

GENTLE intersemester course

Nuclear safeguards and security

June 16 – 20, 2014

IRMM | Geel, Belgium

Programme

Day 1 | June 16, 2014

09:30 – 10:00 h	Course introduction	Michèle Coeck (SCK•CEN)
Basic safeguards and security concepts		
10:00 – 11:00 h	Safeguards principles	Klaas van der Meer (SCK•CEN)
11:00 – 12:00 h	Security principles	Benny Carlé (SCK•CEN)
12:00 – 12:45 h	International treaties	Klaas van der Meer (SCK•CEN)
12:45 – 14:00 h	Lunch at the JRC-IRMM cafeteria	
Safeguards measures		
14:00 – 14:30 h	Safeguards approaches	Klaas van der Meer (SCK•CEN)
14:30 – 15:00 h	Nuclear material accountancy	Klaas van der Meer (SCK•CEN)
15:00 – 16:00 h	Destructive assay methods	Rožle Jakopic (EC-JRC-IRMM)
16:00 – 16:15 h	Break	
16:15 – 17:15 h	Non-destructive assay methods	Alessandro Borella (SCK•CEN)
17:15 – 17:45 h	Additional protocol measures	Klaas van der Meer (SCK•CEN)



Day 2 | June 17, 2014

Hands-on exercises		
Group A		
09:00 – 10:00 h	Use of Gamma NDA measurement equipment (IRMM)	Alessandro Borella (SCK•CEN)
10:00 – 12:30 h	Gamma measurement and data analysis	Alessandro Borella (SCK•CEN) Riccardo Rossa (SCK•CEN)
12:30 – 13:45 h	Lunch at the JRC-IRMM cafeteria	
13:45 – 14:45 h	Use of Neutrons NDA measurement equipment (IRMM)	Peter Schillebeeckx (EC-JRC-IRMM) Bent Pedersen (EC-JRC-Ispra)
14:45 – 17:15 h	Neutron measurements and data analysis	Peter Schillebeeckx (EC-JRC-IRMM) Bent Pedersen (EC-JRC-Ispra)
Group B		
09:00 – 10:00 h	Use of Neutrons NDA measurement equipment (IRMM)	Peter Schillebeeckx (EC-JRC-IRMM) Bent Pedersen (EC-JRC-Ispra)
10:00 – 12:30 h	Neutron measurements and data analysis	Peter Schillebeeckx (EC-JRC-IRMM) Bent Pedersen (EC-JRC-Ispra)
12:30 – 13:45 h	Lunch at the JRC-IRMM cafeteria	
13:45 – 14:45 h	Use of Gamma NDA measurement equipment (IRMM)	Alessandro Borella (SCK•CEN)
14:45 – 17:15 h	Gamma measurement and data analysis	Alessandro Borella (SCK•CEN) Riccardo Rossa (SCK•CEN)



Day 3 | June 18, 2014

Complementary safeguards measures		
09:00 – 09:30 h	Design Information Verification	Riccardo Rossa (SCK•CEN)
09:30 – 10:00 h	Import/export control	Klaas van der Meer (SCK•CEN)
10:00 – 10:15 h	Break	
10:15 – 11:15 h	Nuclear material forensics OR detection techniques for security	Klaus Mayer (ITU)
11:15 – 12:00 h	Containment & Surveillance	Klaas van der Meer (SCK•CEN)
12:00 – 13:15 h	Lunch at the JRC-IRMM cafeteria	
13:15 – 14:15 h	Issues in non-proliferation, like Iran, DPRK, Syria, ...	Klaas van der Meer (SCK•CEN)
Nuclear security (part 1)		
14:15 – 15:15 h	Basic concepts in nuclear security	Benny Carlé (SCK•CEN)
15:15 – 15:30 h	Break	
15:30 – 16:30 h	Graded approach in nuclear security Nuclear & radioactive material categorization	Benny Carlé (SCK•CEN)
16:30 – 17:30 h	Ex. 1a (discuss in small groups the national regulations compared to the international guidance)	Benny Carlé (SCK•CEN) Christophe Gueibe (SCK•CEN)



Day 4 | June 19, 2014

Nuclear security (part 2)		
09:00 – 10:15 h	Vital area's & access controlled area's	Benny Carlé (SCK•CEN)
10:15 – 10:45 h	Personnel security & trustworthiness	Benny Carlé (SCK•CEN)
10:45 – 11:00 h	Break	
11:00 – 11:45 h	Ex. 1b (discuss in small groups the national regulations compared to the international guidance)	Benny Carlé (SCK•CEN) Christophe Gueibe (SCK•CEN)
11:45 – 12:30 h	Computer security	Benny Carlé (SCK•CEN)
12:30 – 13:45 h	Lunch at the JRC-IRMM cafeteria	
Complementary safeguards measures		
13:30 – 15:15 h	Workshop on the development of a safeguards approach (part 1)	Klaas van der Meer (SCK•CEN) Riccardo Rossa (SCK•CEN)
15:15 – 15:30 h	Break	
15:30 – 17:15 h	Workshop on the development of a safeguards approach (part 2)	Klaas van der Meer (SCK•CEN) Riccardo Rossa (SCK•CEN)



Day 5 | June 20, 2014

Nuclear security (part 3)		
09:00 – 10:30 h	Physical Protection Systems	Benny Carlé (SCK•CEN)
10:30 – 10:45 h	Break	
10:45 – 12:45 h	Ex. 2 PPS design for hypothetical nuclear research facility	Benny Carlé (SCK•CEN) Christophe Gueibe (SCK•CEN)
12:45 – 14:00 h	Lunch at the JRC-IRMM cafeteria	
14:00 – 15:15 h	Nuclear Security Management	Benny Carlé (SCK•CEN)
15:15 – 15:30 h	Break	
15:30 – 16:00 h	Management of sensitive information	Benny Carlé (SCK•CEN)

