New e-learning course on the management of spent fuel from nuclear power reactors

By Natalia Ivanova

The IAEA has designed an online e-learning course to provide an overview of the different strategies applied worldwide for managing spent fuel. The course is part of the spent fuel and radioactive waste management, decommissioning and environmental remediation curriculum, which includes several other modules.
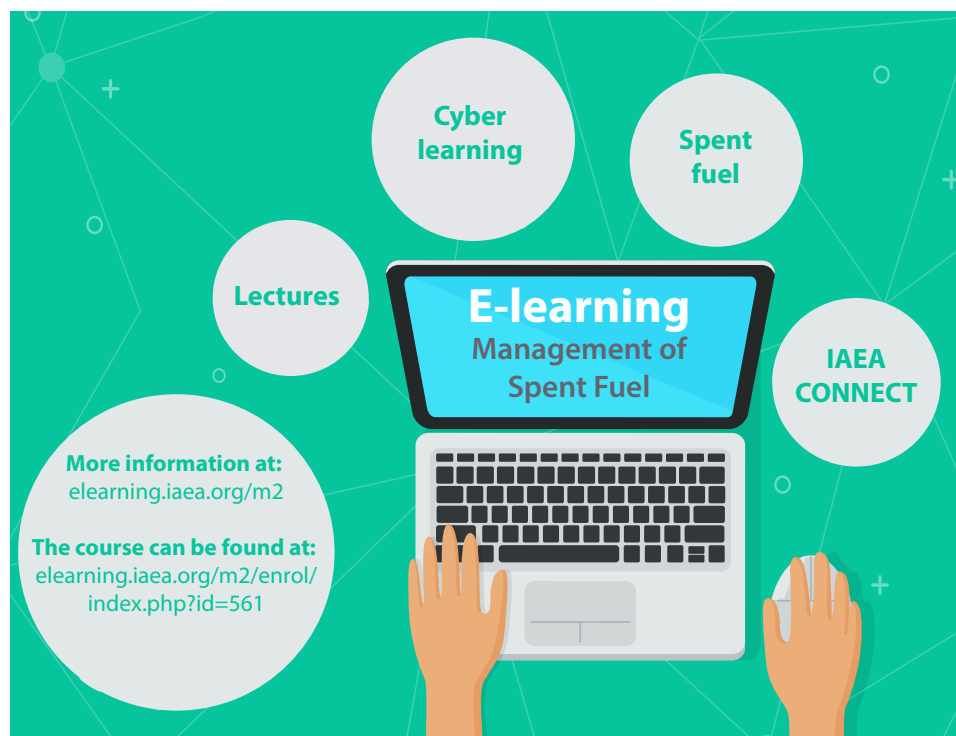
The course, aimed at nuclear professionals, newcomers to the subject and engineering and science students, explains different options for managing spent fuel and the factors that may influence the selection of a particular management strategy for a country. It is the most detailed course developed by the IAEA on the subject to date.

Currently, 4 of the 13 lectures are available through the IAEA's Cyber Learning Platform for Network Education and Training, as well as via the IAEA CONNECT platform. The remaining lectures will be uploaded by early 2020. Besides English, they will be available in French, Japanese, Russian and Spanish.

Course content

The first two lectures, which provide an introduction to spent fuel management, cover all aspects of the management of spent fuel — from when it is discharged from a nuclear reactor core until it is considered waste and disposed of in a deep geological repository. These lectures provide an overview of different options for managing spent fuel, of factors influencing the choice of spent fuel strategy and of the ramifications of selecting the various options. Lectures 3 and 4, on spent fuel storage, explain the different options and technologies — wet and dry — for storing spent nuclear fuel, as well as general safety considerations for spent fuel storage to meet the fundamental safety objective of protecting people and the environment from the harmful effects of ionizing radiation.

"The rest of the lectures will cover spent fuel characteristics and transport, as well as spent fuel recycling technologies and innovative

Cyber learning

Spent fuel

Lectures

E-learning Management of Spent Fuel

IAEA CONNECT

More information at: elearning.iaea.org/m2

The course can be found at: elearning.iaea.org/m2/enrol/ index.php?id=561

fuel cycles for Generation IV reactors," said Amparo González Espartero, Technical Lead for Spent Fuel Management at the IAEA.

"The technical content of these lectures has been developed by a group of experts from countries with different views and strategies on the management of their spent fuel. It is therefore very balanced and based on facts and figures," she said.

Lectures begin with a list and brief summary of e-learning objectives followed by more detailed explanations. Each lecture comprises several chapters to provide a deeper understanding of the material. At the end of each lecture, there is a short quiz to test users' knowledge, and audio summaries cover the key learning points. The modular structure ensures that users can go through the topics at their own pace. To illustrate the information and make it more accessible, the modules use different media formats, including videos and interactive exercises. The text of the narration, supplementary material and a glossary of terms are also available to improve users' understanding.