

Risk Management in Practice

Lecture Title:

Capstone Lecture: Integrating Risk Management in Practice

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**Undergraduate Diploma in
Occupational Health and Safety**

Welcome and Objectives

Brings together all concepts from previous lectures into a practical, integrated approach. Participants will work on developing a comprehensive risk management plan for a simulated high-risk scenario.

Learning Objectives:

- Synthesize knowledge from all previous lectures into a cohesive framework.
- Develop a complete risk management plan, including assessment, controls, and monitoring.
- Apply stakeholder engagement and communication strategies in practice.
- Evaluate the effectiveness of proposed solutions through group discussion and case study analysis.



- Lecture 1: Introduction to Risk Management
- Lecture 2: Risk Assessment Methodologies
- Lecture 3: Hazard identification Techniques
- Lecture 4: Control Measures and Hierarch of Controls
- Lecture 5: Legal and Ethical Responsibilities in Risk Management
- Lecture 6: Risk Communication and Stakeholder Engagement
- Lecture 7: Incident Investigation and Root Cause Analysis
- Lecture 8: Risk Management in High Risk Industries
- Lecture 9: Psychosocial Risks and Mental Health
- Lecture 10: Emergency Preparedness and Response Planning
- Lecture 11: Monitoring and Reviewing Risk Controls.
- Lecture 12: Safety Culture and Organizational Behavior
- Lecture 13: Risk Management Standards and Frameworks
- Lecture 14: Risk Management for Emerging Workplace Hazards
- Lecture 15: Global Perspectives and Cultural Considerations



Guided Summary of Key Knowledge Areas

Hazard & Risk Foundations

Lecture 1: Introduction to Risk Management

Lecture 2: Risk Assessment Methodologies

Lecture 3: Hazard Identification Techniques

Control, Ethics & Governance

Lecture 4: Hierarchy of Controls

Lecture 5: Legal & Ethical Responsibilities

Lecture 13: Risk Management Standards & Frameworks



Guided Summary of Key Knowledge Areas

Communication & Investigation

Lecture 6: Stakeholder Engagement

Lecture 7: Incident Investigation & RCA

High-Risk, Emerging & Psychosocial Areas

Lecture 8: High-Risk Industries

Lecture 9: Psychosocial Risks & Mental Health

Lecture 14: Emerging Workplace Hazards



Guided Summary of Key Knowledge Areas

Preparedness, Monitoring & Culture

Lecture 10: Emergency Preparedness

Lecture 11: Monitoring & Reviewing Controls

Lecture 12: Safety Culture & Organizational Behavior

Lecture 15: Global & Cultural Considerations



1. Before we move on are there any comments or reflections about the lectures we've covered?
2. Was there a particular lecture or topic that stood out to you as especially useful or interesting
3. Is there anything you think should be covered more deeply in future editions of this course?



Why a Capstone Scenario?

1. Test integration of all concepts
2. Simulate real high-risk environment
3. Integrate technical, organizational, psychosocial and cultural risks
4. Develop practical planning skills
5. Support real-world application



Capstone Scenario: “The Solaris Manufacturing Expansion Project”

A complex, high risk operational scenario for integrated risk management planning

Solaris Manufacturing Ltd. is a global producer of advanced electronic components used in automotive and medical devices.

The company operates plants in Europe, Asia, and North Africa.

The company is expanding its Malta facility with a new automated lithium ion module assembly line to meet increased demand.

The expansion is under tight deadlines, with multiple contractors on site, and a mix of new technologies, new staff, and international partners.

Go live is planned in six months, but several safety concerns have surfaced.

Activity Introduction

For today's capstone exercise, we will use the Solaris Manufacturing Expansion Project — a realistic scenario involving lithium-ion automation, multinational contractors, psychosocial pressures, and regulatory scrutiny.

Together, we will identify hazards, assess risks, select controls, consider legal and cultural factors, and create a complete risk management plan.”



Part 1: Hazard Identification

Your task:

Identify hazards across:

1. Technical
2. Organisational & cultural
3. Psychosocial
4. Stakeholder/regulatory
5. Emerging risks



Part 1: Risk Assessment

(A simple 5×5 matrix graphic)

Highest-rated risks:

1. Lithium-ion thermal runaway (High – 15)
2. Robot–human interaction risks (High – 12)
3. Fatigue / stress errors (High – 12)

Part 2: Controls (Hierarchy Applied)

Examples:

1. Li-ion: reject damaged cells, suppression systems, SOPs
2. Robots: barriers, light curtains, training
3. Chemicals: ventilation, containment, SDS
4. Miscommunication: multilingual induction,
5. Fatigue: scheduling, supervisor training



Technical Hazards

Key high-risk technical elements:

1. Lithium-ion handling (thermal runaway, toxic gases)
2. Collaborative robots → human interaction risks
3. Solvent use & chemical storage
4. Confined space machinery installations
5. Heat exposure from equipment & hot works



Organisational & Cultural Challenges

Key issues:

1. Multinational contractor workforce
2. Language barriers
3. Responsibility confusion (Ops/Eng/Contractors)
4. “Production-first” mentality
5. New supervisors unfamiliar with processes
6. Inconsistencies in:
 - a) Permit-to-work
 - b) LOTO Contractor management



Psychosocial Risks

Findings from worker interviews:

1. Deadline pressure → stress & fatigue
2. Robotics → job insecurity
3. Night shift → missing communication
4. Supervisors experiencing burnout



Stakeholder Pressures

Competing demands from:

1. Corporate (no delays)
2. Customers (increase output)
3. Regulators (focus on Li-ion safety)
4. Local community (fire/chemical concerns)
5. Insurers (require strong controls)



Emergency Preparedness Gaps

New scenario-driven emergency needs:

1. Lithium-ion fire procedures
2. Robot entrapment response
3. Chemical spill response
4. Evacuation of contractors + staff
5. Coordination with Civil Protection Department



Global & Cultural Factors

Challenges include:

1. Aligning with ISO 45001 / ISO 31000
2. Cultural differences in risk perception
3. Contractor reluctance to raise issues



Regulatory Constraints

Must comply with:

1. EU Machinery Regulation
2. ATEX (certain zones)Chemical handling regulations
3. OHS Legislation
4. Fire Safety
5. planning/environmental permitsAudit due in 3 weeks



Emerging Risks

1. Li-ion fire & explosion risk
2. Robotics & automation systems
3. Cybersecurity (network-linked equipment)
4. Heat stress areas
5. ESD impacting safety & product quality



Part 2: Legal & Ethical

1. Duty of care
2. ATEX / Machinery / Chemical compliance
3. Ethical issue: pressure to rush
4. Multilingual responsibility



Part 2: Stakeholder Communication Plan

1. Internal: Ops, Maintenance, EHS, Contractors
2. External: Regulators, Insurers, HQ, Community



Part 2: Monitoring & KPIs

1. Leading: toolbox talks, alarms, induction metrics
2. Lagging: spills, heat cases, equipment failures



Part 2: Emergency Measures

1. Li-ion fire drills
2. Contractor-inclusive evacuations
3. Robot entrapment drills
4. Night-shift drills



Final Message

Effective risk management integrates:

1. Technical hazards
2. Human factors
3. Organisational systems
4. Culture & behaviour
5. Legal requirements
6. Communication & preparedness



Final Reflection & Closeout

1. Reinforcing that risk management is an ongoing cycle
2. Encouraging application in their workplaces
3. Highlighting the importance of integrating technical, human, legal, and cultural dimensions



1. What is the primary goal of risk management? (L1)
2. What two factors are multiplied in a risk matrix? (L2)
3. Why is a risk matrix useful? (L2)



4. What is the purpose of a HAZOP or risk assessments? (L3)
5. What is the most effective control in the hierarchy? (L4)
6. What is an employer's primary legal duty in risk management? (L5)



7. Why is rushing work an ethical concern? (L5)
8. What makes safety communication effective? (L6)
9. Why do we focus on “Why?” instead of “Who?” during investigations? (L9)



10. What makes an industry “high risk”? (L8)
11. Give an example of a psychosocial hazard. (L9)
12. Why are emergency drills important? (L10)
13. What is the difference between leading and lagging indicators? (L11)



14. What is one sign of a strong safety culture? (L12)
15. What is the main purpose of ISO 31000? (L13)
16. What is a key emerging hazard in modern workplaces? (L14)



17. Why is culture important in risk management?
(L15)
18. Which topic did you find most useful during the course?
19. What is one area of risk management you feel more confident in now?
20. If someone asked you “What is risk management?”, what one sentence answer would you give?

