



EC INSC PROJECT MC.03/10 – LOT1

**TRAINING COURSE
ON**

“SAFETY AND SECURITY OF I&C SYSTEMS OF NUCLEAR POWER PLANT”

APRIL 22-26, 2013 AT STUK - HELSINKI

This is an “existing” training course “ whose content corresponds to the Consultant proposed Training Course n. 4



TRAINING PROGRAM

SAFETY AND SECURITY OF I&C SYSTEMS OF NUCLEAR POWER PLANT

APRIL 22-26, 2013 IN STUK, HELSINKI

Programme

Monday, 22.4.2013 (Place: Marina Congress Center)

09:00	Registration	Mervi Nironen
09:30	Opening remarks Practical arrangements	Petteri Tiippana Ilari Aro, STUK

Module 1: Basics for safety of automation (I&C) systems of NPP's

10:00	“Modern distributed digital industrial automation systems used in chemical and power industries”	Metso Automation / NN
11:00	“New regulatory requirements concerning NPP safety and safety related I&C systems, diversity and redundancy requirements; architecture issues” (incl. YVL Guides)	STUK/KV
12:00	Lunch	
13:30	“Inspection of NPP I&C (automation) systems and equipment; some experiences from real life”	STUK Kim Wahlström
15:00	Coffee break	
15:30	“NPP main control room (MCR) design based on regulatory requirements, relevant ISO and IEC standards including alarm system HFE-design requirements”	STUK Harri Heimbürger
16:30	Discussion	
17:00	End of the 1 st day	

Tuesday, 23.4.2013

Module 2: Industrial standards for safety classified automation (I &C) for NPP's

08:30	“Introduction to IEC safety and security standards for Computer Based Systems (CBS) and I&C (automation) at NPP's” <ul style="list-style-type: none">• IEC 61508 (Umbrella standard; functional safety standard)• IEC 61513 (NPP CBS system level)• IEC 60880 (Category A software)• IEC 62138 (Category B and C software)• IEC 60987 (Hardware)	SESKO Mikael Sundholm
10:00	Coffee break	
10:30	“I&C system verification through formal checking methodology”	VTT Janne Valkonen
11:15	“Incorporation of human Factors Engineering into the I&C and control room design”	VTT Jari Laarni
12:00	Lunch	
13:00	“NPP Computer Based Systems DBT & DBV, introduction to NPP cyber security issues; requirements, from plant level to systems level; testing”	STUK Timo Wiander
14:00	Coffee break	
14:30	“Fuzzing and Unknown Vulnerability Discovery in SCADA/ICS”	Codonomicon Ari Takanen
15:15	“Penetration testing in SCADA/ICS”	nSense Tom Van De Wiele
16:30	Demo session: <ul style="list-style-type: none">• Codonomicon-demonstrations• nSense-demonstrations• VTT-demonstrations: I&C system verification through formal model checking	
18:00	End of the 2 nd day	
	Buffet	

Wednesday, 24.4.2013

Module 3: Regulatory challenges for CBS and I&C for NPP's

09:00	“Regulatory challenges in computer based automation systems for new NPPs; SW issues”	STUK Mika Johansson
10:30	Coffee break	
11:00	“The CBS inspection practices in factory (FAT) and on site (SAT); what are the regulator tasks “,	STUK/VeK
12:00	Lunch	

Module 4: Use of simulators for design, development, testing and training

13:00	Transportation to FORTUM simulators in Espoo Keilaniemi	Bus
14:00	“Modernisation of I&C systems of Loviisa NPP (Lara-project)”	FORTUM Mika Lehtonen
14:45	“Utilization of different simulators in NPP I&C-modernisation”	FORTUM Leena Salo
15:15	Fortum-demonstrations (available simulators) -demonstrations -discussion and coffee	FORTUM Leena Salo, Mika Lehtonen
16:15	End of 3 rd day	
16:30	Transportation to Helsinki City/Airport	Bus

Thursday, 25.4.2013 (Place: STUK)

Module 5: Research and Development Workshop

Recent and ongoing NPP I&C safety research and development activities in Finland

08:30	“Safety requirements specification and management in NPPs”	Teemu Tommila VTT
09:30	“Reliability analysis of digital systems in PRA context”	Jan-Eric Holmberg, VTT
10:30	Coffee break	
11:00	“Field-programmable gate arrays (FPGA) in NPP safety automation”	Lauri Lötjönen VTT
12:00	Lunch	
13:00	“Usability Case method in HFE validation”	Paula Savioja VTT
14:00	“HARMONICS-Harmonised Assessment of Reliability of Modern NPP I&C Software, Euratom FP7-project” Jan-Eric	Holmberg, VTT Janne Valkonen VTT
15:00	Coffee break	
15:30	“Industrial Control Systems (ICS) applied in NPP, Safety and Security Architecture; Fortum Automation Security Concept (FASCO)”	Jarmo Huhta FORTUM
16:30	End of the R&D Workshop	

Friday, 26.4.2013

Module 6: Control of learning (voluntary for EU project participants)

10:00	Participant feedback	Aro, Heimbürger
11:00	Control questions to check the results of training	Aro, Heimbürger
12:00	Lunch	
13:00	Coffee, distribution of certificates	Aro, Heimbürger
14:00	End of programme	