IAEA SSR-6 TRANSPORT REGULATIONS; e-LEARNING PLATFORM

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Abstract:

The IAEA transport safety regulations (SSR-6) are adopted globally for the transport of radioactive material. The needs of Member States to develop their transport safety infrastructures varies from little to a wide range that is ideally focused on the radioactive material being transported in their country. In relation to the SSR-6 transport regulations, the IAEA eLearning platform, which was launched in 2019, provides unlimited access to information to an unlimited number of 'students' that is focused on the needs of a Member State, for example providing information that may or may not include fissile material. The platform provides modules open to everyone and an additional set of modules for transport safety regulators. Development will continue through 2019 to provide the content in other languages with Spanish and French following the initial launch in English. This paper will describe the rationale of the target audiences, structure, content and approach adopted.

Introduction

The transport of radioactive material is a routine occurrence in all Member States, with an estimated 20 million shipments completed globally each year. The importance of safety during transport was recognized by the IAEA and the first edition of the IAEA Transport Regulations were first published in 1961[(1)], only five years after the IAEA was formed in 1956.

The international regulatory framework for the transport of radioactive material was purposely developed such that all technical requirements of transport are defined in one document, the IAEA transport regulations; the latest edition being SSR-6 (Rev.1) 2018 edition [(2)].

Despite the global network of shipments taking place, there is a wide range of maturity in the regulatory infrastructures including a number of Member States in which the regulatory body (competent authority) for transport safety is in early stages of development.

Work of the IAEA in transport safety regulatory infrastructures

IAEA SSR-6 Transport Regulations

The Transport Safety Unit (TSU) in the IAEA is responsible for the ongoing review and revision process for the SSR-6 transport regulations and its associated Safety Guidance Documents. The review and revision processes for SSR-6 is the responsibility of the IAEA

Transport Safety Standards Committee (TRANSSC), the head of the TSU is appointed the scientific secretary.

There are no global regulations for transport on land (road and rail) and therefore transport safety regulations for land transport has to be written by each Member State, or they become signatories to regional Agreements, such as The European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) [(3)] for Europe and some of its neighboring trading partners, for transport by road. The are currently 51 Member States who are signatories to ADR.

For Member States developing their transport safety infrastructures, the primary objectives for transport safety are to have legislation and regulations in place and to establish a competent authority responsible for transport safety.

Developing Member State capacities in transport safety infrastructures

The TSU helps Member States to develop their transport safety infrastructures, but to do so it has to manage the following:

1. Adoption of the SSR-6 transport regulations into national regulations. SSR-6 is a difficult document to understand by those with limited experience and particularly when a Member State does not have, and therefore does not intend to permit, any radioactive material associated with the nuclear sector in its territory.
2. The resources of the IAEA are extremely limited, and the Agency relies on Technical Cooperation funding and extra budgetary funding donated by donor Member States and the European Commission, which despite their generosity is not often sufficient to fund intensive programmes.
3. There will always be a need for more workshops, training events and meetings to provide opportunities to develop the necessary level of understanding of the SSR-6 regulatory requirements and to facilitate the Member State development of a Transport Safety Competent Authority.
4. There is an appreciable number of Member States that need IAEA support.

A new strategy was therefore developed in 2016 in which eLearning was identified as a future prerequisite for those attending workshops, training events and meetings associated with the development of transport safety infrastructures.

Advantages of eLearning

There are no limitations to the number of people who have access to the training material. The only limiting factor is access to the Internet, which is recognized as problematic in some parts of the world and therefore the development of a version of the platform to run on a PC will be further considered following completion of the on-line version.

Importantly, the training material can be accessed, as many times as the user needs until it is understood, which is vital for SSR-6.

Once completed, access to the platform can be used as both an on-line reminder of the principles with the content of Module 10 being developed as activity based that and can be downloaded by the user.

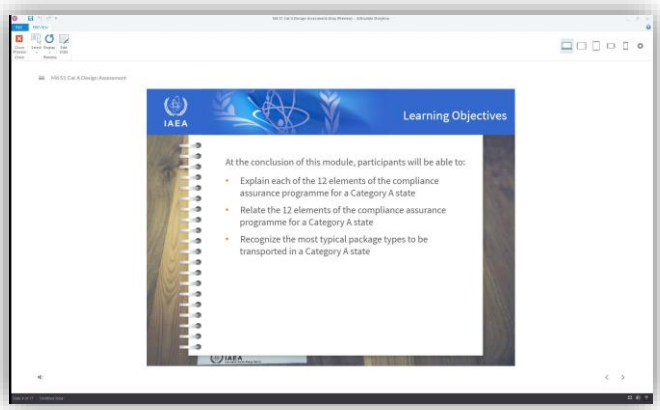
The content of future meetings and workshops can be developed knowing that meeting delegates will have accessed and successfully completed the on-line assessment, thereby enabling the content of meetings and workshop to be developed to extend further the knowledge and understanding of Member State delegates

The IAEA eLearning Platform for Transport Safety

The successful development of a transport safety regulations and the creation of a competent authority relies upon the commitment of the Member State. Therefore the eLearning includes information about the various uses of radioactive material, particularly for medical, clean water and insect control in agriculture. These topics are included in the eLearning platform.

Access to the platform requires the user to register on IAEA NUCLEUS, details are provided on-line [(4)]. **There is NO registration fee to use the platform.**

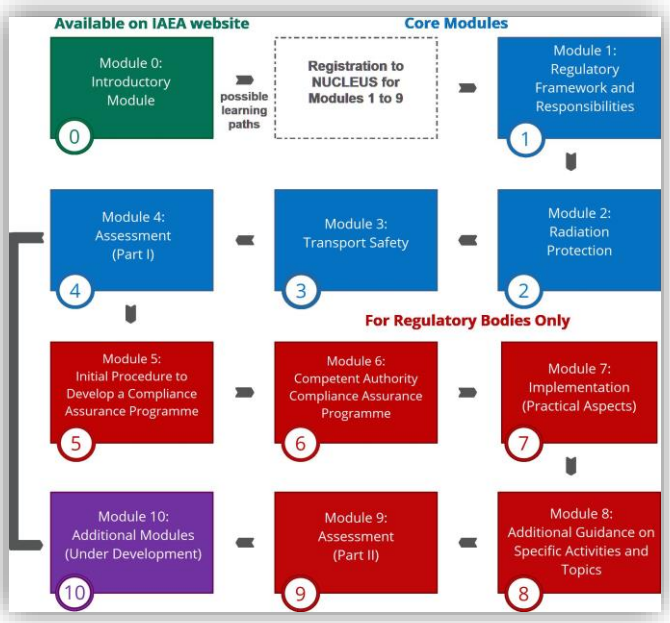
Each Module states the learning objectives and there are questions throughout the module to test understanding.



The eLearning platform consists of 10 Modules that reflect the requirements of SSR-6 2012 edition [4], which have been adopted by the current global regulations for transport by air and sea, ICAO Technical Instructions [5] and the IMDG Code [6] respectively.

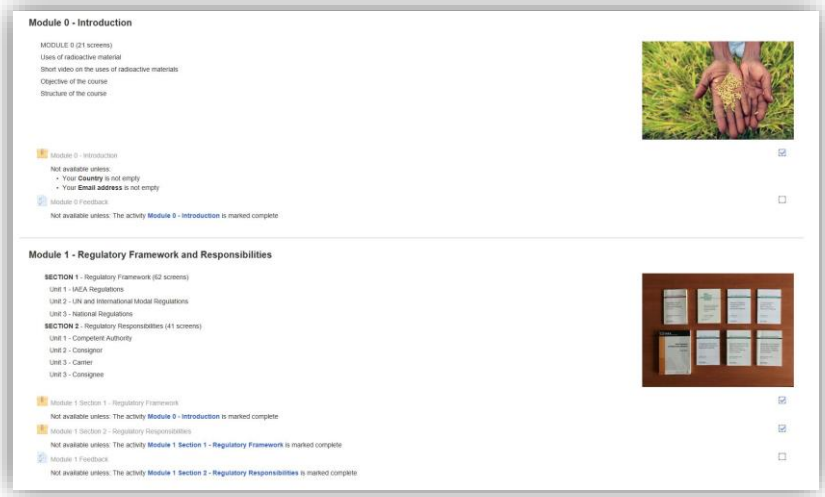
Modules 0 – 4 are accessible for everyone, Module 4 being an assessment module consisting of 25 questions randomly selected by the platform. Successful completion of the assessment requires a minimum score of 80% and enables a certificate of completion to be downloaded.

Modules 5 – 9, a prerequisite for access is the successful completion of Modules 0 - 4. Access is restricted to members of staff of competent authorities and Technical and Scientific Support Organizations (TSOs). User credentials will be verified by the Agency and access granted by the Agency.



The system only allows Modules 0 – 4 to be accessed sequentially by completing each module with study times greater than predefined by the platform to ensure the user reads each screen. Once the assessment has been successfully completed, the user is allowed to randomly access Modules 0 – 4. Similarly Access through Modules 5 – 9 is only allowed sequentially until successful completion of the assessment in Module 9, thereafter-random access to modules 0 – 9 is allowed.

An example of the content screens for modules is shown below.



There are three variants of the content of Module 6; the variant selected by the platform will depend on the answers provided to questions upon entry to this part of the platform. The variants relate to the following:

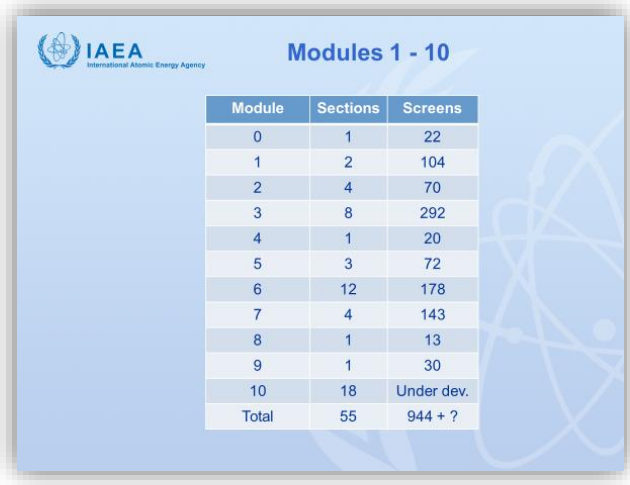
(1) Are packaging manufactured in country?
(2) Does the Member State issues Type B certificates of package design approval?
(3) Is fissile material transported in country?

There are three corresponding variants of the assessment Module 9 featuring 25, 25 and 30 questions respectively, each question randomly selected by the platform. Successful completion of Module 9 by a minimum achievement of 80% will enable you to download a certificate of completion.

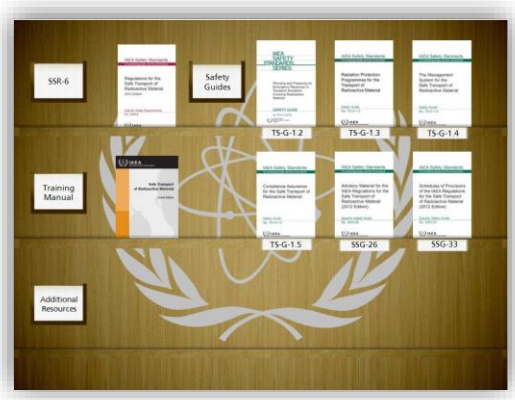
The certificates of completion will be dated with a validity period of three years; a refresher-training programme will be developed within the next three years

Restricted access to Modules 5 - 9 is to convey a message to the users that there is a distinction between an operator and a regulator, which is an important concept in the early stages of developing the appropriate relationship between the regulator and the operator(s).

Study time is approximately 20 – 30 hours to complete Modules 0 – 9.



A library of IAEA safety guides and TECDOCs is also included; a sample screen during its development is shown below.



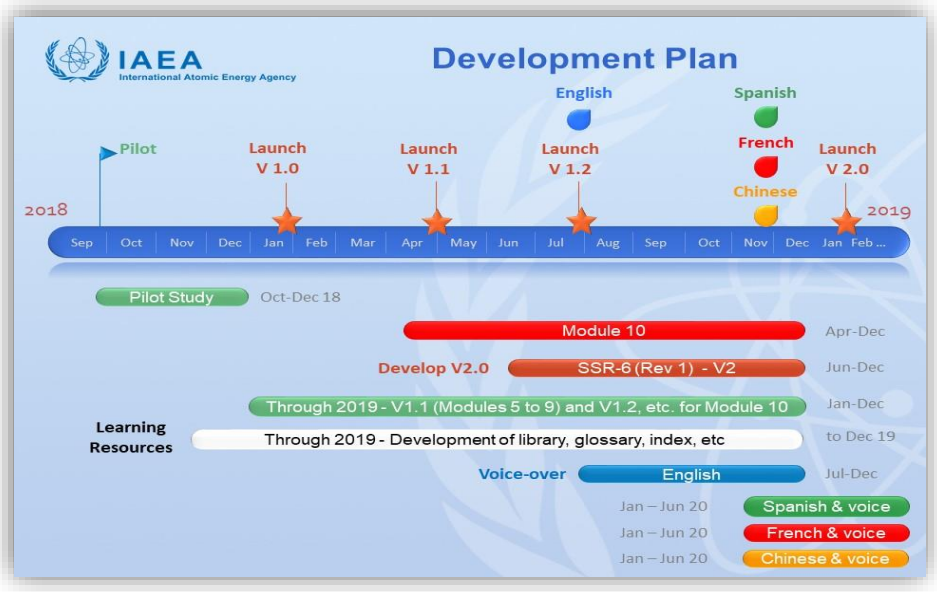
The appropriate documents relating to the Module being studied are also shown throughout each Module for further reading by the user.

Also, each document in the library can be selected and opened electronically on-line or downloaded.

Each of the documents Module 10 will be developed through 2019 / 2020 and include a variety of activity-based subjects as shown below.

Future development is also being planned to produce some / all of these as an Application (App) for smartphones and tablets.

The development of the platform will continue through 2019/20 with voice over to complete the English language version. A small update to reflect SSR-6 (Rev.1) 2018 edition [(2)] will be completed by the end of 2019. Content and voiceover will also be completed in Spanish, French and Chinese, as shown in the development plan below.



References

(1) IAEA Transport Safety Regulations, Safety Series No. 6, 1961, IAEA Vienna

(2) IAEA Transport Safety Regulations, SSR-6 (Rev.1) 2018 edition, IAEA Vienna

(3) European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR 2019)

(4) IAEA Transport Safety Regulations, SSR-6 2012 edition, IAEA Vienna

(5) Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc9284), 2017/2018 Edition, ICAO

(6) IMDG Code, 2018 Edition, IMO