

MOOC Managing Complexity in Nuclear Decommissioning Projects

Introduction



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This MOOC is an innovative online training programme developed as part of the Decommissioning Management and Leadership for Safety Education (DMaLSE) project, co-funded by the European Union.

To find out more about the project please go to: <https://univ-cotedazur.eu/decommissioning-management-and-leadership-for-safety-education-dmalse/dmalse-project>

Its content aligns with the perspectives of international organisations such as the International Atomic Energy Agency (IAEA), EURATOM, and the Nuclear Energy Agency (NEA) of the Organisation for Economic Co-operation and Development (OECD); all of which recognise the complexity of nuclear decommissioning projects (NDPs) and the importance of capacity building at the managerial level, both within industry and regulatory bodies.

The IAEA, EURATOM, and OECD/NEA acknowledge that the decommissioning of nuclear facilities goes beyond a purely technical challenge; it is fundamentally a complex organisational and human endeavour. Decommissioning projects require the coordination of multiple stakeholders, the management of long-term activities within multi-layered governance frameworks, and the ability to navigate significant uncertainties—particularly in relation to safety. These factors collectively generate substantial organisational and managerial challenges. The intricate interplay of multi-stakeholder coordination, complex governance structures, regulatory and technical uncertainties, and workforce management issues makes the efficient and safe execution of decommissioning projects exceptionally demanding.

In this context, by focusing on the interrelationships between regulatory, safety, social, economic, human and organisational challenges, the MOOC is designed to help you develop a deeper understanding of NDPs as complex phenomena. Its ultimate objective is to provide you with guidelines for the effective management of NDPs or for optimising the regulatory oversight of NDPs (the MOOC targets mid-career managers in both industry and regulatory bodies), ensuring their safety and efficiency throughout their lifecycle.

To achieve this objective, the MOOC is structured around three complementary and closely interconnected topics:

1. Management & Leadership for Safety in Complex Organisations

2. Complex Project Management

3. Managing Complexity in Nuclear Decommissioning Projects: Key Challenges

MOOC Content

The MOOC consists of five units included in the module “Human & Organizational Factors” of the SEAMONLINE Platform:

- Unit 1. Safety Management: Key Concepts
- Unit 2. Organisation and Leadership: Key Concepts
- Unit 3. Complex Project Management: Key Concepts
- Unit 4. Complex Project Management: Key Challenges
- Unit 5. Managing Complexity in Nuclear
Decommissioning Projects: Key Challenges

Topic 1

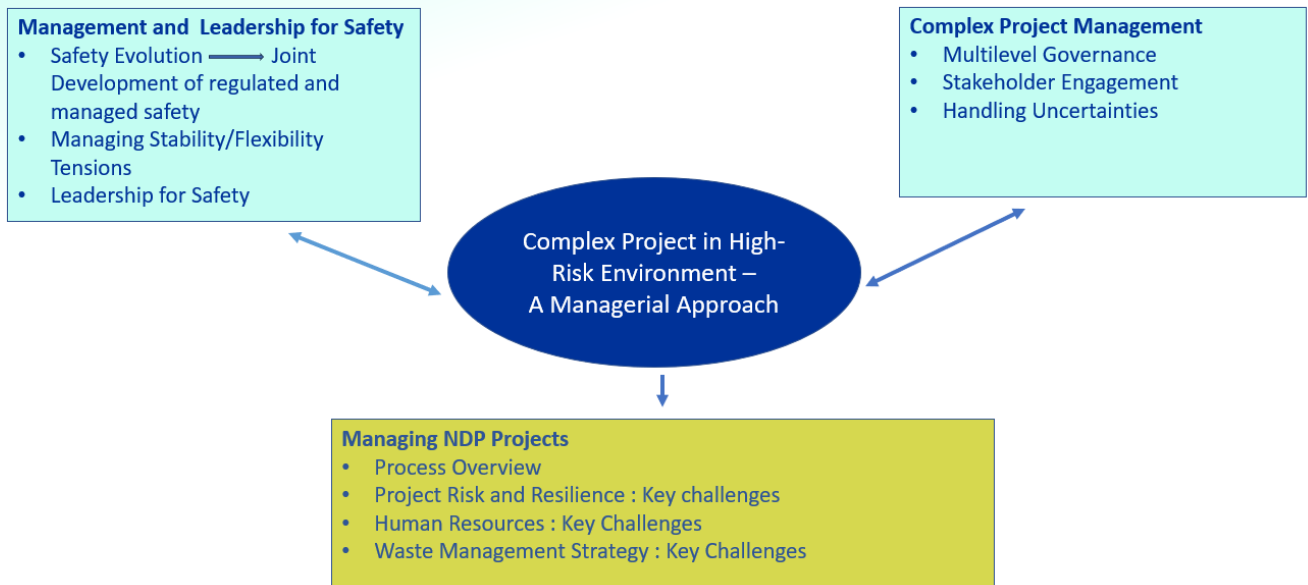
Topic 2

Topic 3

These units were developed by an international team of academics and nuclear industry experts within the framework of the EU co-founded DMaLSE project. Based on the latest research in social and management science, the MOOC offers insights into the core concepts and major challenges related to **managing complex projects in high-risk environments**.

The following figure outlines the interconnections between the three modules and the main learning objectives of each module:

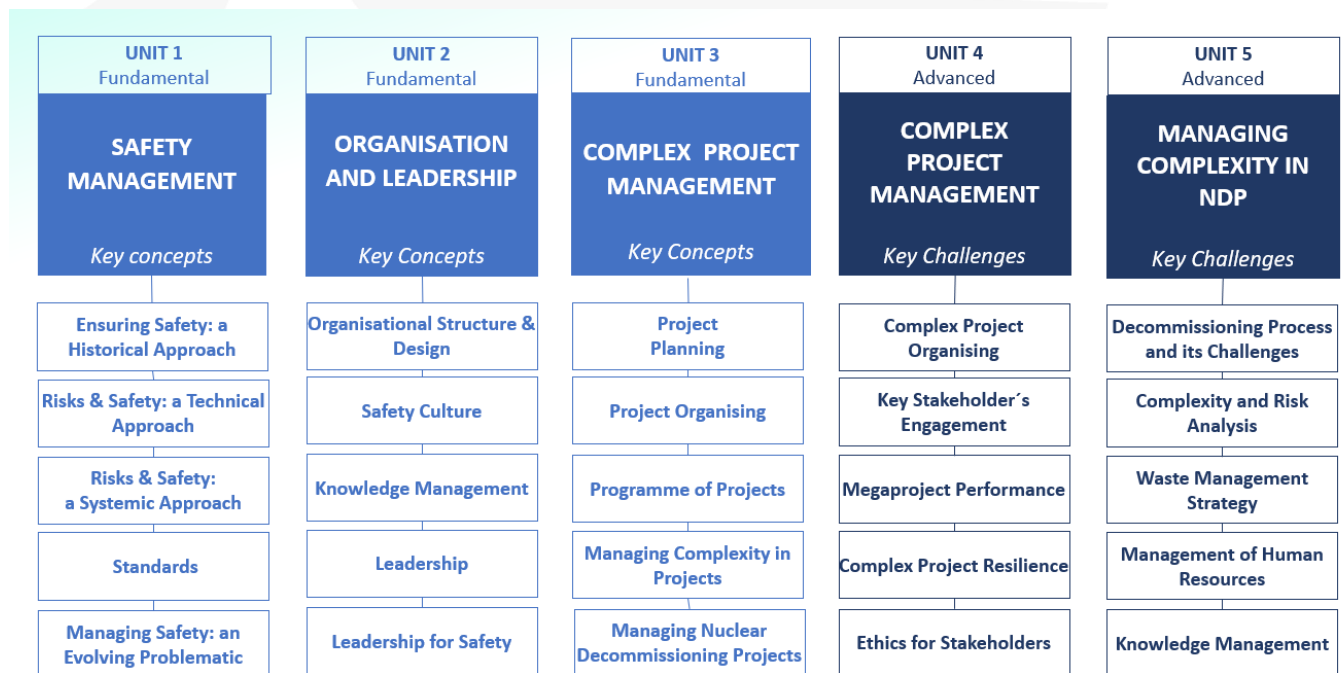
MOOC Content Schema



MOOC Architecture

The five e-learning units are complementary:

- The first three units introduce the key concepts,
- The last two units address real-world key challenges encountered in practice.



Each unit represents approximately two screen-days of learning.

To Go Further



Explore additional resources and consider applying to the Decomplex training programme.

These five units present the fundamental concepts and key challenges related to managing the complexity of Nuclear Decommissioning Projects. To gain a deeper understanding of these topics and to develop specialised practical skills, you are invited to apply for the Decomplex training programme, which complements this MOOC through a 10-day face-to-face session held at Université Côte d’Azur (Nice, France), followed by online interactive topic sessions and tutoring throughout the training.

Led by the same international pedagogical team that designed the MOOC, this training programme features case studies, group discussions, debriefings, and hands-on workshops in small groups, encouraging active participation and in-depth exchange. Upon successful completion of all training requirements, participants will be awarded the “Decomplex” Master 2-level diploma from Université Côte d’Azur.

The Decomplex executive training programme focuses on the complexity of NDPs, complementing existing technical training programmes by preparing trainees to effectively manage regulatory, human, organisational and safety aspects of decommissioning projects. This approach is crucial as decommissioning a nuclear facility is a complex operation that often spans several decades and requires specialised knowledge and skills.

For more information:

 <https://senssett.eu/applications/>