Unmanned Safety Institute (USI)

Advanced Safety Level 2™ Certification

Candidate Handbook & Credential Guide

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Table of Contents

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1. Welcome to the Unmanned Safety Institute

About USI

The Unmanned Safety Institute (USI) is a global leader in workforce development, safety education, and industry credentialing for Unmanned Aircraft Systems (UAS) and related emerging technologies. USI develops industry-aligned training programs and certifications designed to prepare learners, educators, and organizations for the safe, effective, and responsible integration of uncrewed aviation technologies into commercial, governmental, educational, and public safety environments.

USI works closely with educational institutions, employers, government agencies, and industry partners to promote a culture of safety while developing workforce-ready competencies that support high-demand occupations across aviation, aerospace, occupational safety, robotics, infrastructure inspection, emergency response, and technology-enabled operations.

The **Advanced Safety Level 2™ (AL2) Certification** serves as a foundational credential within USI's broader safety and workforce development pathway, introducing learners to the principles and practices of Safety Management Systems (SMS), operational risk management, organizational safety culture, and continuous improvement.

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2. About the Advanced Safety Level 2™ Certification

The Advanced Safety Level 2™ (AL2) Certification is an industry-developed credential that validates foundational knowledge of Safety Management Systems (SMS), operational risk management, organizational safety culture, and continuous improvement methodologies utilized throughout aviation and other safety-critical industries.

The credential introduces learners to the processes and systems organizations use to proactively identify hazards, assess and mitigate operational risk, investigate incidents, improve organizational performance, and foster a positive and sustainable safety culture.

The Advanced Safety Level 2 Certification is designed to develop analytical thinking, systems-thinking, and safety leadership competencies that provide a strong foundation for advanced education, workforce training, and career pathway progression in aviation safety, occupational safety and health, compliance management, quality assurance, aerospace operations, public safety, and organizational risk management.

The credential may be delivered through secondary education, postsecondary education, workforce development initiatives, corporate training programs, or other approved educational environments.

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3. Credential Overview

Credential-at-a-Glance

Attribute	Description
Credential Name	Advanced Safety Level 2™ Certification
Credential Type	Industry Certification
Credentialing Organization	Unmanned Safety Institute (USI)
Credential Focus	Safety Management for Unmanned Aircraft Systems
Recommended Instructional Hours	90–155 Hours
Delivery Format	Classroom, Online, or Hybrid
Assessment Method	Third-Party Proctored Certification Examination
Assessment Model	Formative Assessments + Summative Examination
Primary Workforce Focus	Aviation Safety, Occupational Safety, Risk Management, Compliance, Quality Assurance
Credential Pathway	Foundational Safety & Risk Management Credential

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Credential Objectives

The Advanced Safety Level 2 Certification is intended to provide learners with a broad understanding of:

- Safety Management Systems (SMS) and their application.
- Safety policy development and organizational governance.
- Hazard identification and operational risk management.
- Safety assurance and performance monitoring.
- Incident investigation and root cause analysis.
- Human factors and organizational safety culture.
- Total Quality Management (TQM) and continuous improvement methodologies.
- Safety communication, promotion, and workforce engagement.

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4. Occupational Purpose

Occupational Purpose Statement

The Advanced Safety Level 2™ Certification validates foundational technical knowledge and applied competencies required to understand, support, and participate in Safety Management Systems (SMS) and operational risk management processes used throughout aviation and other safety-critical industries.

The credential prepares learners to:

- Understand the principles and components of formal Safety Management Systems (SMS).
- Differentiate between safety policies, procedures, and organizational governance structures.
- Identify operational hazards and apply standardized risk assessment methodologies.
- Analyze safety data and support evidence-based operational decision making.
- Participate in safety assurance, auditing, and continuous improvement activities.
- Understand the influence of human factors and organizational culture on operational performance.
- Apply structured approaches to incident investigation, root cause analysis, and corrective action planning.
- Communicate safety information and promote positive organizational safety culture.

The knowledge and competencies validated through this credential support workforce readiness and career pathway progression across multiple high-demand occupations recognized by the U.S. Department of Labor's Standard Occupational Classification (SOC) system and O*NET OnLine occupational framework.

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5. Industry Applications & Workforce Relevance

Building Foundational Skills for Safety-Critical Industries

Safety Management Systems (SMS), operational risk management, and organizational safety processes are increasingly utilized across a broad range of industries where technology, transportation, automation, and complex operational environments intersect. The Advanced Safety Level 2 Certification introduces learners to the safety principles and organizational frameworks that support these modern industries.

The credential develops transferable competencies that support workforce readiness in industries where safety, compliance, operational excellence, and continuous improvement are critical to mission success.

Industry Sectors Supported

- Aviation & Aerospace Operations
- Occupational Health & Safety
- Transportation & Logistics
- Robotics & Autonomous Systems
- Manufacturing & Industrial Operations
- Energy & Utilities
- Infrastructure Inspection & Asset Management
- Public Safety & Emergency Response
- Government & Regulatory Operations
- Quality Assurance & Continuous Improvement

The Advanced Safety Level 2 Certification introduces learners to the foundational principles that support these operational environments and provides a pathway to advanced education, workforce training, and industry-recognized safety leadership competencies.

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6. Occupational Alignment (SOC / O*NET)

Occupational Linkage

The Advanced Safety Level 2 Certification supports entry-level workforce preparation and pathway progression into occupations utilizing safety management systems, risk management methodologies, operational compliance processes, quality assurance systems, and organizational safety practices.

Primary Occupational Alignments

SOC / O*NET Code	Occupation	Relationship to Advanced Safety Level 2
19-5011.00	Occupational Health and Safety Specialists	Hazard identification, risk assessment, safety audits, incident investigations, and implementation of workplace safety programs.
13-1041.00	Compliance Officers	Development, implementation, monitoring, and evaluation of organizational policies, standards, and regulatory compliance activities.
19-5012.00	Occupational Health and Safety Technicians	Collection and analysis of safety information, workplace inspections, operational monitoring, and support of safety investigations.
17-3021.00	Aerospace Engineering and Operations Technologists and Technicians	Application of aviation safety principles, operational risk management, and safety management systems within aerospace and UAS operations.
11-3071.00	Transportation, Storage, and Distribution Managers	Oversight of operational safety, regulatory compliance, organizational risk management, and transportation safety systems.

Secondary Occupational Alignments

SOC / O*NET Code	Occupation
11-3051.00	Industrial Production Managers
13-1111.00	Management Analysts
11-9199.00	Managers, All Other
33-2021.00	Fire Inspectors and Investigators
33-3051.00	Police and Sheriff's Patrol Officers
17-2112.00	Industrial Engineers
13-1199.00	Business Operations Specialists, All Other

Safety Management Competency Alignment

AL2 Competency Domain	Representative Workplace Application
Safety Management Systems (SMS)	Organizational safety governance and program management.
Hazard Identification & Risk Assessment	Workplace hazard analysis and operational risk mitigation.
Safety Assurance	Audits, inspections, and continuous performance monitoring.
Incident Investigation	Root cause analysis and corrective action planning.
Safety Promotion	Safety communication, education, and workforce engagement.
Human Factors & Organizational Culture	Leadership, teamwork, decision making, and just culture principles.

Workforce Alignment Statement

The Advanced Safety Level 2 Certification is designed to provide foundational competencies in safety management, operational governance, and organizational risk management that support progression into these and related workforce pathways. Occupational examples are representative of the broad range of industries utilizing Safety Management Systems and operational risk management principles and are not intended to limit the scope of applications supported by the credential.

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7. Knowledge, Skills, and Learning Outcomes

Upon successful completion of the Advanced Safety Level 2 Certification, learners will be able to demonstrate foundational competencies in the following areas:

Safety Management Systems (SMS)

- Explain the evolution and purpose of Safety Management Systems (SMS) within aviation and safety-critical industries.
- Describe the four core components of an SMS: Safety Policy, Safety Risk Management, Safety Assurance, and Safety Promotion.
- Explain how systems thinking and standardized operational processes contribute to organizational safety performance.

Safety Policy & Organizational Governance

- Differentiate between safety policies, procedures, and operational standards.
- Describe the process for establishing and implementing effective organizational safety policies.
- Explain the importance of safety leadership, accountability, and the development of a positive "just culture."

Hazard Identification & Risk Management

- Identify operational hazards using structured safety management methodologies.
- Apply accepted risk assessment techniques to evaluate operational threats and vulnerabilities.
- Describe the implementation of physical, procedural, and administrative risk mitigation controls.
- Explain the purpose and application of Flight Risk Assessment Tools (FRAT), Failure Modes and Effects Analysis (FMEA), and Bow Tie Analysis.

Safety Assurance & Performance Monitoring

- Explain how organizations collect, monitor, and analyze safety data to improve operational performance.
- Describe the role of safety audits, inspections, and compliance monitoring activities.
- Explain how proactive and reactive safety data sources contribute to organizational learning and continuous improvement.

Incident Investigation & Root Cause Analysis

- Describe the principles of incident investigation and organizational learning.
- Apply structured root cause analysis methods including the 5 Why Process, Ishikawa (Fishbone) Diagrams, and systems-based causal analysis models.
- Explain how investigation findings support corrective actions and future risk reduction.

Human Factors & Organizational Safety Culture

- Describe how human factors, organizational influences, and workplace culture affect operational safety.
- Explain the principles of a "just culture" and the importance of open reporting environments.
- Analyze the relationship between communication, leadership, decision making, and safety performance.

Total Quality Management (TQM) & Continuous Improvement

- Explain the foundational principles of Total Quality Management (TQM).
- Describe the application of the Plan-Do-Check-Act (PDCA) model to organizational improvement initiatives.
- Explain how Management of Change (MOC) processes support safe organizational growth and adaptation.

Safety Promotion & Communication

- Identify the elements necessary to develop effective safety training and education programs.
- Explain the role of communication strategies in promoting organizational safety awareness.
- Describe how training needs assessments and targeted educational initiatives contribute to positive safety culture.

Operational Decision Making & Systems Thinking

- Apply systems-thinking principles to evaluate operational scenarios and organizational risk.
- Analyze practical safety management scenarios from the perspective of front-line operators and decision makers.
- Understand the interaction between technology, people, organizational processes, and environmental factors in creating safe and effective operations.

8. Curriculum & Competency Framework

Curriculum Overview

The Advanced Safety Level 2 curriculum consists of five integrated instructional units designed to build foundational knowledge of safety management principles and their practical application within Unmanned Aircraft Systems (UAS) and other operational environments.

Unit	Topic	Summary
Unit 1	Safety Management	Evolution of safety thinking, accident causation models, systems thinking, and the components of a Safety Management System (SMS).
Unit 2	Safety Policy	Development and implementation of safety policies, organizational responsibilities, just culture principles, Emergency Response Plans (ERP), and Safety Management Manuals (SMM).
Unit 3	Safety Risk Management	Hazard identification, risk assessment, risk mitigation strategies, Flight Risk Assessment Tools (FRAT), FMEA, Bow Tie Analysis, and operational risk controls.
Unit 4	Safety Assurance	Safety performance monitoring, audits, incident investigation, root cause analysis, Management of Change (MOC), and continuous improvement through the PDCA cycle.
Unit 5	Safety Promotion	Safety communication, safety education, training needs assessments, organizational learning, and strategies for developing and sustaining a positive safety culture.

Competency Framework

The curriculum is designed to develop measurable competencies across the following domains:

- Safety Management Systems (SMS)
- Safety Policy & Organizational Governance
- Hazard Identification & Risk Management
- Safety Assurance & Performance Monitoring
- Incident Investigation & Root Cause Analysis
- Human Factors & Organizational Safety Culture
- Total Quality Management & Continuous Improvement
- Safety Promotion & Communication
- Operational Decision Making & Systems Thinking

9. Certification Assessment & Competency Validation

Assessment Philosophy

The Advanced Safety Level 2 Certification utilizes a layered assessment methodology designed to validate learner competency and the practical application of safety management principles rather than simple course participation.

Formative Assessment

Throughout instruction, learners participate in:

- Module-level knowledge checks.
- Instructor-guided discussions and activities.
- Progress assessments aligned to learning objectives.
- Practical scenario discussions and application exercises.
- Opportunities for remediation and reinforcement.

Summative Certification Examination

Successful completion of the credential requires passing a comprehensive cumulative certification examination.

Examination Characteristics

- Third-party proctored testing environment.
- Secure identity verification procedures.
- Standardized administration protocols.
- Objective scoring methodology.
- Assessment aligned to published competency standards.

Certification Competency Blueprint

Competency Domain	Assessment Weight
Theoretical Basis for Safety Management	10–20%
Safety Policy	10–20%
Safety Risk Management	20–30%
Safety Assurance	10–20%
Safety Promotion	10–20%

Successful candidates demonstrate proficiency in the knowledge and practical application of Safety Management Systems, risk management methodologies, safety assurance practices, and organizational safety principles necessary to advance into workforce-aligned aviation, safety, and operational leadership pathways.

10. Candidate Policies & Examination Procedures

Eligibility

The Advanced Safety Level 2 Certification is intended for learners participating in approved educational or workforce development programs. Completion of foundational UAS instruction is recommended but not required unless otherwise specified by an approved training provider.

Examination Security

USI maintains examination security procedures designed to preserve the integrity and value of the credential. Candidates may be required to verify identity and comply with all examination administration requirements established by USI and its authorized testing partners.

Accommodation

USI is committed to providing reasonable accommodation for qualified candidates consistent with applicable laws and regulations. Accommodation requests should be submitted prior to scheduling the certification examination.

Retesting

Candidates who do not successfully pass the certification examination may be eligible for retesting according to USI policies in effect at the time of testing.

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11. Workforce Pathways & Career Opportunities

Preparing Learners for Advanced Training and Career Success

The Advanced Safety Level 2 Certification serves as a foundational credential supporting continued education and workforce pathway progression in aviation safety, occupational safety and health, compliance management, quality assurance, organizational risk management, aerospace operations, and public safety.

The competencies developed through this credential support future advancement into educational programs, advanced industry certifications, and occupations associated with:

- Aviation Safety & Safety Management
- Occupational Health & Safety
- Compliance & Regulatory Operations
- Aerospace & Aviation Operations
- Public Safety & Emergency Response
- Transportation & Logistics

- Manufacturing & Industrial Operations
- Infrastructure & Asset Management
- Quality Assurance & Continuous Improvement
- Organizational Risk Management

Suggested Workforce Pathway

STEM & CTE Education → Advanced Safety Level 2™ Certification → Advanced Aviation & Safety Training → Postsecondary Education or Workforce Development → Industry Employment

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12. Frequently Asked Questions

Is the Advanced Safety Level 2 Certification a pilot certification?

No. The Advanced Safety Level 2 Certification is an industry credential designed to validate foundational knowledge of Safety Management Systems, operational risk management, and organizational safety principles. It complements, but does not replace, any FAA regulatory requirements or pilot certifications.

Who should pursue the Advanced Safety Level 2 Certification?

The credential is appropriate for secondary students, postsecondary students, workforce learners, educators, and individuals seeking to develop foundational competencies in aviation safety, occupational safety, risk management, and organizational safety leadership.

How is competency measured?

Competency is measured through a combination of formative learning activities and a cumulative, third-party proctored certification examination aligned to published competency standards.

What industries utilize these competencies?

The principles taught through the Advanced Safety Level 2 Certification are applicable across aviation, aerospace, transportation, manufacturing, energy, infrastructure, public safety, government operations, and other safety-critical industries.

Appendix A – Occupational Alignment Crosswalk

AL2 Competency	Representative Occupational Skill
Safety Management Systems	Organizational safety governance and program oversight.
Hazard Identification & Risk Assessment	Workplace hazard analysis and operational risk mitigation.
Safety Assurance	Audits, inspections, compliance monitoring, and continuous improvement.
Incident Investigation	Root cause analysis and corrective action planning.
Human Factors & Safety Culture	Leadership, teamwork, communication, and organizational effectiveness.
Safety Promotion	Safety education, workforce engagement, and communication strategies.

Appendix B – Glossary of Terms

Bow Tie Analysis: A risk management methodology used to visualize hazards, preventive controls, and mitigation measures.

FRAT (Flight Risk Assessment Tool): A structured process used to identify and evaluate operational risk factors before conducting an activity.

Human Factors: The study of how people interact with systems, environments, and organizations, and how those interactions influence performance and safety.

Management of Change (MOC): A formal process used to identify and manage risks associated with organizational or operational changes.

Safety Assurance: The process of monitoring, measuring, and continuously improving organizational safety performance.

Safety Management System (SMS): A formal, organization-wide approach to managing safety risk and promoting continuous improvement through Safety Policy, Safety Risk Management, Safety Assurance, and Safety Promotion.

Total Quality Management (TQM): A management philosophy focused on continuous improvement, customer satisfaction, and organizational excellence through systematic processes.

Contact Information

Unmanned Safety Institute (USI)
Website: www.flyusi.org

For information regarding certification policies, approved training providers, candidate accommodations, or examination procedures, please visit the USI website or contact the Unmanned Safety Institute directly: info@flyusi.org

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This document is intended to provide public information regarding the purpose, structure, competency standards, assessment methodology, and workforce alignment of the USI Advanced Safety Level 2™ Certification.