

CLP4NET Course Description Form

Detailed Description

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Course Full Name	Nuclear Material Accounting and Control (NMAC) for Nuclear Security
Purpose of the course	This course is based on IAEA guidance documents and provides an introduction to the basic principles of nuclear material accounting and control (NMAC) for nuclear security. This course explains what the NMAC system is, why it is needed for nuclear security and how NMAC elements and measures enhance nuclear security at the facility level.
Target audience	Participants of face-to-face training and other human resource development activities implemented by the IAEA and its Member-States. Interested nuclear facility personnel and the public.
Syllabus	<ol style="list-style-type: none"> 1. Introduction to NMAC 2. Managing the NMAC system 3. Records 4. Accounting 5. Material balance areas (MBA) and key measurement points (KMP) 6. Measurements and measurement quality control 7. Nuclear material control 8. Nuclear material movements 9. Detection, investigation, and response to irregularities 10. Assessment and performance testing of the NMAC system
Learning Outcomes	<p>After completing this course, the learner should be able to explain</p> <ol style="list-style-type: none"> 1.1 List legally binding international instruments in the area of nuclear security relevant to NMAC 1.2 List non-binding IAEA publications relevant to NMAC for nuclear security 1.3 Describe how NMAC contributes to nuclear security 1.4 Define an NMAC system 1.5 List primary NMAC objectives and purpose 1.6 Distinguish between accounting and control measures for nuclear security 1.7 List the NMAC elements 2.1 Describe the overall organizational structure of an NMAC system in a nuclear facility 2.2 Explain the functions and responsibilities of the NMAC manager and staff 2.3 Describe the purpose and need for a sustainability programme 2.4 Describe importance of staffing and training qualified staff in performing NMAC activities 2.5 Recognize the need for NMAC documentation and procedures 2.6 Describe configuration management and its application to the NMAC system 3.1 State the importance of keeping complete records of transactions 3.2 List key information in the NMAC records system 3.3 List and describe the three types of records required 3.4 Describe record update and recordkeeping approach 4.1 State the importance of physical inventory taking (PIT) 4.2 State the purpose of calculating and evaluating material unaccounted for (MUF) 5.1 Describe material balance areas (MBA) and key measurement points (KMP) 5.2 List material balance areas (MBA) good practices

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Learning Outcomes	<p>6.1 Define measurement systems</p> <p>6.2 Explain how measurement systems increase nuclear security</p> <p>6.3 List the characteristics of nuclear material that should be measured for accounting purposes</p> <p>6.4 Describe measurement quality control programmes</p> <p>6.5 State the minimum response to out of control measurement systems</p> <p>7.1 State the objectives of nuclear material control</p> <p>7.2 List examples of nuclear material control</p> <p>7.3 Describe the relationship between nuclear material for NMAC and physical protection</p> <p>8.1 Describe the importance of NMAC related to movement of nuclear material</p> <p>9.1 Define and describe irregularity and relate the importance of detecting, responding, investigating, resolving, and reporting irregularities</p> <p>9.2 List examples of irregularities</p> <p>9.3 Describe typical response measures/procedures for investigating irregularities</p> <p>10.1 Understand the purpose of assessment and performance testing</p>
Knowledge Domain	
Keywords	Nuclear Material Accounting and Control (NMAC), Nuclear Security
Pre-requisites	none
Language	Arabic, English, Spanish, French, Russian, Chinese
Interactivity	Self-study
Format	Online e-learning
Duration	2 h 20 min
Assessment	Not assessed
Certification	Certificate of Completion
Version Number	v2.04
Version Date	
Unique Technical Requirements	N/A
Author(s)/Owner(s)	
Intellectual Property Owner	IAEA
Copyright & other restrictions	IAEA copyright
Contact Point	nsnselearning@iaea.org
IAEA Web Taxonomy Tag IDs	3077; 3105; 3232; 3303; 3740; 3744; 3792
IAEA Web Taxonomy Tag Names	Department of Nuclear Safety and Security; Nuclear Safety and Security; Online learning; Security; Security aspects of nuclear facilities; Security of nuclear and other radioactive material; Transport security