

**DigiDecom ELINDER 2020**  
**March 23-27, 2020 - Halden, Norway**

**eLearning pre-course package**

**Package 1: will be proposed for all interested**

eLearning on decommissioning modules hosted by the IAEA  
<https://ec.europa.eu/jrc/en/training-programme/elinder/e-learning>  
 For students who are not familiar with nuclear decommissioning it is recommended to complete at least modules 1, 2, 4 and 5 before the course

**Package 2: will be provided for all who register**

**Information and knowledge management** for decommissioning – Modern Plant information methods  
 By iUS, Germany

Introduction to **radiation protection** planning  
 By iUS, Germany

**TBC Costing** for decommissioning – the ISDC  
 TBD

**TBC Robotics** in decommissioning  
 TBD

**TBC Innovative radiological characterisation** techniques  
 TDB

**TBC Digitalization and AI**  
 By IFE, Norway

**Digital innovation:** 3D radiological simulation based techniques/tools for supporting safety management in decommissioning – including access to a Web 3D simulation based platform for practice  
 By IFE, Norway

**Human and organizational issues** in decommissioning  
 By Apollo+, Switzerland

**TBC Lessons learned** from real life projects  
 By Argonne NL, US

**TBC Methodologies and tools for decommissioning and waste management planning,** including project risk management related to project time and costs  
 By Sogin, Italy

**TBC Short on-line test** (questions with multiple choice of answers)  
 By IFE & iUS

## Draft Programme

### Day 1 – Monday: Introductions

Introduction to nuclear decommissioning and international perspectives Pierre Kockerols European Commission	Classroom lecture
Lessons learned from nuclear decommissioning projects and real-life examples NN Sogin, Italy	Classroom lecture
Human resource aspects and knowledge management for decommissioning Franz Borrmann iUS, Germany	Classroom lecture
Current trends for digital innovation of information and knowledge management for decommissioning István Szőke IFE, Norway	Classroom lecture
Advanced project management support techniques - the LIVE (LivePlan) tool Karoline Andreassen VISAVI Technology AS, Norway	Classroom lecture
Building Information Management (BIM) technology - the Bimsync tool NN Catenda AS, Norway	Classroom lecture
Structured safety argumentation concepts – the InStruct tool Svein Tore Edvardsen & István Szőke IFE, Norway	Classroom lecture
Welcome reception with tech demonstrations in the VRlab of IFE	Social Event

### Day 2 – Tuesday: Safety - Radiation protection

Introduction to radiation protection – refresher on eLearning Franz Borrmann iUS, Germany	Classroom lecture
Radiation protection exercise with classical method iUS, Germany	Groups exercise with Excel
3D simulation based real-time radiological simulation techniques István Szőke IFE, Norway	Classroom lecture

3D radiological simulation based support tools for decommissioning - refresher on eLearning Tom R Bryntesen, Svein T Edvardsen & István Szőke IFE, Norway	Interactive classroom
Radiation protection focused work planning and safety demonstration for waste package inspection (role play setup – regulator/TSO versus licensee) IFE & iUS	Groups exercise with desktop 3D
Presentation of results and discussions IFE & iUS	Interactive classroom
<b>Day 3 – Wednesday: Robotics</b>	
Introduction to robotics applications in decommissioning Leonel Lagos Florida International University, Florida, US	Classroom lecture
Robotics and 3D gamma mapping technologies for supporting nuclear decommission Etienne Hocquard CREATEC, UK	Classroom lecture
Machine learning and AI Jens P Langstrand / Tomas Nordlander IFE, Norway	Classroom lecture
Digital innovation for robotics applications in decommissioning István Szőke IFE, Norway	Classroom lecture
Modular robotics – technology and applications TBD	Classroom lecture
Radiological mapping of target area for supporting dose estimations and shielding planning IFE & iUS	Groups exercise with VR
Presentation of results and discussions IFE & iUS	Interactive classroom
Banquet dinner (at the hotel)	Social Event
<b>Day 4 – Thursday: Waste management techniques</b>	
Decommissioning and waste management programme in Norway Peter Keyser / Martin Andreasson Norwegian Nuclear Decommissioning (NND)	Classroom lecture
Advanced Methodology for Activation Characterization Dr. John Kickhofel - Managing Partner Apollo plus GmbH	Classroom lecture
Waste information management using blockchain technology (European Blockchain Partnership)	Classroom lecture

NN Sogin, Italy		
Examples of digital simulations for supporting real-life decommissioning projects		Classroom lecture
Franz Borrmann, Tom R Bryntesen, Svein T Edvardsen & István Szőke IFE, Norway and iUS, Germany		
Waste packaging optimisation		Groups exercise with VR
IFE & iUS		
Identify and rate top learnings (challenges, opportunities and lessons learned) from the course. Prepare slides.		In groups
IFE & iUS		
<b>Day 5 - Friday: Final evaluation, ideas and facility visits</b>		
Presentations of slides from each group (with reflection on own experience if relevant)		Interactive classroom
IFE & iUS		
Discussions: feedback from the course and ideas for future courses		Interactive classroom
IFE & iUS		
Certificate handover ceremony		
IFE & iUS		
Visit to facilities (optional): HAMMLAB, Future Lab, Cyber Security lab, NND public information centre - TBC?		
IFE		

Hosted by IFE, a designated [IAEA Collaborating Centre](#)