Other Nuclear Security

MA&C System Specialist

| Non-Destructive Assay | Destructive Assay | Conduct and Management of Nuclear Material Inventory | Site System of Accounting and Control | State System of Accounting and Control |

Personnel Security Specialist

| Nuclear Security Culture | Personnel Screening | Personnel Reliability Programs | Determining Access | Security Training | Facility Personnel Security Program | Personnel Security Regime |

Information Security Specialist

| Identification of Information Systems | Information Management | IT Security | Digital Control System Security | Information Protection Measures | Facility Information Security Program | Nuclear Information Security Regime |

Nuclear Security Core Physical Protection Concepts

Basic Level Module

- Nuclear Security Terms
- Target Identification
- Threat
- Risk and Risk Management
- Physical Protection Principles
- Test and Evaluation
- Physical Protection Strategies/Approaches
- Physical Protection Guidance Documents for Nuclear Materials and Facilities
- Physical Protection Guidance Documents for Radioactive Materials and Facilities

Intermediate Level Module

- Performance Metrics

Advanced Level Module

Expert Level Module

Nuclear Security Regime (Prevention): State

Basic Level Module

- Developing a State's Nuclear Security Regime (Prevention)
- Radioactive Material Hazards

Intermediate Level Module

- Establishing a State's Material Categorization Program
- Developing a State's National Threat Assessment
- Establishing a State System for Material Control and Accounting Program
- Establishing a State's Physical Protection Program
- Establishing a State's Information/Cyber Security Program
- Establishing a State's Personnel Security Program
- Defining a Competent Authority Architecture for Nuclear Security
- Legal Framework for Nuclear Security (Prevention)

Advanced Level Module

Expert Level Module

Nuclear Security Regime (Prevention): Competent Authorities

Basic Level Module

- Developing a State's Nuclear Security Regulatory Framework (Prevention)
- Developing a State's Nuclear Security Licensing Program (Prevention)
- Developing a State's Nuclear Security Inspection Program (Prevention)
- Resource Management for Nuclear Security

Intermediate Level Module

- State-Level Design Basis Threat
- Developing Implementation Guides
- Defining Requirements for Material Control and Accounting
- Defining Requirements for Physical Protection
- Defining Requirements for Information/Cyber Security
- Defining Requirements for Personnel Security
- Defining Requirements for Transportation Security Systems
- Determining Response Strategy
- Test and Evaluation Program
- Nuclear Security Logistics

Advanced Level Module

- Evaluating Licensee Material Control and Accounting Systems
- Evaluating Licensee Physical Protection Systems
- Evaluating Licensee Information/Cyber Security Systems
- Evaluating Licensee Personnel Security Systems
- Conducting Site Surveys
- Evaluating Transportation Security Systems
- Managing a State's Inventory

Expert Level Module

- Performance Testing of Material Control and Accounting Systems
- Performance Testing of Physical Protection Systems
- Performance Testing of Information/Cyber Security Systems
- Performance Testing of Personnel Security Systems

Nuclear Security Regime (Prevention): Licensees

Basic Level Module

- Nuclear Security Program (Prevention) Implementation

Intermediate Level Module

Target Identification	Developing Security Concept of Operations	Developing A Material Control and Accounting Plan	Developing a Physical Protection Plan	Developing a Information/Cyber Security Plan	Developing a Personnel Security Plan	Developing a Transportation Security Plan
Site-Specific Threat	Transportation Security Threat	Developing a Quality Management Program	Developing a Self-Assessment Program	Developing a Risk Management Program	Test and Evaluation Program	

Advanced Level Module

Site Characterization	Identifying Vital Areas	Developing an Intrusion Detection System	Developing a Video Assessment System	Developing an Access Control System	Developing a Delay System	Developing Guard and Response Force System	Developing Alarm Communications and Display Consoles
Transportation Characterization	Developing Transportation Security System	Evaluating Transportation Security Systems	Evaluating Physical Protection Systems	Conducting a Vulnerability Analysis	Conducting Trends Analysis and Recommendations		

Expert Level Module

Performance Testing of Material Control and Accounting Systems	Performance Testing of Physical Protection Systems	Performance Testing of Information/Cyber Security Systems	Performance Testing of Personnel Security Systems

Nuclear Security Program: Physical Protection

Basic Level Module

- Physical Protection Program Overview

Intermediate Level Module

- Physical Protection Requirements Definition
- Physical Protection System Design
- Operation and Maintenance of Physical Protection Systems
- Physical Protection System Evaluation
- Quality Assurance Program
- Threat Analysis
- Target Analysis
- Compensatory Measures

Advanced Level Module

- Characterization of Facilities
- Vital Area Identification
- Access Control Systems (Personnel & Vehicle)
- Assessment Systems
- Delay Systems
- Vulnerability Analysis for Fixed Facilities
- System Effectiveness Evaluation for Fixed Sites
- Personnel identification Systems
- Consequence Analysis
- Intrusion Detection Systems
- Inspection Systems
- Alarm Display, Assessment and Communication System
- Guards and Response Forces
- Adversary Path Analyses
- Scenario Analysis and Analysis Tools
- Characterization of Transport Event
- Design of Transportation Security System
- Vulnerability Analysis for Transportation Events
- System Effectiveness Evaluation for Transportation Events

Expert Level Module

- Performance Testing for Exterior Intrusion Detection Sensors
- Performance Testing for Interior Intrusion Detection Sensors
- Performance Testing for Passive and Active Barriers
- Operational Testing of Physical Protection Equipment
- Functional Testing of Physical Protection Equipment
- Performance Testing for Response Forces
- Analysis of Evaluation Data

Nuclear Security Prevention Program: Material Control and Accounting

Basic Level Module	Material Control and Accounting Program Overview
Intermediate Level Module	Material Control System ・ Material Accounting System ・ Tracking and Reporting System ・ Classification and Protection of Radioactive Materials ・ Quality Assurance Program ・ Material Control and Accounting Plan
Advanced Level Module	Material Control and Accounting Statistical Concepts and Analyses ・ Non-Destructive Assay ・ Evaluation of Material Control and Accounting System
Expert Level Module	

Nuclear Security Prevention Program: Personnel Security

Basic Level Module	Personnel Security Program Overview
Intermediate Level Module	Personnel Trustworthiness • Staff Security Training • Personnel Identification System • Personnel Security Plan
Advanced Level Module	Assessing the Performance of Personnel Security System • Trends Analysis & Recommendations
Expert Level Module	

Nuclear Security Prevention Program: Information/Cyber Security

Basic Level Module	
	Information/Cyber Security Program Overview

Intermediate Level Module

Administrative Controls for Information/Cyber Security	Technical Controls for Information/Cyber Security	Physical Protection for Information/Cyber System Assets	Mitigation and Recovery of Critical Information/Cyber Systems	Classification and Protection of Sensitive Information	Information/Cyber Security Plan	Identifying Information/Cyber Security System Requirements	System Evaluation of Information/Cyber Systems Security

Advanced Level Module

Assessing the Performance of Information/Cyber Security Systems	Security Audit of Information/Cyber Systems	Certification and Accreditation of Information/Cyber Systems

Expert Level Module

Penetration Testing of Information/Cyber Systems	Performance Analysis of Information/Cyber Systems Security	Secure Configuration of Information/Cyber Systems	Data Log Analyses & Recommendations

Nuclear Security Program: Physical Protection for Fixed Facilities

Basic Level Module

- Physical Protection Program Overview

Intermediate Level Module

| Physical Protection Requirements Definition | Physical Protection System Design | Operation and Maintenance of Physical Protection Systems | Physical Protection System Evaluation | Quality Assurance Program | Threat & Target Analysis | Physical Protection System Alarms | Compensatory Measures |

Advanced Level Module

Characterization of Facilities	Vital Area Identification	Access Control Systems (Personnel & Vehicle)	Assessment Systems	Delay Systems	Vulnerability Analysis for Fixed Facilities	System Effectiveness Evaluation for Fixed Sites	Personnel identification Systems
Consequence Analysis	Intrusion Detection Systems	Inspection Systems	Alarm Display, Assessment and Communication System	Guards and Response Forces	Adversary Path Analyses	Scenario Analysis and Analysis Tools	Insider Analysis
Characterization of Transport Event	Design of Transportation Security System	Vulnerability Analysis for Transportation Events	System Effectiveness Evaluation for Transportation Events	Site Surveys		Neutralization Analysis	Tradeoff Analysis

Expert Level Module

| Performance Testing for Exterior Intrusion Detection Sensors | Performance Testing for Interior Intrusion Detection Sensors | Performance Testing for Passive and Active Barriers | Operational Testing of Physical Protection Equipment | Functional Testing of Physical Protection Equipment | Performance Testing for Response Forces | Analysis of Evaluation Data |

Nuclear Security Program: Physical Protection in Transportation Security

Basic Level Module

Physical Protection Program Overview

Intermediate Level Module

Physical Protection Requirements Definition	Physical Protection System Design	Physical Protection System Evaluation	Threat Analysis	Target Analysis	Compensatory Measures

Advanced Level Module

Characterization of Facilities	Intrusion Detection Systems	Alarm Display, Assessment and Communication System	Delay Systems	Guards and Response Forces	Adversary Path Analyses	Scenario Analysis and Analysis Tools	Insider Analysis
Consequence Analysis	Characterization of Transport Event	Design of Transportation Security System	Vulnerability Analysis for Transportation Events	System Effectiveness Evaluation for Transportation Events	Personnel identification Systems	Neutralization Analysis	Tradeoff Analysis

Expert Level Module

Performance Testing for Exterior Intrusion Detection Sensors in Transporters	Performance Testing for Interior Intrusion Detection Sensors in Transporters	Performance Testing for Passive and Active Barriers in Transporters	Operational Testing of Physical Protection Equipment	Functional Testing of Physical Protection Equipment	Performance Testing for Response Forces	Analysis of Evaluation Data

Nuclear Security Prevention – Core Knowledge and Skills
  A. Definitions – Terms in the Nuclear Security Glossary

  B. Principles – Guiding rules for Physical Protection Regime
  a) Security Culture and Security Management
  b) Risk Management, Targets, and Consequences
  c) Threat Assessment and Design Basis Threat
  d) Graded Approach and Defense-in-Depth
  e) Quality Assurance and Sustainability
  f) Security and Contingency Plans
  g) Confidentiality and Trustworthiness

  C. Approaches – An understanding and ability to apply the following for Physical Protection System design and implementation:
  a) Characterization, design, and evaluation processes for physical protection
  b) Target identification for theft and sabotage
  c) Threats – insider, outsider, cyber/information
  d) Risk and system effectiveness based design and evaluation
  e) Relationship between detection, assessment, communication, delay, and response
  f) The role of each physical protection element (intrusion detection, access control, delay systems, response force communications, etc.) in physical protection system design, analysis, and testing
  g) Multiple, complementary, and continuous lines of detection; detection layers
  h) Balanced protection
  i) Tamper protection and self-test
  j) Alarm prioritization
  k) Response Force Interruption and Neutralization
  l) Adversary and response timelines for timely detection, with critical detection point
  m) Need-to-know and least-privilege
  n) Relationship between physical protection, material control and accounting, information/cyber security, and personnel security

  D. Guidance Documents – Familiarity with the following international instruments that provide guidance and recommendations on ways to ensure physical protection of nuclear and other radioactive material and associated facilities:
  a) Convention on the Physical Protection of Nuclear Materials (CPPNM) and its Amendment
  b) Recommendations for the Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225)
  c) Recommendations for the Physical Protection of Radioactive Material
  d) Code of Conduct on the Safety and Security of Radioactive Sources
  e) Measures to Improve the Security of Nuclear Materials and Other Radioactive Materials (GC(45)/INF/14)]
  f) IAEA Nuclear Security Series

A. Module Title: Prevention Nuclear Security International Instruments

B. Module Objectives:
At the end of this module participants will be able to identify the international instruments that provide guidance and recommendations on ways to ensure the physical protection of nuclear and other radioactive material and associated facilities.

C. Module Description:
This module introduces participants to the international instruments that provide guidance on nuclear security prevention as well as guidance and recommendations on physical protection. Copies of the latest versions of these instruments will be provided and a summary of State participation in each of these international instruments where relevant.

D. Module Topics/Outline:

Nuclear Security Series Framework
- Nuclear Security Fundamentals
- Convention on the Physical Protection of Nuclear Materials (CPPNM) and its Amendment
- Nuclear Security Recommendations on the Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225)
- Code of Conduct on the Safety and Security of Radioactive Sources
- Measures to Improve the Security of Nuclear Materials and Other Radioactive Materials (GC(45)/INF/14)]
- Published IAEA Nuclear Security Series Documents

Other International Instruments
- IAEA International Instruments & Guidance Documents Relevant to Understanding & Carrying Out Nuclear Security Responsibilities (under development)

A. Module Title: Nuclear Security Fundamentals

B. Module Objectives:
At the end of this module participants will be able to outline what a nuclear security regime should do for nuclear security.

C. Module Description:
This module provides national policy makers, legislative bodies, competent authorities, institutions, and individuals involved in the establishment, implementation, maintenance or sustainability of a State's nuclear security regime with the Objective and Essential Elements of the nuclear security regime. The Fundamentals sets forth the basis for the Nuclear Security Series of publications. The Fundamentals also explains how the binding and non-binding international instruments in nuclear security relate to the Nuclear Security Series of publications.

D. Module Topics/Outline:

Introduction
Objectives of a State's Nuclear Security Regime
Essential Elements of a State's Nuclear Security Regime
- State Responsibility
- Identification and Definition of Nuclear Security Responsibilities
- Legislative and Regulatory Framework
- International Transport of Nuclear Material and Other Radioactive Material
- Offenses and Penalties Including Criminalization
- International Cooperation and Assistance
- Identification and Assessment of Nuclear Security Threats
- Identification and Assessment of Targets and Potential Consequences
- Use of Risk-Informed Approaches
- Detection of Nuclear Security Events
- Planning for, Preparedness for, and Response to a Nuclear Security Event
- Sustaining a Nuclear Security Regime
Glossary of Terms

A. Module Title: Convention on the Physical Protection of Nuclear Materials and Its Amendment

B. Module Objectives:
At the end of this module participants will be able to state the elements of the CPPNM that provide the legal basis for a State's nuclear security regime.

C. Module Description:
This module provides participants with information regarding the international legal basis for the physical protection of nuclear materials, namely, the Convention on the Physical Protection of Nuclear Material (CPPNM)

D. Module Topics/Outline:
Background and Current Status
Amendment to CPPNM: Nuclear Security – Measures to Protect Against Nuclear Terrorism and Current Status
Article 1– Definitions
Article 1A – Purpose of the Convention
Article 2 – Use of Nuclear Material for Peaceful Purposes
Article 2A – Physical Protection Regime
Article 3 – Legal Framework
Article 4 – Export, Import, and Transport of Nuclear Material
Article 5 as Amended – Central Authority and International Cooperation
Article 6 as Amended – Confidentiality
Article 7 as Amended – Punishable Offenses
Article 8 – Criminal Jurisdiction
Articles 9, 10, 11, 11A, 11B – Extradition
Articles 12, 13 – Criminal Proceedings
Article 13 A - Transfer of Nuclear Technology to Strengthen The Physical Protection of Nuclear Material and Nuclear Facilities
Article 14 as Amended & Article 22 – Depositary and Its Responsibilities
Article 15 – Annexes
  o Levels of Physical Protection to be Applied in International Transport of Nuclear Materials as Amended
  o Categorization of Nuclear Material as Amended
Article 16 as Amended - CPPNM Conferences
Article 17 – Disputes
Articles 18, 19 – Ratification, Entry into Force, and Current Status
Article 20 – Amendments
Article 21 – Denunciation
Article 23 – Languages

A. Module Title: Nuclear Security Recommendations on the Physical Protection of Nuclear Material and Nuclear Facilities

B. Module Objectives:
At the end of this module participants will be able to outline the essential elements of nuclear security and identify the recommended requirements for physical protection of nuclear material and nuclear facilities.

C. Module Description:
This module provides national policy makers, legislative bodies, competent authorities, institutions, and individuals involved in the establishment, implementation, maintenance or sustainability of a State's nuclear security regime with the recommended requirements to achieve the four physical protection objectives.

D. Module Topics/Outline:

Introduction
Definitions
Objectives of a State's Physical Protection Regime
Elements of a State's Physical Protection Regime for Nuclear Material and Nuclear Facilities
Requirements for Measures Against Unauthorized Removal in Use and Storage
Requirements for Measures Against Sabotage of Nuclear Facilities and Nuclear Material in
    Use and Storage
Requirements for Measures against Unauthorized Removal and Sabotage of Nuclear Material
    During Transport
References

A. Module Title: Elements of a State's Physical Protection Regime for Nuclear Material and Nuclear Facilities

B. Module Objectives:
At the end of this module participants will be able to outline the essential elements of nuclear security and identify the recommended requirements that should be met by States for the application of the fundamental principles.

C. Module Description:
This module provides national policy makers, legislative bodies, competent authorities, institutions, and individuals involved in the establishment, implementation, maintenance or sustainability of a State's nuclear security regime with the recommended requirements to apply the twelve fundamental principles of physical protection.

D. Module Topics/Outline:
State Responsibility (Fundamental Principle A)
International Transport 9 Fundamental Principle B)
Assignment of Physical Protection Responsibilities
Legislative and Regulatory Framework 9 Fundamental Principle C)
Competent Authority (Fundamental Principle D)
Responsibilities of the License Holders (Fundamental Principle E)
International Cooperation and Assistance
Identification and Assessment of Threats (Fundamental Principle G)
Risk-based Physical Protection System and Measures
- Risk Management
- Graded Approach (Fundamental Principle H)
- Defense in Depth (Fundamental Principle I)

Sustaining the Physical Protection Regime
- Security Culture (Fundamental Principle F)
- Quality Assurance (Fundamental Principle J)
- Confidentiality (Fundamental Principle L)
- Sustainability Program

Planning for, Preparedness for, and Response to Nuclear Security Events (Fundamental Principle K)

A. Module Title: Requirements for Measures Against Unauthorized Removal in Use and Storage

B. Module Objectives:
At the end of this module participants will be able to identify categories of nuclear material and outline the recommended physical protection requirements for measures against unauthorized removal of nuclear material in use and storage for each category of nuclear material.

C. Module Description:
This module provides those responsible for the State's physical protection regime with the recommended requirements for physical protection of nuclear material in use and storage. It will demonstrate the grade approach to physical protection based on the category of nuclear material.

D. Module Topics/Outline:
Basis for Concern
Categorization of Nuclear Material
Requirements for Physical Protection Against Unauthorized Removal in Use and Storage
Requirements for Categories I, II, and III Nuclear Material
Additional Requirements for Categories I and II Nuclear Material
Additional Requirements for Category I Nuclear Material
Summary Comparison of Physical Protection Requirements

A. Module Title: Requirements for Measures To Locate and Recover Missing or Stolen Nuclear Material

B. Module Objectives:
At the end of this module participants will be able to outline recommended actions for the coordinated response for the location of recovery of missing or stolen nuclear material.

C. Module Description:
This module provides recommendations for the State and operator for a coordinated response for the location and recovery of missing or stolen nuclear material. This module will also include on-site operations and assistance that can be provided by operators to assist State organizations for the off-site operations needed to locate and recover nuclear material.

D. Module Topics/Outline:
Requirements for the State
Requirements for the Operator
Summary of Recommended Coordination for Response

A. Module Title: Requirements for Measures Against Sabotage of Nuclear Facilities and Nuclear Material in Use and Storage

B. Module Objectives:
At the end of this module participants will be able to describe the consequences of a sabotage event and identify what physical protection measures can be used to mitigate sabotage threats to nuclear facilities.

C. Module Description:
This module provides recommendations for nuclear facilities (nuclear power plants and research reactors) and nuclear fuel cycle facilities (including conversion, enrichments, fabrication, reprocessing , and storage facilities to address the threat of sabotage using physical protection measures using a consequence-based approach.

D. Module Topics/Outline:
General
Unacceptable Radiological Consequences
Requirements for Process to Design Physical Protection System Against Sabotage
Requirements for Physical Protection Against Sabotage at Nuclear Facilities
- Requirements for High Consequences Facilities such as Nuclear Power Reactors
- Requirements for Other Nuclear Facilities and Nuclear Material

Requirements for Associated Measures to Mitigate or Minimize the Radiological Consequences of Sabotage
- Requirements for the State
- Requirements for the Operator

A. Module Title: Requirements for Measures Against Threats to Nuclear Material During Transport

B. Module Objectives:
At the end of this module participants will be able to outline the graded approach for the physical protection against sabotage and unauthorized removal during transport of nuclear material.

C. Module Description:
This module provides recommended requirements for the physical protection of nuclear material during transport.

D. Module Topics/Outline:
Nuclear materials of concern
General Requirements for Transport of Nuclear Material
Requirements for Category I, II, and II Nuclear Material
Additional Requirements for Category I and II Nuclear Material
Additional Requirements for Category I Nuclear Material
State and Carrier Requirements for Measures to Locate and Recover Nuclear Material
Missing or Stolen During Transport
Physical Protection of Nuclear Material Against Sabotage During Transport
- Requirements for the State
- Requirements for the Carrier

A. Module Title: Code of Conduct on the Safety and Security of Radioactive Sources

B. Module Objectives:
At the end of this module participants will be able to outline the recommended physical protection requirements for radioactive sources.

C. Module Description:
This module provides recommended requirements for the physical protection of IAEA radioactive sources of concern including legislation, regulation, and import/export.

D. Module Topics/Outline:
Status of the Code of Conduct
Definitions
Scope and Objectives
Basic Principles
Legislation and Regulations
Regulatory Body
Import and Export of Radioactive Sources
Role of the IAEA
Sources Covered by the Code

A. Module Title: Nuclear Security Recommendations on Radioactive Material and Associated Facilities

B. Module Objectives:
At the end of this module participants will be able to outline the recommendations for instituting a nuclear security regime for the security of radioactive material and associated facilities.

C. Module Description:
Radioactive material is used throughout the world for a wide variety of beneficial purposes. Security measures are needed to prevent the acquisition of such material for a malicious act causing a radiological hazard. This module will provide participants with familiarity with the nuclear security recommendations for implementing a comprehensive nuclear security regime. It includes obligations and commitments associated with international instruments related to the security of radioactive material.

D. Module Topics/Outline:
Introduction

Objectives a of State's Nuclear Security Regime for Radioactive Material, Associated Facilities, and Associated Activities

Elements of a State's Nuclear Security Regime for Radioactive Material, Associated Facilities, and Associated Activities
- o State Responsibility
- o Assignment of Nuclear Security Responsibilities
- o Legislative and Regulatory Framework for the State, Regulatory Body, Operator/Shippers
- o International Cooperation and Assistance
- o Identification and Assessment of Threats
- o Risk-Based Nuclear Security Systems and Measures
- o Sustaining the Nuclear Security Regime
- o Planning and Preparedness for and Response to Nuclear Security Events
- o Import and Export of Radioactive Material
- o Detection of Nuclear Security Events

Security of Radioactive Material, Associated Facilities, and Associated Activities
- o Threat Assessment
- o Graded Approach
- o Categorization of Radioactive Material
- o Regulatory Approach
- o Security of Radioactive Material in Use and Storage
- o Security Management
- o Security of Radioactive Material in Transport
- o Additional References

A. Module Title: Measures to Improve the Security of Nuclear Materials and Other Radioactive Materials (GC(45)/INF/14)]

B. Module Objectives:
At the end of this module participants will be able to outline the Physical Protection Objective and Fundamental Principles.

C. Module Description:
This module provides the four Physical Protection Objectives for nuclear security and the twelve Fundamental Principles of Physical Protection of Nuclear Material and Nuclear Facilities.

D. Module Topics/Outline:
Physical Protection Objectives
Fundamental Principles of Physical Protection of Nuclear Material and Nuclear Facilities

A. Module Title: IAEA Nuclear Security Series

B. Module Objectives:
At the end of this module participants will be able to identify the four types of documents in the Nuclear Security Series and how to access them.

C. Module Description:
This module provides the overall architecture of the Nuclear Security Series including, fundamental, recommendation, implementation, and guidance documents. This module will also cover where to find these documents and the status of each document in the series.

D. Module Topics/Outline:
Nuclear Security Fundamentals (Objectives and Essential Elements)
Recommendations Documents
Implementing Guides
Technical Guidance for Nuclear Security Prevention
Technical Guidance for Nuclear Security Prevention
Other Nuclear Security Series Documents
Status of Nuclear Security Series Documents
IAEA Link to Nuclear Security Series

A. Module Title: Introduction to Characterization, Design, and Evaluation Processes for Physical Protection

B. Module Objectives:
At the end of this module participants will be able to identify the types of design and evaluation approaches, describe the systems engineering approach to physical protection.

C. Module Description:
This module discusses types of design and evaluation methods for physical protection. It further describes a performance-based system engineering process to characterize, design, and evaluate physical protection systems (PPS).

D. Module Topics/Outline:
Types of Design and Evaluation Approaches (Expert, Prescriptive, Component-Based, Performance)
Performance Based System Engineering Process
Defining PPS Requirements
PPS Functions
Design Principles for Physical Protection
System Effectiveness
Risk Definition and Risk Management

A. Module Title: Physical Protection System Functions

B. Module Objectives:
At the end of this module participants will be able to identify physical protection system functions and the elements that perform those functions.

C. Module Description:
This module discusses physical protection functions and describes the elements of physical protection systems that perform those functions.

D. Module Topics/Outline:
Physical Protection System Functions – Detection, Delay, and Response
The Relationship between Detection, Assessment, Communication, Delay, and Response
Detection Processes
Delay Processes
Response Processes
The Role of Each Element in the Physical Protection System
Response Force Interruption and Neutralization

A. Module Title: Physical Protection System Design Approaches

B. Module Objectives:
At the end of this module participants will be able to describe the design approaches used in the design of physical protection systems.

C. Module Description:
This module discusses design approaches that are used characterize, design, and evaluate physical protection systems (PPS).

D. Module Topics/Outline:
Multiple, Complementary, and Continuous Lines of Detection
Detection Layers
Balanced Protection
Tamper Protection and Self-test
Need-to-know and Least Privilege
Timely Detection and Response – Adversary and Response Timelines

A. Module Title: Introduction to Risk Management

B. Module Objectives:
At the end of this module participants will be able to identify the elements of risk and the role of risk management in physical protection.

C. Module Description:
This module provides participants the introduction to risk in physical protection and management of this risk in physical protection system design and evaluation.

D. Module Topics/Outline:
PPS Objectives
Role of Risk Management in Physical Protection
Security Risk Elements
Three Ways to Reduce Risk
Two Approaches to Establishing Risk Requirements for Physical Protection Systems

A. Module Title: Introduction to Target Identification

B. Module Objectives:
   At the end of this module participants will be able to identify the types of targets considered during physical protection system characterization, design, and evaluation.

C. Module Description:
   This module provides participants the introduction to target identification concepts and the use of targets in physical protection system design and evaluation.

D. Module Topics/Outline:
   PPS Objectives
   Target Types (Theft/Sabotage)
   Unacceptable Radiological Consequences
   Theft Targets – Material of Concern
   Sabotage Methods
   Vital Areas Concepts
   Target Identification Concept Application
   Targets and Security Policy

A. Module Title: Introduction to Physical Protection Threats

B. Module Objectives:
At the end of this module participants will be able to identify the types of threats considered during physical protection system characterization, design, and evaluation.

C. Module Description:
This module provides participants the introduction to threat characterization and the use of threats in physical protection system design and evaluation.

D. Module Topics/Outline:
PPS Objectives
Role of Threat in Physical Protection
Threats to Nuclear Materials – Outsiders, Insiders, Cyber/Information Threats
Threat Assessment and Design Basis Threat
Organization Involved in Both
Policy Considerations
Decisions to Be Made

A. Module Title: Alarm Prioritization

B. Module Objectives:
At the end of this module participants will be able to identify the types of alarms, designate alarm levels, be able to decide the basis for alarm prioritization, and describe the role of alarm assessment.

C. Module Description:
This module discusses the types and levels of alarms, the need for alarm prioritization and schemes for alarm prioritization. It also discusses the role of alarm assessment and what recommended information is associated with an alarm.

D. Module Topics/Outline:
Types of Alarms (real, false, nuisance)
The Need for Alarm Prioritization
Some Example Alarm Prioritization Schemes
Designating Alarm Levels
Alarm Assessment
Useful Information Associated with an Alarm

A. Module Title: Physical Protection and Other Nuclear Security Prevention Programs

B. Module Objectives:
At the end of this module participants will be able to describe the relationship between physical protection and other nuclear security prevention programs.

C. Module Description:
This module discusses nuclear security programs and describes how elements of other nuclear security prevention programs impact the design and operation of physical protection systems.

D. Module Topics/Outline:
Nuclear Security Overview
Nuclear Security Prevention Programs
The Impact of Material Control and Accounting on Physical Protection Systems
The Impact of Information/Cyber Security on Physical Protection Systems
The Impact of Personnel Security on Physical Protection Systems

A. Module Title: Physical Protection Requirements Definition Analyses

B. Module Objectives:
At the end of this module participants will be able to identify the analyses conducted in association with physical protection systems.

C. Module Description:
This module introduces the participants to various analyses used in the requirements definition, design, characterization, and evaluation of physical protection systems.

D. Module Topics/Outline:

Lifecycle of Physical Protection Systems
Consequence Analysis
Threat Analysis
Target Analysis
Vital Area Identification Analysis
Tradeoff Analysis

A. Module Title: Consequence Analysis

B. Module Objectives:
At the end of this module participants will be able to describe the consequences resulting from malicious acts using nuclear and radioactive materials.

C. Module Description:
This module introduces the participants to the consequences resulting from theft of nuclear and other radioactive material and sabotage to associated facilities. This module also addresses consequences resulting from malicious acts committed during transport of nuclear and other radioactive material.

D. Module Topics/Outline:

Nuclear Event Scale
Theft Consequences
Sabotage Consequences
Unacceptable Radiological Consequences
Understanding Consequences Associated with Facilities
Understanding Consequences Associated with Transport

A. **Module Title: Threat Analyses**

B. **Module Objectives:**
At the end of this module participants will be able to identify malicious threats to nuclear and other radioactive materials.

C. **Module Description:**
This module introduces the participants to threat analyses used as a basis for generating a design basis threat used in the requirements definition, design, characterization, and evaluation of physical protection systems.

D. **Module Topics/Outline:**

Threat Types – Terrorists, criminals, protestors, insiders, etc.
Characterization of Threats – Motivation, capability, access, resources
Collusion Threat
Sources of Information
Prioritization of Threats
Design Basis Threat

A. Module Title: Target Analyses

B. Module Objectives:
At the end of this module participants will be able to identify the targets associated with nuclear and radioactive material facilities and transport.

C. Module Description:
This module introduces the participants to processes to identify targets used in the requirements definition, design, characterization, and evaluation of physical protection systems.

D. Module Topics/Outline:

Target Types – Theft Sabotage
Unacceptable Radiological Consequences
Theft Targets – Materials of Concern
Identifying Theft Targets
Sabotage Methods
Vital Area Concepts
Identifying Sabotage Targets – Direct and Indirect
Information Included in a Target Listing
Target Analysis Uses
Protection of Sensitive Information

A. Module Title: Vital Area Analyses

B. Module Objectives:
At the end of this module participants will be able to identify the vital areas associated with nuclear and other radioactive material facilities.

C. Module Description:
This module introduces the participants to the processes associated with vital area analysis to identify potential sabotage targets and to group and prioritize areas for physical protection.

D. Module Topics/Outline:

Definitions
Safety Basics
Policy Considerations
Operational States
Vital Area Identification Analysis Process
Management and Organization to Support Vital Area Identification Analysis

A. Module Title: Safety Systems Basics

B. Module Objectives:
   At the end of this module participants will be able to recognize the role of safety analyses in vital area analysis, the use of Probabilistic Safety Analysis, event trees, and fault trees.

C. Module Description:
   This module introduces the participants to the nuclear safety terms, tools, and sources of information for use in a vital area analysis.

D. Module Topics/Outline:

   Definition of Terms
   Purpose and Types of Safety Analysis
   Defense-in-Depth and Safety Levels
   Deterministic Safety Analysis (DSA)
   Probabilistic Safety Analysis (PSA)
   PSA Process
   Event Trees
   Fault Trees
   Using DSA and PSA Information in Vital Area Identification

A. Module Title: Policy Considerations and Operational States

B. Module Objectives:
At the end of this module participants will be able to describe policy considerations that affect vital area identification/analysis.

C. Module Description:
This module introduces the participants to seven policy considerations and competent authority policy decisions affecting vital area identification analysis.

D. Module Topics/Outline:

Seven Policy Considerations
- o Unacceptable Radiological Consequences
- o Facility Operational States and Facility Safe States
- o Treatment of Random Failures
- o Treatment of Maintenance
- o Availability of Equipment not Located in Vital Areas
- o Recovery Actions
- o Human Errors

Competent Authority Policy Decisions
- o Facility Operational States
- o Safe State
- o Random equipment failures
- o Maintenance
- o Availability of equipment not located in vital areas
- o Treatment of recovery actions and human error

A. Module Title: Vital Area Identification Process

B. Module Objectives:

At the end of this module participants will be able to describe the five steps for vital area identification.

C. Module Description:

This module introduces the participants to a process for vital area identification analysis.

D. Module Topics/Outline:

Baseline Vital Area Identification Approach
Definition of Terms
Five Step Process
1. Identify sources of radioactive releases and possible MAIEs
2. Sabotage fault tree modeling
3. Collect and model location data
4. Identify candidate sets of vital areas
5. Select vital areas

A. Module Title: Vital Area Identification Process - Identifying Malevolent Acts and Sources of Radioactive Releases

B. Module Objectives:
At the end of this module participants will be able to describe how to identify malevolent act initiating events and to use them as part of a vital area identification analysis.

C. Module Description:
This module introduces the participants to the terms associated with malevolent act initiating events (MAIEs) and the use of safety analysis to generate MAIEs.

D. Module Topics/Outline:

Definition of Terms
Approaches to Identifying Malevolent Act Initiating Events (MAIEs)
Determination of Safety Functions and Associated Systems
Assessment of Systems
Grouping and Bounding of MAIEs
Documentation

A. Module Title: Sabotage Fault Tree Modeling

B. Module Objectives:
At the end of this module participants will be able to describe how fault trees may be used to model sabotage events and consequences for use in vital area identification.

C. Module Description:
This module introduces the participants to the use of safety analysis information and fault tree modeling to generate system sabotage fault trees for use in vital area identification analysis.

D. Module Topics/Outline:

Vital Area Sabotage Logic Model
Fault Trees
Event Trees
Difference Between Event and Fault Tree Models
System Sabotage Fault Tree
Generating Sabotage Fault Trees

A. Module Title: Collection and Modeling of Location Data

B. Module Objectives:
At the end of this module participants will be able to describe methods for collecting location data its integration with sabotage fault trees.

C. Module Description:
This module introduces the participants to the strategies and types of data to be collected to support vital area identification analysis.

D. Module Topics/Outline:

Objectives for Location Data Collection
Strategies
Data to be Collected
Incorporation of Location Data in a Sabotage Fault Tree
Three Scenarios for Linking Sabotage locations to Acts of Disabling Equipment,
    Components, or Devices

A. Module Title: Identification of Candidate Sets of Vital Areas

B. Module Objectives:
At the end of this module participants will be able to describe how to identify vital areas using sabotage fault trees and use this information for generation protection location trees.

C. Module Description:
This module introduces the participants to the concepts of Boolean algebra and its application in solving sabotage fault trees. This module will also describe how to use Boolean algebra and the complement of the facility sabotage fault tee to generate protection location trees.

D. Module Topics/Outline:

Definition of Terms
Basic Boolean Algebra
Development of Protection Location Tree
Minimal Path Sets
Solution of Protection Location Tree

A. Module Title: Selection of Vital Areas

B. Module Objectives:
At the end of this module participants will be able to describe how to select vital areas using sabotage fault trees and consider impacts, reliability, and cost in prioritizing vital area protection.

C. Module Description:
This module introduces the participants to cost, reliability, and impact to physical protection systems for consideration in prioritization of identified vital areas.

D. Module Topics/Outline:

Consideration for Selection of Vital Areas
Ease, Effectiveness and Cost of Protection
Impacts Physical Protection
Reliability of Protected Components, Equipment, and Devices
Documentation
Trade-off Analysis

A. Module Title: Trade-off Analysis

B. Module Objectives:
At the end of this module participants will be able to describe the role of trade-off analysis and some considerations for trade-off analysis.

C. Module Description:
This module introduces the participants to the concepts of trade-off analysis and its application in the evaluation of solutions considered in physical protection systems.

D. Module Topics/Outline:

Definition of Terms
Role of Trade-off Analysis
Cost Factors
Safety Factors
Operational Impact Factors
Performance Factors
Weighting Factors
Conducting Trade-off Analysis

A. Module Title: Management and Organization in Support of Vital Area Identification Analysis

B. Module Objectives:
At the end of this module participants will be able to outline the team composition and quality assurance measures for vital area identification analysis.

C. Module Description:
This module introduces the participants to the typical vital area identification analysis team composition based on skills and knowledge and the associated roles and responsibilities for each member. This module also introduces the quality components and associated quality assurance reviews to sustain vital area identification.

D. Module Topics/Outline:

Vital Area Identification Team Composition
Roles and Responsibilities
Quality Components
Quality Assurance Reviews

A. Module Title: Physical Protection Sustainability Program

B. Module Objectives:
At the end of this module students will be able to:

1. Identify sustainability components
2. Describe the role of each sustainability component
3. Identify the sustainability decisions to be made

C. Module Description:
This module introduces participants to the strategies and principles associated with the sustainability of physical protection systems.

D. Module Topics/Outline:

The Role of Physical Protection Systems
The Need for a Sustainability Program
Sustainability Strategies
Sustainability Components
- Performance/Capability Assurance
- Configuration Management
- Procedures/Process
- Training
- Organization/Personnel
- Life Cycle Management

Equipment Maintenance Logistics
Sustainability Decisions to Be Made

A. Module Title: Physical Protection National Training Program

B. Module Objectives:
At the end of this module students will be able to plan and design a national training program for physical protection systems.

C. Module Description:
There are three main facets to physical protection – the people, procedures, and equipment. In order to sustain an effective physical protection program, a training program is needed to help ensure that capable staff are available to operate and maintain physical protection systems. This module provides participants with the aspects of a national physical protection training program and the options to be considered.

D. Module Topics/Outline:
- Personnel Associated with a Physical Protection Program
- Levels of Physical Protection Training
- Types of Physical Protection Training
- Frequency of Training
- Assessing Effectiveness
- Training Records
- National Training Center Versus Site Training
- Decisions to Be Made

A. Module Title: Physical Protection Configuration Management

B. Module Objectives:
At the end of this module students will be able to discuss the role and processes associated with configuration management.

C. Module Description:
Physical Protection configuration management is the discipline of identifying, recording, evaluating, tracking, coordinating, reporting and controlling aspects of physical protection program by processes that maintain the integrity of these aspects through out the life cycle of the physical protection system.

D. Module Topics/Outline:
Goals of configuration management
Classic operational aspects of configuration management
Identifying and addressing configuration management needs
Configuration Management Functions

- Configuration Management Planning and Management
- Configuration Identification
- Configuration Change Management
- Configuration Status Accounting, and
- Configuration Verification & Audit

A. Module Title: Physical Protection System Life Cycle

B. Module Objectives:
At the end of this module students will be able to discuss the lifecycle phases of a physical protection system.

C. Module Description:
Physical protection systems have a lifecycle – a beginning, and end, and existence in between. This module discusses the lifecycle of physical protection systems with emphasis on sustainability.

D. Module Topics/Outline:
The Life Cycle of Physical Protection Systems
Inception
Creation
Implementation
Sustainable Operation
Modification
Termination
Evaluation and Tradeoff Analysis

Nuclear Security Regime
Nuclear Security Regime Prevention Overview

A. Module Title: Developing a State's Nuclear Security Regime – Prevention

B. Module Objectives:
At the end of this module participants will be able to:
- State the prevention responsibilities for a Member State
- Identify the entities that make up a nuclear security regime
- Identify the prevention programs that support a nuclear security regime
- Distinguish between prevention and detection

C. Module Description:
This module introduces the participants to nuclear security objectives and Member State responsibilities with a focus on prevention.

D. Module Topics/Outline:

Nuclear Security Definition
Nuclear Security International Instruments
Member State Responsibilities for Nuclear Security
Nuclear Security Regime Entities
Nuclear Security Prevention Programs and Their Role
Decisions to Be Made

E. Knowledge and Skills Mapping
Core Nuclear Security Knowledge

Nuclear Security Regime
Material Categorization

A. Module Title: Developing a State's Material Categorization Program

B. Module Objectives:
At the end of this module participants will be able to:
- Interpret INFCIRC/225 Material Categorization Tables
- Interpret Table 1 in the "Code of Conduct o the Safety and Security of Radioactive Sources"
- Define a State-level Material Categorization Table

C. Module Description:
This module provides the participants with the foundation upon which to determine their country's nuclear and radioactive material categorization. An optional exercise to create a draft program may be included.

D. Module Topics/Outline:

Purpose of a Material Categorization Program
INFCIRC/225 Material Categorization Tables
Table 1 from "Code of Conduct on the Safety and Security of Radioactive Sources"
Determining Material Attractiveness
Determining and Identifying Accepted Material Within the State
Determining Thresholds of Unacceptable Radiological Consequences
Determining Authorized Facilities

E. Knowledge and Skills Mapping

Topic	Knowledge and Skill References
Purpose of a Material Categorization Program	
INFCIRC/225 Material Categorization Tables	1.1.1.1.a
Table 1 from "Code of Conduct on the Safety and Security of Radioactive Sources"	1.1.1.1.b
Determining Material Attractiveness	1.1.1.1.c
Determining and Identifying Accepted Material Within the State	1.1.1.1.d
Determining Thresholds of Unacceptable Radiological Consequences	1.1.1.1.e
Determining Authorized Facilities	1.1.1.1.f, 1.1.1.1.g

Nuclear Security Regime
National Threat Assessment

A. Module Title: Developing a State's National Threat Assessment
   Equivalent to IAEA-NSS12/NSM6

B. Module Objectives:
   At the end of this module participants will be able to:
   - Identify national threat assessment requirements
   - Conduct a threat assessment
   - Document a threat assessment

C. Module Description:
   This module provides the participants with the foundation upon which to conduct a national threat assessment to be used as the basis for physical protection design basis threat.

D. Module Topics/Outline:

   Role of National Threat Assessment
   Elements of a Threat Assessment
   Data Required for a Threat Assessment
   Identifying National Targets and Strategic Locations
   Describing Non-State, Domestic, and Indigenous Threats
   Protecting Threat Assessments
   Maintaining Threat Assessments
   Role of Design Basis Threat and Beyond Design Basis Threat

E. Knowledge and Skills Mapping

Topic	Knowledge and Skill References
Role of National Threat Assessment	1.1.2.1.c, 1.1.2.1.e, 1.1.2.1.f
Elements of a Threat Assessment	1.1.2.2.a, 1.1.2.3.a, 1.1.2.3.c, 1.1.2.3.d
Data Required for a Threat Assessment	1.1.2.2.b, 1.1.2.3.b
Identifying National Targets and Strategic Locations	1.1.2.1.a, 1.1.2.1.g
Describing Non-State, Domestic, and Indigenous Threats	1.1.2.1.b, 1.1.2.1.d
Protecting Threat Assessments	
Maintaining Threat Assessments	1.1.2.4.a, 1.1.2.4.b
Role of Design Basis Threat and Beyond Design Basis Threat	1.1.2.3.e, 1.1.2.5.a-c

Nuclear Security Regime
State-Level Material Control and Accounting

A. Module Title: Establishing a State System for Nuclear Material Control and Accounting

B. Module Objectives:
At the end of this module participants will be able to:
- Define the requirements for material control and accounting of nuclear material during use and storage, and during transport
- Establish the legal framework to govern material control and accounting
- Establish a State-level nuclear material inventory baseline
- Establish a State-wide material control system

C. Module Description:
This module provides the participants with the foundation upon which to establish a State's nuclear material control and accounting program.

D. Module Topics/Outline:

International Instruments and Resources
Material Control and Accounting Concepts
Defining a State's Nuclear and Radioactive Material and Associated Facilities
Techniques for Material Control and Accounting
Inventory and Reporting Requirements
Material Custody
Legal Framework for Material Control and Accounting

E. Knowledge and Skills Mapping

Topic	Knowledge and Skill References
International Instruments and Resources	1.1.4.2.c
Material Control and Accounting Concepts	1.1.4.1.a-b
Defining a State's Nuclear and Radioactive Material and Associated Facilities	1.1.4.1.c-d, 1.1.4.3.f
Techniques for Material Control and Accounting	1.1.4.1.e-g, 1.1.4.4.a-b
Inventory and Reporting Requirements	1.1.4.2. c
Material Custody	1.1.4.3.a-e, 1.1.4.4.d, 1.1.4.4.e
Legal Framework for Material Control and Accounting	1.1.4.2. a-d, 1.1.4.4.c

Nuclear Security Regime
Physical Protection Regime

A. Module Title: Establishing a State's Physical Protection Program

B. Module Objectives:
At the end of this module participants will be able to:
- Define the requirements for physical protection of nuclear material during use and storage, and during transport
- Establish the legal framework to govern physical protection
- Define requirements, roles, and responsibilities for response to sabotage and theft incidents

C. Module Description:
This module provides the participants with the foundation upon which to establish a State's physical protection program.

D. Module Topics/Outline:

International Instruments and Resources for Physical Protection
Physical Protection Fundamental Principles
National Threat Assessment
Defining a State's Nuclear and Radioactive Material and Associated Facilities
Radiation Hazards
Response to Events
Physical Protection Approaches
Defining Requirements for Physical Protection
Defining Competent Authority(s) for Physical Protection
Legal Framework for Physical Protection

E. Knowledge and Skills Mapping

Topic	Knowledge and Skill References
International Instruments and Resources for Physical Protection	1.1.3.1.a
Physical Protection Fundamental Principles	1.1.3.1.b
National Threat Assessment	1.1.3.1.d
Defining a State's Nuclear and Radioactive Material and Associated Facilities	1.1.3.2.a-b
Radiation Hazards	1.1.3.3.b
Response to Events	1.1.3.3.c-g
Physical Protection Approaches	Core Physical Protection Knowledge
Defining Requirements for Physical Protection	1.1.3.1.c, 1.1.3.3.a
Defining Competent Authority(s) for Physical Protection	1.1.3.2.c, 1.1.7.g-h
Legal Framework for Physical Protection	

Nuclear Security Regime
Information/Cyber Security Regime

A. Module Title: Establishing a State's Information/Cyber Security Program

B. Module Objectives:
At the end of this module participants will be able to:
- Define the requirements for information/cyber security
- Define a State system for information and material classification
- Establish the legal framework to govern information/cyber security

C. Module Description:
This module provides the participants with the foundation upon which to establish a State's information/cyber security program.

D. Module Topics/Outline:

Sensitive Information Categorization
Forms of Information
Physical Protection Requirements for Sensitive Information
Maintenance of Classification System
Defining Competent Authority(s) for Information/Cyber Security
Legal Framework for Information/Cyber Security

E. Knowledge and Skills Mapping

Topic	Knowledge and Skill References
Sensitive Information Categorization	1.1.5.1.a, 1.1.5.1.b, 1.1.5.2.a
Forms of Information	1.1.5.1.a
Physical Protection Requirements for Sensitive Information	1.1.5.2.b
Defining Competent Authority(s) for Information/Cyber Security	1.1.5.2.c, 1.1.7.g-h
Maintenance of Classification System	1.1.5.2.c
Legal Framework for Information/Cyber Security	1.1.5.3.a

Nuclear Security Regime
Personnel Security Regime

A. Module Title: Establishing a State's Information/Cyber Security Program

B. Module Objectives:
At the end of this module participants will be able to:
- Define the requirements for personnel security
- Define a State system for security personnel qualification
- Establish the legal framework to govern personnel security

C. Module Description:
This module provides the participants with the foundation upon which to establish a State's personnel security program.

D. Module Topics/Outline:

Personnel Trustworthiness
Nuclear Security Culture
Requirements for Personnel Trustworthiness Program and Human Reliability Program

E. Knowledge and Skills Mapping

Topic	Knowledge and Skill References
Sensitive Information Categorization	1.1.5.1.a, 1.1.5.1.b, 1.1.5.2.a
Forms of Information	1.1.5.1.a
Physical Protection Requirements for Sensitive Information	1.1.5.2.b
Defining Competent Authority(s) for Information/Cyber Security	1.1.5.2.c, 1.1.7.g-h
Maintenance of Classification System	1.1.5.2.c
Legal Framework for Information/Cyber Security	1.1.5.3.a

Nuclear Security Regime
Competent Authority Architecture

A. Module Title: Defining a Competent Authority Architecture for Nuclear Security

B. Module Objectives:
At the end of this module participants will be able to:
- Identify the entities and programs associated with a nuclear security regime
- Define the architecture for competent authorities associated with nuclear security

C. Module Description:
This module provides the participants with the foundation upon which to assign the responsibilities associated with nuclear security to the appropriate competent authority.

D. Module Topics/Outline:

International Instruments and Resources
Roles and Responsibilities
Decisions to Be Made
Conflict Resolution

E. Knowledge and Skills Mapping

Topic	Knowledge and Skill References
International Instruments and Resources	1.1.7.1.a-b
Roles and Responsibilities	1.1.7.1.c
Decisions to Be Made	1.1.7.1.d-g
Conflict Resolution	1.1.7.1.h

Nuclear Security Regime
Legal Framework

A. Module Title: Legal Framework for Nuclear Security (Prevention)
   (Equivalent to IAEA-NSS12/NSM2)

B. Module Objectives:
   At the end of this module participants will be able to:
   - Identify the entities and programs associated with a nuclear security regime
   - Define the architecture for competent authorities associated with nuclear security

C. Module Description:
   This module provides the participants with the foundation upon which to develop the necessary legal framework to support nuclear security.

D. Module Topics/Outline:

   International Instruments and Resources
   Roles and Responsibilities
   Criminal, Unauthorized, Malicious Acts
   Consequences of these Acts
   Defining Criminal Offenses and Commensurate Penalties
   Legal Authorities
   Legal Aspects of Import/Export and Transit of Nuclear and Other Radioactive Materials
   Other Indicators

E. Knowledge and Skills Mapping

Topic	Knowledge and Skill References
International Instruments and Resources	Core Physical Protection Knowledge
Roles and Responsibilities	1.1.7.1.d
Criminal, Unauthorized, Malicious Acts	1.1.1.2.a
Consequences of these Acts	1.1.1.1.e
Defining Criminal Offenses and Commensurate Penalties	1.1.1.2.b
Legal Authorities	1.1.7.1.d
Legal Aspects of Import/Export and Transit of Nuclear and Other Radioactive Materials	1.1.1.3.a-e, 1.1.1.4.a-e
Other Indicators	1.1.1.5.a-e

Nuclear Security Regime
Radioactive Material Hazards

A. Module Title: Radioactive Material Hazards
   Equivalent to parts of IAEA-NSS12/NSM5

B. Module Objectives:
   At the end of this module participants will be able to:
   - Identify nuclear and radioactive materials
   - Estimate the consequences of malicious incidents involving these materials and acc

C. Module Description:
   This module provides the participants with the foundation upon which to understand the hazards from radioactive materials.

D. Module Topics/Outline:

   Types of Radiation
   Hazards Associated with Radioactive Material
   Indicators of Radiation Exposure
   Systems for Indicator Detection
   Response to Radiation Exposure Events

E. Knowledge and Skills Mapping

Topic	Knowledge and Skill References
Types of Radiation	1.1.1.5.a
Hazards Associated with Radioactive Material	1.1.1.5.a
Indicators of Radiation Exposure	1.1.1.5.b
Systems for Indicator Detection	1.1.1.5.c-d
Response to Radiation Exposure Events	1.1.1.5.e