The Basic Professional Training Course (BPTC) on Nuclear Safety develops competences in Member States by providing training on the basic safety concepts and their application in the design and operation of nuclear power plants, research reactors and fuel cycle facilities. This course is aimed at professionals who work in nuclear safety regulatory bodies, nuclear plant operating organizations and technical support organizations.

**Course basis**

Developed by the IAEA in cooperation with the National Institute for Nuclear Science and Technology (INSTN) and the French Alternative Energies and Atomic Energy Commission (CEA), this course was prepared by 50 lecturers and instructors from various countries including Finland, France, Germany, the United Kingdom and the United States of America, and from the IAEA.

The BPTC on Nuclear Safety focuses on the training needs of junior professionals who have recently become involved in nuclear safety related activities. It is also appropriate for highly specialized professionals who lack a broader view of nuclear safety, and is organized to accommodate the training of staff from different professional backgrounds and educational levels. The BPTC on Nuclear Safety consists of six separate modules and is designed to run for two to six weeks. The course covers the key issues associated with nuclear safety such as: reactor technology, the basic concepts of nuclear safety, safety assessment, operational safety, management of nuclear safety and communicating about nuclear technology. The BPTC on Nuclear Safety was held for the first time in Saclay, France, and was attended by participants from nuclear power plant operators, regulators and technical support organizations. The course has also been presented in the Republic of Korea and at venues in Europe, North America and South America.
Syllabus

The course presents the basic principles and key issues of nuclear safety, including the following topics:
- Radiation protection in nuclear facilities;
- Design of a nuclear reactor, interfaces with security;
- Safety classification of structures, systems and components;
- Deterministic accident analysis and probabilistic safety analysis;
- Links between probabilistic, deterministic analysis and risk informed decision making;
- Siting considerations and environmental impact assessment;
- Operational safety, including operational feedback;
- Limiting conditions for operation;
- Plant renewals, modifications and upgrades, ageing;
- Maintenance and surveillance programmes;
- In-plant accident management and emergency preparedness and response;
- Safety of the fuel cycle, management of spent fuel and safety of transport of radioactive material;
- Decommissioning and waste management;
- Regulatory control;
- Management system, leadership and safety culture;
- Human performance;
- Public communication.

A textbook has been prepared as supporting material for the course. This is also available as an e-textbook on the IAEA web site at [http://www-ns.iaea.org/tutorials/bptc/intro/index.htm](http://www-ns.iaea.org/tutorials/bptc/intro/index.htm)

Who benefits?

This course focuses on the training needs of junior professionals who have recently become involved in nuclear safety related activities, as well as highly specialized professionals who may not have a broad overview of nuclear safety.

Duration

The course can be tailored to meet the demands of Member States; programmes can be of a duration of two to six weeks.

Prerequisites

Recommended preparation: physics or engineering degree and some training in nuclear power plant regulation, operational or associated technical support activities.

Public outreach

The IAEA provides Member State participants with training schedule information on the BPTC on Nuclear Safety via the training events calendar. See: [http://www-ns.iaea.org/training/calendar.asp?s=9&l=73](http://www-ns.iaea.org/training/calendar.asp?s=9&l=73)

Member States can request that a course be organized through the web (nśni-training@iaea.org), and they can ask for support through the technical cooperation programme as well as through extrabudgetary programmes and regional networks.

BPTC curriculum applied in Member States

The BPTC on Nuclear Safety provides regional training. For example, it was held in the Baltic region, and is held annually in Argentina for the Latin American region (in Spanish) and at the Korean Institute of Nuclear Safety, Republic of Korea, for the Asian region (in English).

For further Information:

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