Advanced Educational Methodology on Nuclear Control for Establishment of International Training Center

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1. Introduction

In accordance with the Notice of Ministry of Education, Science and Technology(MEST), KINAC has carried out compulsory education for domestic inspectors, nuclear operators and R&D project managers on nuclear fuel cycle. In addition, as a part of Korea President's declaration at 1st International Nuclear Security Summit Conference, KINAC has to establish an International Training Center(ITC) to increase mutual cooperation among Member States as well as to strengthen their capabilities for effectively coping with current nuclear threats. Along with this, this paper suggests an advanced educational methodology to develop international training course on nuclear control as well as to contribute to effectively ensure human resource in developing countries.

2. Advanced Educational Methodology

The objective of this study is not only to enhance a capability of domestic human resource on nuclear control, but also to cultivate technical ability for Member States to import domestic model of nuclear power plant. Advanced educational methodology described in this paper consists of an educational course mechanism, main contents of training programs and their availability, etc.

2.1 Educational Course Mechanism

Nuclear control field is essential to cope with international regime of nuclear non-proliferation as well as to establish domestic regime of nuclear industry. In order that Member States may implement pursuant to international norms on nuclear control, they have to effectively carry out educational and training program for their nuclear operators and related R&D project managers. However, this filed tends to change and strengthen toward a substantial countermeasure, and this trend is necessary for them to recognize its importance and prepare appropriate measure on time.

Along with this, this study suggests three stages of advanced educational methodology to enhance the effective educational results for the educatees as follows : That means a kind of graded approach methodology to train the educatees according to their expertise.

First, video material focuses on overview of nuclear control filed, that is, introduction on nuclear non-proliferation regime, safeguards, physical protection, and export/import control. This material consists of three stage of primary, intermediate, and advanced course. Its main characteristic is that a lecturer can edit and prepare his lecturing material by the knowledge level of trainers, and adjust a lecturing schedule, and obtain his desirable material from the main server of KINAC at any time, and at any place.

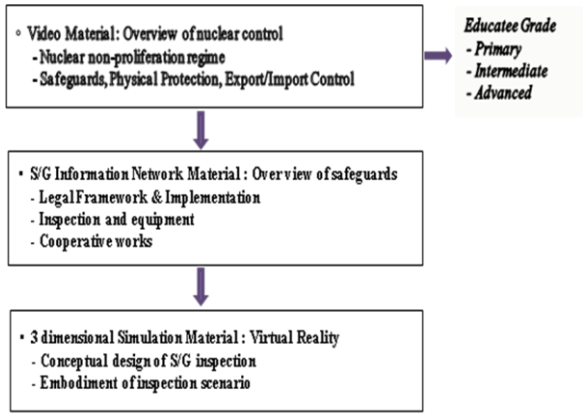

Fig.1. Effective Educational Course Mechanism

Second, Safeguards Information Network Material is a kind of broader and detailed training material for technical staff engaging in nuclear inspection on safeguards. It includes detailed information of legal frame work and implementation, inspection process and its equipment, and bilateral cooperation with the IAEA, etc. This material is very flexible and available for the trainer to be more informative and self-access to this field.

Finally, 3 Dimensional Simulation Material consist of a kind of virtual reality for implementing several types of safeguards inspections. It is so available for preliminary inspector to experience several inspections at hypothetical nuclear facility. In addition to this, it includes a kind of continuous self-assessment as the trainer accesses on the program, and the lecture can assess his grade at real time.

2.2 Main Contents of Video Program

As the video program related to typical category of nuclear control is a first stage of program and comprehensive in nuclear non-proliferation field, this paper puts emphasis on the introduction of the program. The main contents of the program is as follows :

Table 1 : Main Contents of Video Program(example)

Content	Session	Sub-session	Time
Nuclear non-proliferation	Definition/Norms		About 3 min. Per sub-session
	International cooperation		
Nuclear Control regime & Domestic Regulations	Background & history		
	Legal framework		
Safeguards	Domestic S/G regime	*Educatee Grade - Primary - Intermediate - Advanced*	
	SSAC		
	S/G inspection		
	Reporting		
Physical Protection	Definition/Introduction	*Educatee Grade - Primary - Intermediate - Advanced*	
	Domestic PP regime		
	Implementing System		
	Radiological Terror		
Export/Import Control	Definition/Introduction	*Educatee Grade - Primary - Intermediate - Advanced*	
	Implementing System		
	NEPS		

As described above, the lecturer is very easy and flexile to appropriately prepare lecturing materials pursuant to technical level of educates, and can recognize the understanding of them at real time.

2.3 Availability and Contribution

This advanced educational methodology, as it is a graded approach to the educatees, would be available to develop international training course on nuclear control as well as to contribute to effectively ensure human resource in developing countries. In addition, three stages of educational programs would contribute to substantially train both domestic inspector and international technical staff engaging in nuclear control field.

3. Conclusions

An advanced educational methodology suggested in this paper has three stages of graded approach programs. Video program of these programs would be so helpful to recognize a comprehensive picture of nuclear control field, and the other programs will be available to effectively lecture preliminary inspectors in developing countries. In near future, continuous complementary works for the programs will be necessary to meet as substantial model.

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