using the results of risk assessments to eliminate or reduce safety, health, environmental, and security risks.

Knowledge Areas (CONTINUED)

54. Pressure relief systems
55. Product safety
56. Public safety and security
57. Radiation safety
58. System safety
59. Toxicology
60. Transportation safety and security
61. Ventilation systems
62. Workplace violence
63. Competencies of other professionals with whom the safety professional interacts
64. Sources of information on risk management options (e.g., subject matter experts, relevant best practices, published literature)

Task 2

Educate and influence decision makers to adopt effective risk management methods by illustrating the business-related benefits associated with implementing them to eliminate or reduce safety, health, environmental, and security risks.

Knowledge Areas

1. Risk-based decision-making tools
2. Budgeting, finance, and economic analysis techniques
3. Business planning
4. Business software
5. Education and training methods
6. Interpersonal communications
7. Mathematics and statistics
8. Organizational and behavioral sciences
9. Management sciences
10. Management principles of authority, responsibility, and accountability
11. Organizational protocols
12. Presentation media and technologies
13. Presentation strategies
14. Project management concepts
15. Target audience background

Skills

1. Applying risk-based decision-making tools for prioritizing risk management options
2. Creating plans for implementing risk management options
3. Describing the costs and benefits of risk management options
4. Describing the effects of implementing safety, health, and environmental plans, programs, and policies
5. Describing trends to support risk management options
6. Explaining risk management options to decision makers
7. Making presentations to decision makers
8. Presenting financial analyses of risk management options
9. Recognizing changes needed in management systems
10. Using statistics to explain the effects of risk management options
11. Using the results of risk assessments to support risk management options
12. Using the results of root cause analyses to support risk management options

Task 3

Lead projects to implement the risk management methods adopted by decision makers using internal and external resources to eliminate or reduce safety, health, environmental, and security risks.

Knowledge Areas

1. Project management concepts
2. Management sciences
3. Management principles of authority, responsibility, and accountability
4. Methods of achieving project stakeholder acceptance of project goals
5. Financial management principles
6. Schedule management principles
7. Risk-based decision-making tools
8. Organizational and behavioral sciences
9. Business software
10. Project management software
11. Change management
12. Group dynamics
13. Interpersonal communications
14. Methods of facilitating teamwork
15. Organizational protocols
16. Presentation media and technologies
17. Presentation strategies
18. Principles of supervising people
19. Competencies of other professionals with whom the safety professional interacts

Skills

1. Implementing project management plans
2. Applying management principles of authority, responsibility, and accountability
3. Using project management software
4. Developing systems to track project implementation
5. Leading people
6. Leading teams
7. Making presentations to stakeholders
8. Motivating project stakeholders
9. Resolving conflicts
10. Supervising people
11. Communicating with subject matter experts
12. Consulting with equipment manufacturers and commodity suppliers
13. Interviewing people

Task 4

Promote a positive organizational culture that is conscious of its safety, health, environmental, and security responsibilities by communicating these responsibilities to all stakeholders and by training all stakeholders as part of the organization's overall risk management program.

Knowledge Areas

1. Management sciences
2. Management principles of authority, responsibility, and accountability
3. Methods of achieving project stakeholder acceptance of project goals
4. Organizational and behavioral sciences
5. Organizational protocols
6. Cultural norms and population stereotypes
7. Group dynamics
8. Interpersonal communications
9. Labels, signs, and warnings (including international symbols)
10. Multi-employer worksite issues
11. Organized labor/management relations
12. Presentation media and technologies
13. Presentation strategies
14. Protocols for public announcements
15. Public communication techniques
16. Risk communication techniques
17. Stakeholder participation committees
18. Target audience background
19. Adult learning
20. Education and training methods
21. Behavior modification techniques
22. Training methods
23. Training assessment instruments (e.g., written tests, skill assessments)
24. Business communication software
25. Competencies of other professionals with whom the safety professional interacts
26. Standards development processes
27. Information security and confidentiality requirements

Skills

1. Explaining risk concepts to stakeholders and the public
2. Explaining risk management options to stakeholders and the public
3. Applying management principles of authority, responsibility, and accountability
4. Encouraging participation in risk management processes
5. Influencing stakeholder behavior
6. Developing and using lesson plans
7. Conducting training
8. Administering training assessment instruments
9. Providing an effective learning environment
10. Delivering motivational presentations
11. Creating motivational literature
12. Facilitating stakeholder participation committees
13. Giving public announcements
14. Interacting with journalists and the media
15. Making presentations to stakeholders and the public
16. Negotiating with political entities
17. Resolving conflicts
18. Soliciting stakeholder feedback
19. Working with organized labor unions and management
20. Motivating stakeholders
21. Leading people
22. Leading teams
23. Exchanging information over the Internet
24. Communicating with subject matter experts
25. Interviewing people
26. Providing input in standards development activities

