



IAEA

International Atomic Energy Agency
Atoms for Peace and Development

Development of a Master's Degree Programme in Nuclear Safety and Security

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Outline

- Programme Objective, Outcome and Outputs
- Programme Design, Development and Implementation Process
- Project Status
- Development Progress
- Next Steps

Objective of the Project



- The objective of the project is to support Member States to build capacity for nuclear safety and security through the establishment of a Master Degree Programme on nuclear safety and security, based on the IAEA safety standards and security guidance and international good practices to address the competency needs of Member States.

Outcome and Outputs



Outcome:

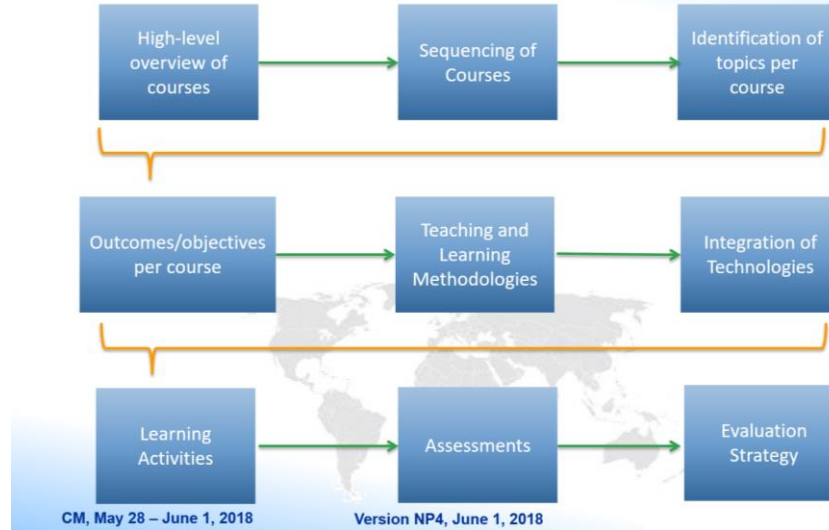
- Enhanced national education and human resources development in nuclear safety and security

Outputs:

- Master of Science programme in Nuclear Safety and Security Curriculum, educational materials, and courses
- Articulation Agreement(s) between national, regional education institutions or training institutions, thereby documenting the transfer policies for this proposed Masters level programme.

Design, Development & Implementation Processes

Design, Development & Implementation Processes



Instructional Methodology

- Standard Classroom Model



Project Status

- 2 Consultancy Meetings and HBAs to develop:
 - A Programme Overview
 - Instructional Design Document
 - Draft Course List and Descriptions
 - Draft Course Syllabuses

Course List



- Core Courses

Label	Title
NSSC1	Nuclear Safety and Security Fundamentals and Interfaces
NSSC2	Nuclear Safety and Security Culture, Legal Framework and International Cooperation
NSSC3	Safety and Security in Transport of Nuclear and Radioactive Materials
NSSC4	Nuclear Emergency Preparedness and Response
NSSC5	Nuclear Fuel Cycle and Waste Management
NSSC6	Nuclear Safety and Security Design and Analysis Fundamentals

Course List

- Safety Track

Label	Title
NSFE1	Reactor Kinetics, Dynamics and Control and Fuel Management
NSFE2	Thermal hydraulics and Fuel Management
NSFE3	Probabilistic Safety Assessment (PSA) Methodology and Tools
NSFE4	Deterministic Safety Assessment Methodology and Tools
NSFE5	Severe Accidents Assessment Methodology and Tools
NSFE6	Operational Safety, Commissioning and Compliance
NSFE7	Decommissioning Safety Methodology
NSFE8	Nuclear Siting, Environmental Impact and New Build Licensing
NSFE9	Safety Project

Course List



- Security Track

Label	Title
NSCE1	Physical protection systems design, evaluation and technologies
NSCE2	Nuclear material accounting and control (NMAC)
NSCE3	National Detection Architecture (NDA) and Risk-informed approach
NSCE4	Nuclear security framework for major public events
NSCE5	Nuclear forensics and radiological crime scene management
NSCE6	Cyber security and sensitive nuclear information management
NSCE7	Prevention, Detection, and Response to criminal or unauthorized acts
NSCE8	Insider threats
NSCE9	Security Project

Course List



- Radiation Protection Track

Label	Title
NRPE1	Biological effects of radiation
NRPE2	Interaction of radiation with matter
NRPE3	Environmental impact of radiation sources
NRPE4	Assessment of internal and external exposure
NRPE5	Radiation Protection from Non-medical Exposure
NRPE6	Medical exposure
NRPE7	Shielding methodology and tools
NRPE8	Radiation Protection Project

Progress

- Draft course descriptions and sample syllabus presented for feedback at INSEN Annual Meeting (July 2018)
- Draft course descriptions and sample syllabus presented for feedback at Regional Meeting on Nuclear Safety Education (August 2018)
- All draft course lists, descriptions and syllabuses reviewed externally and internally (October 2018)

Current Activities

- 3rd Consultancy Meeting to respond to reviewers' comments and initiate revision of course descriptions and syllabuses to address reviewers' comments (November 2018)
- 4 new courses needed to address reviewers' comments

Next Steps

- Finalization of Course List, Descriptions and Syllabuses (November/December 2018)
- Submission of a DPP for proposed TECDOC to provide practical guidance on implementation of the programme (November/December 2018)
- Finalization of Curriculum Mapping to ensure alignment of courses and that the quality of the curriculum reflects a Masters level of education and is fit for purpose (January 2019)

Next Steps

- Identification of the national/regional education institutions interested in and capable of hosting the programme(1st quarter 2019)
- Discussions with Universities to develop Articulation Agreements and Pilot Programmes (1st quarter 2019)
- Initial Pilot programmes implemented in host institutions (4th quarter 2019)



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Thank you!

