

## BCSP EXAMINATION BLUEPRINTS

The BCSP examination blueprints are based on surveys of what safety professionals do in practice. The table below provides the details. The top levels, called domains, represent major functions that safety professionals perform. Within each domain are responsibilities. For each responsibility, there is a list of knowledge and skills required to carry out this responsibility.

The same domains, responsibilities, knowledge, and skills apply to both Safety Fundamentals and Comprehensive Practice examinations. They differ somewhat in the portion of items applicable to each domain. The main difference between the two examinations is that the Safety Fundamentals examination measures basic knowledge required for practice, while the Comprehensive Practice examination tests applied knowledge and the application of experience gained through professional safety practice.

<b>DOMAIN 1</b> <b>Safety, Health, and Environmental Management</b> <i>(Safety Fundamentals - 37% • Comprehensive Practice - 34%)</i>	
<b>Responsibility 1</b> Design comprehensive management systems by defining requirements and developing policies, procedures, and programs to protect people, property, and the environment.	
<p style="text-align: center;"><b>Knowledge</b></p> <ol style="list-style-type: none"> <li>1. Statutory and case law regulating safety, health and the environment</li> <li>2. Operational process to design/develop safe work practices</li> <li>3. Material process flow</li> <li>4. Safety, health and environmental sciences</li> <li>5. Design of hazard control systems (i.e., fall protection, scaffolding)</li> <li>6. Design of recordkeeping systems that allow for collection, storage, interpretation, and dissemination</li> <li>7. Mathematics and statistics</li> <li>8. Methods and techniques for achieving safety through design</li> <li>9. Methods and techniques for accident investigation</li> <li>10. Property protection (physical and intellectual) and security</li> <li>11. Organizational theory and behavioral science</li> </ol>	<p style="text-align: center;"><b>Skills</b></p> <ol style="list-style-type: none"> <li>1. Interpreting and applying regulations</li> <li>2. Applying inspection and control methods for potentially hazardous exposure</li> <li>3. Mathematical and statistical analysis</li> <li>4. Analyzing production process hazards</li> <li>5. Designing safe work practices for systems, facilities, and equipment</li> <li>6. Interpreting and applying safety, health, and environmental science data for process improvement</li> <li>7. Interpersonal communication</li> <li>8. Problem solving in incident investigation</li> <li>9. Integrating safety system into the organizational culture</li> <li>10. Designing effective training programs with emphasis on employee behavior</li> </ol>
<b>Responsibility 2</b> Implement policies, procedures, and programs through management systems to protect people, property, and the environment.	
<p style="text-align: center;"><b>Knowledge</b></p> <ol style="list-style-type: none"> <li>1. Organization theory and behavioral science</li> <li>2. Education and training methods</li> <li>3. Basic sciences: chemistry, biology, physics, physiology, and anatomy</li> <li>4. Safety, health, and environmental sciences</li> </ol>	<p style="text-align: center;"><b>Skills</b></p> <ol style="list-style-type: none"> <li>1. Interpersonal communication</li> <li>2. Teaching and training in safety, health, and environmental science areas and how they apply to the management system</li> <li>3. Using basic science to explain safety, health, and environmental issues</li> <li>4. Developing systems to track implementation</li> <li>5. Ensuring that delegation of authority and responsibility are in compliance with the management system design</li> </ol>
<b>Responsibility 3</b> Determine the effectiveness of management systems by measuring and evaluating performance indicators to ensure continuous improvement in the protection of people, property, and the environment.	
<p style="text-align: center;"><b>Knowledge</b></p> <ol style="list-style-type: none"> <li>1. Quantitative and qualitative performance indicators</li> <li>2. Mathematics and statistics</li> <li>3. Basic sciences: chemistry, biology, physics, physiology and anatomy</li> <li>4. Safety, health, and environmental issues</li> <li>5. Management and behavioral sciences</li> <li>6. Laws, standards, and regulations</li> <li>7. Safety management systems</li> <li>8. Education and training methods</li> <li>9. Auditing techniques and management systems reviews</li> </ol>	<p style="text-align: center;"><b>Skills</b></p> <ol style="list-style-type: none"> <li>1. Applying safety, health, and environmental knowledge to determine system effectiveness</li> <li>2. Mathematical and statistical analysis</li> <li>3. Applying management and behavioral science to determine system effectiveness</li> <li>4. Interpreting regulations to ensure a compliant and effective system</li> <li>5. Using interpersonal communication</li> <li>6. Using accepted system safety techniques to compare system to industry/consensus systems</li> <li>7. Sampling and making observations</li> <li>8. Improving policies and procedures</li> </ol>

**Responsibility 4**

Implement risk management strategies by using the results of hazard identification and risk analyses to eliminate and/or reduce harmful exposures to people, property, and the environment.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. Laws, standards, and regulations</li> <li>2. Processing operations (e.g., critical inputs, assessment, and inventory)</li> <li>3. Mathematics and statistics</li> <li>4. Insurance practices (types and premium calculations)</li> <li>5. Industrial hygiene, including chemical, physical and biological agents</li> <li>6. Safety engineering</li> <li>7. Safety management</li> <li>8. Fire prevention and protection, including life safety</li> <li>9. Construction safety</li> <li>10. Education and training methods</li> <li>11. Ergonomics program management</li> <li>12. Transportation/fleet safety management</li> <li>13. Workers' compensation and case management</li> <li>14. Risk management concepts</li> <li>15. Crisis management</li> <li>16. Post-incident and loss mitigation</li> <li>17. Behavior modification</li> <li>18. Safety through design process</li> </ol>	<ol style="list-style-type: none"> <li>1. Interpreting laws, standards, and regulations</li> <li>2. Mathematical and statistical analysis</li> <li>3. Analyzing process flow, management of critical paths/systems</li> <li>4. Quantifying loss data and trends</li> <li>5. Analyzing sampling results and other data to support decision making and prioritizing control recommendations</li> <li>6. Organizing the results and recommendations into an effective training program</li> <li>7. Managing safety through the design processes</li> </ol>

**Responsibility 5**

Apply sound business practices and economic principles for efficient use of resources to increase the value of the safety processes.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. Business regulations and laws</li> <li>2. Economics, accounting, and statistics</li> <li>3. Process management, material flow, and procurement</li> <li>4. Personnel development techniques</li> <li>5. Insurance practices (types and premium calculations)</li> <li>6. Drug/alcohol programs, including employee assistance programs</li> <li>7. Capital budgeting and long-range planning</li> </ol>	<ol style="list-style-type: none"> <li>1. Writing job descriptions that include safety accountability as a line item</li> <li>2. Quantifying the economic value of the safety process</li> <li>3. Determining the most appropriate drug and alcohol testing programs</li> <li>4. Acquiring, allocating, and controlling human and material resources</li> <li>5. Using performance evaluations to quantify the effectiveness of employee programs</li> <li>6. Applying project controls (budgeting, scheduling, estimating) to maximize system efficiency</li> <li>7. Using capital budgeting techniques, activity-based cost accounting, and cost-benefit analysis</li> </ol>

**Responsibility 6**

Encourage participation through communication and other methods to ensure that all stakeholders (e.g., employees, managers, vendors, contractors) have an understanding and an active role in the formulation and implementation of safety processes.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. Communication and presentation techniques</li> <li>2. Organizational theory and behavioral science</li> <li>3. Laws, standards, and regulations that require employee participation</li> <li>4. Economics and budgeting</li> <li>5. Management principles</li> <li>6. Employee participation committees</li> <li>7. Labor relations, including union/management committees</li> </ol>	<ol style="list-style-type: none"> <li>1. Communication and presentation</li> <li>2. Organizational development</li> <li>3. Interpreting and applying laws, standards, and regulations</li> <li>4. Problem solving</li> <li>5. Behavior modification techniques</li> <li>6. Using capital budgeting techniques, activity-based cost accounting, and cost-benefit analysis</li> <li>7. Implementing employee participation committees</li> <li>8. Working with unions and management</li> </ol>

**DOMAIN 2**  
**Safety, Health, and Environmental Engineering**  
*(Safety Fundamentals - 25% • Comprehensive Practice - 31%)*

**Responsibility 1**

Evaluate facilities, products, systems, equipment, workstations, and processes by applying qualitative and quantitative techniques to identify the hazards and assess the associated risks.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. Methods and techniques for evaluation of facilities, products, systems, equipment, workstations, and processes</li> <li>2. Methods and techniques for measurement, sampling, and analysis</li> <li>3. Specifications and drawings</li> <li>4. Laws, standards, and regulations</li> <li>5. Risk assessment techniques</li> <li>6. Characteristics and hazards of materials</li> <li>7. Basic sciences: chemistry, biology, physics, physiology, and anatomy</li> <li>8. Applied engineering sciences: electronics, mechanics, thermodynamics, materials, structures, plant layout, etc.</li> <li>9. Industrial hygiene, including chemical, physical, and agents</li> <li>10. Fire protection and prevention, including life safety</li> <li>11. Environmental protection and pollution prevention</li> <li>12. Construction safety</li> <li>13. System safety</li> <li>14. Product safety</li> <li>15. Behavioral sciences</li> <li>16. Education and training methods</li> <li>17. Ergonomics and human factors</li> <li>18. Process safety</li> <li>19. Physical and chemical characteristics of hazardous materials</li> <li>20. Equipment and facility safety requirements</li> </ol>	<ol style="list-style-type: none"> <li>1. Applying methods and techniques for hazard identification, hazard evaluation, risk assessment, and control</li> <li>2. Using analytical equipment: monitoring and sampling equipment</li> <li>3. Interpreting plans, specifications, and drawings</li> <li>4. Interpreting laws, standards, and regulations</li> <li>5. Consulting with subject-matter experts</li> <li>6. Consulting with equipment manufacturers/suppliers and construction contractors to ensure safety control compliance</li> <li>7. Benchmarking with other companies in same industry for safety equipment/facility design, engineering, and controls</li> </ol>

**Responsibility 2**

Recommend controls through design, engineering, and specification to eliminate or reduce the risks posed by safety, health, and environmental hazards.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. Laws, standards, and regulations</li> <li>2. Risk management</li> <li>3. Recordkeeping, data collection, and retrieval systems</li> <li>4. Materials</li> <li>5. Basic sciences: chemistry, biology, physics, physiology, and anatomy</li> <li>6. Applied engineering sciences: electronics, mechanics, thermodynamics, materials, structures, plant layout, etc.</li> <li>7. Industrial hygiene, including chemical, physical, and biological agents</li> <li>8. Fire protection and prevention, including life safety</li> <li>9. Environmental protection and pollution prevention</li> <li>10. Construction safety</li> <li>11. System safety</li> <li>12. Product safety</li> <li>13. Behavioral sciences</li> <li>14. Education and training methods</li> <li>15. Ergonomics and human factors</li> <li>16. Process safety</li> <li>17. Ventilation system</li> <li>18. Procurement</li> </ol>	<ol style="list-style-type: none"> <li>1. Interpreting laws, standards, and regulations</li> <li>2. Applying methods and techniques for hazard identification, hazard evaluation, risk assessment, and control</li> <li>3. Using data collection, retrieval, and analysis systems</li> <li>4. Eliminating or controlling exposure to identified hazards by substitution, engineering, or using personal protective equipment</li> <li>5. Consulting with subject matter experts</li> <li>6. Communicating risks that are present and appropriate control measures to management</li> </ol>

**Responsibility 3**

Evaluate controls by analyzing feasibility, effectiveness, reliability, and cost to achieve the optimal solution.

**Knowledge**

1. Laws, standards, and regulations
2. Methods and techniques for evaluating feasibility, effectiveness, reliability, and cost-benefit
3. Risk assessment
4. Specifications and drawings
5. Data management
6. Industrial hygiene, including chemical, physical, and biological agents
7. Fire protection and protection, including life safety
8. Environmental protection and pollution prevention
9. Construction technology
10. Inspection and auditing techniques
11. System and occupational safety

**Skills**

1. Interpreting laws, standards, and regulations
2. Applying methods and techniques for evaluating feasibility, effectiveness, reliability and cost-benefit
3. Applying economics analysis
4. Interpreting plans, specifications, and drawings
5. Performing compliance and conformance inspections and audits
6. Consulting with subject matter experts
7. Using data collection and retrieval systems
8. Interpreting analytical results
9. Testing and maintaining fire detection and suppression systems

**Responsibility 4**

Obtain compliance certifications, listings, approvals, or authorizations by identifying and meeting applicable national and international laws, regulations, and standards in order to ensure product, process, and facility safety.

**Knowledge**

1. Laws, standards, and regulations
2. Data management
3. Quality assurance and control
4. Documentation protocol
5. Certification requirements
6. Appropriate entities to contact for forms, approval, and certifications

**Skills**

1. Interpreting data
2. Interpreting laws, standards, and regulations
3. Performing quality assurance audits and inspections
4. Using document processing protocols
5. Managing the approval process
6. Consulting with subject matter experts
7. Meeting with federal, state, and local officials

**DOMAIN 3**  
**Safety, Health, and Environmental Information Management and Communications**  
*(Safety Fundamentals - 33% • Comprehensive Practice - 30%)*

**Responsibility 1**

Develop effective training programs by establishing learning objectives to impart knowledge and facilitate an understanding of hazards and controls.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. Adult learning</li> <li>2. Group dynamics</li> <li>3. Technical content</li> <li>4. Needs analysis</li> <li>5. Testing and measurement</li> <li>6. Presentation media and technologies</li> <li>7. Graphic design</li> </ol>	<ol style="list-style-type: none"> <li>1. Applying appropriate lesson plans that include interactive learning (e.g., small exchange, case studies, experience sharing)</li> <li>2. Item/question writing and test construction</li> <li>3. Using presentation technology: hardware and software</li> <li>4. Conducting audience needs assessments</li> <li>5. Facilitating group interactions to maximize learning</li> <li>6. Making effective graphics</li> <li>7. Providing an effective learning environment (e.g., classroom layout, lighting, minimal distraction, etc.)</li> <li>8. Organizing presentations</li> </ol>

**Responsibility 2**

Deliver effective training programs by using media and methods appropriate to the audience to maximize understanding of the subject matter.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. Presentation media</li> <li>2. Adult learning</li> <li>3. Target audience background and informational needs</li> <li>4. Group dynamics</li> <li>5. Active learning techniques</li> <li>6. Conflict resolution techniques</li> </ol>	<ol style="list-style-type: none"> <li>1. Using presentation technology: hardware and software</li> <li>2. Using lesson plans</li> <li>3. Soliciting audience feedback</li> <li>4. Resolving conflicts</li> <li>5. Encouraging participation</li> <li>6. Communicating effectively using verbal and nonverbal skills</li> <li>7. Integrating critical thinking processing into presentations</li> </ol>

**Responsibility 3**

Evaluate training programs through performance assessments and various forms of feedback in order to assure that training is effective.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. Testing and measurement</li> <li>2. Sampling techniques</li> <li>3. Statistical analysis</li> <li>4. Item writing and test construction</li> <li>5. Methods for obtaining feedback</li> </ol>	<ol style="list-style-type: none"> <li>1. Item/question writing and test construction</li> <li>2. Using sampling techniques to assess performance</li> <li>3. Mathematical and statistical analysis</li> <li>4. Gathering feedback</li> </ol>

**Responsibility 4**

Present technical information, both verbally and in writing, to effectively communicate with employees, management, customers, contractors, public relations officials, vendors, and the public.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. Graphic design</li> <li>2. Group dynamics</li> <li>3. English and grammar</li> <li>4. Format for various types of media</li> <li>5. Protocols for public announcements</li> <li>6. Risk assessment techniques</li> <li>7. Legal aspects of communication</li> </ol>	<ol style="list-style-type: none"> <li>1. Using graphics, illustrations, and other media</li> <li>2. Audience dynamics</li> <li>3. Communicating effectively using verbal and nonverbal skills</li> <li>4. Formatting technical papers and other media</li> <li>5. Writing and delivering public announcements</li> <li>6. Applying risk communication strategies</li> <li>7. Writing procedures, policies, standard operating procedures, etc.</li> </ol>

**Responsibility 5**

Communicate hazards, risks, and control measures to employees, management, customers, contractors, vendors, and the public by preparing and delivering appropriate information to educate an organization or the community.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. Legal aspects of communication</li> <li>2. Labeling requirement for products, materials, and equipment</li> <li>3. International symbols</li> <li>4. Symbology (colors, wording, format, presentation)</li> <li>5. Cultural norms and their relationship to communication</li> </ol>	<ol style="list-style-type: none"> <li>1. Creating labels and warnings</li> <li>2. Applying international warnings and symbols</li> <li>3. Applying proper format: color, lighting, placement, etc.</li> <li>4. Integrating cultural norms into communications</li> <li>5. Delivering the information in the language and media appropriate for the audience</li> </ol>

**Responsibility 6**

Develop ongoing relationships with the community by interacting with outside organizations to foster a mutual understanding of the profession and community needs with regard to safety issues.

**Knowledge**

1. Governmental entities and responsibilities
2. Mutual aid agreements
3. Emergency response planning and communication
4. Standards development
5. Sphere of influence

**Skills**

1. Establishing and working within mutual aid agreements
2. Planning and implementing emergency response activities
3. Providing input during standards development
4. Negotiating with political entities

**Responsibility 7**

Maintain a recordkeeping and data capture and retrieval system by using appropriate data management systems to acquire, analyze, and distribute accurate data.

**Knowledge**

1. Recordkeeping and recording requirements (e.g., OSHA, EPA, workers' compensation, hazardous waste permitting and manifesting requirements, DOT)
2. Statistical analysis
3. Computers, data transfer and storage hardware options
4. Data logging and monitoring equipment
5. Business software (e.g., database software)
6. Report development (e.g., training records, accident report forms, inspection forms)
7. Record retention requirements and management protocols, confidentiality, etc.)
8. Data analysis and presentation
9. Chain of custody regarding incident investigation

**Skills**

1. Managing recordkeeping (e.g., OSHA, EPA, workers' compensation, hazardous waste permitting and manifesting requirement requirements, DOT)
2. Mathematical and statistical analysis
3. Using computers, data transfer and storage hardware
4. Using data loggers and monitoring equipment
5. Construction reports and data collection forms
6. Complying with confidentiality requirements
7. Complying with record retention protocols
8. Maintaining data integrity
9. Preserving chain of custody for evidence in incident investigation
10. Calculating accident and incident rates

**Responsibility 8**

Develop and maintain proficiency in professional communication through continuing personal education in the use of business technology.

**Knowledge**

1. Computer software concepts (databases, spreadsheets, word processing)
2. Internet resources
3. Information transfer and storage technologies
4. Information acquisition (data logging) technologies
5. Telecommunications technology

**Skills**

1. Using standard business software
2. Exchanging information via the Internet
3. Using information transfer and storage techniques
4. Using data acquisition equipment
5. Using teleconferencing, e-mail, and other electronic media

**DOMAIN 4**  
**Professional Conduct and Ethics**  
*(Safety Fundamentals - 5% • Comprehensive Practice - 5%)*

**Responsibility 1**

Hold paramount the protection of people, property, and the environment by persistently working with management and governmental agencies until the identified hazard has been eliminated or minimized.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. BCSP Code of Ethics and Professional Conduct</li> <li>2. Organizational protocol</li> <li>3. Conflict resolution techniques</li> <li>4. Formal and informal presentation techniques</li> <li>5. Negotiation procedures</li> <li>6. Laws, standards, and regulations</li> </ol>	<ol style="list-style-type: none"> <li>1. Applying BCSP Code of Ethics and Professional Conduct</li> <li>2. Following organizational protocol</li> <li>3. Resolving conflict</li> <li>4. Communicating effectively using verbal and nonverbal skills</li> <li>5. Negotiating compliance issues with government and other entities or affected parties</li> <li>6. Using laws, standards, and regulations as benchmarks</li> </ol>

**Responsibility 2**

Adhere to standards of professional conduct by limiting practice to areas of competence and avoiding conflicts of interest to minimize the potential for harm.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. BCSP Code of Ethics and Professional Conduct</li> <li>2. General business ethics</li> <li>3. Conflict resolution techniques</li> <li>4. Personal and professional limitations</li> <li>5. Methods of facilitating teamwork</li> <li>6. Competencies of other technical professionals with whom the safety professional interacts</li> <li>7. Consequences of professional errors or omissions</li> <li>8. Elements of a conflict of interest policy</li> <li>9. Laws relating to conflict of interest</li> </ol>	<ol style="list-style-type: none"> <li>1. Applying BCSP Code of Ethics and Professional Conduct</li> <li>2. Applying team building and interpersonal techniques</li> <li>3. Resolving conflicts through negotiation</li> <li>4. Selecting consultants and outside resources and providing adequate support</li> </ol>

**Responsibility 3**

Accept responsibility to promote safety by providing technical counsel and advice on issues related to the safety profession to protect people, property, and the environment.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. BCSP Code of Ethics and Professional Conduct</li> <li>2. Sources safety, health, and environmental literature and other information</li> <li>3. Job authority, responsibility, and accountability</li> <li>4. Professional liability issues</li> <li>5. Conflict resolution</li> </ol>	<ol style="list-style-type: none"> <li>1. Applying BCSP Code of Ethics and Professional Conduct</li> <li>2. Avoiding errors and omissions</li> <li>3. Resolving conflict</li> </ol>

**Responsibility 4**

Conduct professional activities by following organizational protocol to assist in making positive, balanced, and effective decisions.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. BCSP Code of Ethics and Professional Conduct</li> <li>2. General business ethics</li> <li>3. Organizational protocol</li> <li>4. Management principles of accountability and responsibility</li> </ol>	<ol style="list-style-type: none"> <li>1. Applying BCSP Code of Ethics and Professional Conduct</li> <li>2. Following organizational protocol</li> <li>3. Applying management principles of authority, responsibility, and accountability</li> </ol>

**Responsibility 5**

Improve technical competency through continuing professional and self-development in order to increase knowledge and skills.

Knowledge	Skills
<ol style="list-style-type: none"> <li>1. BCSP Code of Ethics and Professional Conduct</li> <li>2. Recent technical issues and advances in the safety, health, and environmental profession</li> <li>3. Continuing education sources in the safety, health, and environmental profession (e.g., conferences, professional seminars, networking, textbooks, magazines, professional journals)</li> <li>4. Specialty certification opportunities</li> </ol>	<ol style="list-style-type: none"> <li>1. Applying BCSP Code of Ethics and Professional Conduct</li> <li>2. Selecting appropriate professional development opportunities</li> </ol>

**Responsibility 6**

Foster accurate accountability for injuries/illnesses and other types of occurrences by identifying root and contributing causes in order to assure that proper controls are implemented.

**Knowledge**

1. BCSP Code of Ethics and Professional Conduct
2. Conflict resolution techniques
3. Methods of identifying accident causation
4. Management principles of authority, responsibility, and accountability

**Skills**

1. Applying BCSP Code of Ethics and Professional Conduct
2. Performing incident investigations, including root cause analysis
3. Interviewing people
4. Negotiating acceptance and/or ultimately assigning responsibility
5. Applying management principles of authority, responsibility, and accountability