OECD Nuclear Energy Agency (NEA) and Halden HTO Project

Summer school 2025

Implementation of Emerging Technologies

Byparken Halden, 31st August – 4th September 2025

Summer school Chair: Stine Strand, IFE (stine.strand@ife.no)
Summer school Practical arrangements: Ronja Sveen Bye (ronja.sveen.bye@ife.no)

Summer School Programme

Sunday August 31		
18:00-21:00	**Social gathering:** Getting acquainted and evening meal	
Monday September 1		
08:30-09:00	**Registration**	Ronja Sveen Bye, IFE
09:00-09:30	**Welcome** • Introduction to Summer school • Introduction of participants	Andreas Bye, István Szőke, Stine Strand, IFE
09:30-10:30	**Overview of OECD NEA's role and functions in nuclear safety**	Pierre-Marie Plet, Nuclear Energy Agency
10:30-10:45	**Coffee**	
10:45-12:00	**The NEA Halden HTO program and needs of the nuclear industry regarding implementation of emerging technologies**	Andreas Bye, Stine Strand, IFE

12:00-13:00	**Lunch**	
13:00-16:00 (Coffee 14:30-14:45)	**The challenges of modernizing our nuclear plants** • Climate change and the clean energy context • An evolving role for nuclear energy • Drivers for modernization and digitalization • The basics of I&C systems design • The challenges of digital I&C systems *Coffee Break* • The acceptance of digital I&C products • International standards for nuclear I&C • New and emerging digital technologies • Lifecycle design knowledge management • A practical exercise	John de Grosbois, Conexus Nuclear Inc.
16:00-17:00	**Panel session: Key takeaways from todays' sessions:** • Summaries by today's speakers • Takeaways from other speakers and the attendants	
19:00	**Social gathering, no dinner**	
Tuesday September 2		
09:00-12:00 (Coffee 10:30-10:45)	**Relevant standards and guidelines** • Human Factors Engineering, NUREG-0700, 0711 • Control room design • Verification and Validation • Tools and methodologies • Advanced reactors	TBD
12:00-13:00	**Lunch**	

13:00-16:00 (Coffee 14:30-14:45)	**Wireless Instrumentation and Control (I&C) for nuclear facilities** • Introduction to wireless technologies • Challenges and opportunities • Operational Technology cyber security • Hazard and Operability (HAZOP) study • Wireless I&C Security Requirements	Antonio Di Buono, UK National Nuclear Laboratory
16:00-17:00	**Panel session: Key takeaways from todays' sessions:** • Summaries by today's speakers • Takeaways from other speakers and the attendants	
17:30 -	**Social event, Dinner at Kongshallene**	
Wednesday September 3		
09:00-10:30	**Implementation activities for new concepts of operating nuclear power reactors**	Tom Ulrich, Idaho National Lab
10:30-10:45	**Coffee**	
10:45-12:00	**Using simulators to develop operational concepts for integrated energy systems**	Tom Ulrich, Idaho National Lab
12:00-13:00	**Lunch**	
13:00-14:30	**Emerging technologies & Cyber security** • Cybersecurity Challenges and Emerging Threats • Security Standards, Regulations and Best practices • Emerging Technologies for Cyber Defence	Ankur Shukla, IFE
14:30-14:45	**Coffee**	
14:45-16:00	**Role of AI, Data robotics and Digital twins**	István Szőke, Norwegian Nuclear Research Centre

16:00-17:00	**Panel session: Key takeaways from todays' sessions:** • Summaries by today's speakers • Takeaways from other speakers and the attendants	
Thursday September 4		
08:30-11:30 (Coffee 10:30-10:45)	**Visit to HTO-labs** Demonstrations in • HAMMLAB • VR-Lab • Cyber-Lab • HADRON	S. Strand/H. Jokstad M.Louka/E.Langstrand John Eidar Simensen Omar Zahra, IFE
11:30-12:00	**Summary session & Key takeaways**	Stine Strand, Andreas Bye, István Szőke, IFE
12:00	**Adjourn and Lunch**	