

### CICET List of training courses

| N  | Training course  | Brief description of target audience   | Length of program (hours) | List of core competencies to be gained through training  | Minimum number of trainees |
|----|--|--|---------------------------|--|----------------------------|
| 1. | Basics of control and accounting of radioactive substances (RS) and radioactive waste (RW) | Managers and employees of departments engaged in control and accounting of RS and RW   | 72 hours                  | <ul style="list-style-type: none"> <li>- principles of organization and operations of the system of control and accounting of RS and RW ;</li> <li>- working with specialized software;</li> </ul>   | 7                          |
| 2. | Control and accounting of nuclear materials at NPP   | Managers and employees of NPP departments responsible for control and accounting of nuclear materials                              | 72 hours                  | <ul style="list-style-type: none"> <li>- principles of nuclear materials control and accounting;</li> <li>- calculation of the levels of nuclear material isotopes subject to accounting at NPP;</li> <li>- procedures of NM receipt/ transfer</li> </ul>                  | 7                          |
| 3. | Statistical analysis of inventory difference in MC&A                                       | Employees of nuclear facilities engaged in control and accounting of nuclear materials   | 72 hours                  | <ul style="list-style-type: none"> <li>- calculation of inventory difference by element and its isotope;</li> <li>- state-of-the-art methods for calculating inventory difference variance;</li> </ul>   | 7                          |
| 4. | Metrology support to operations  | Employees of analytical laboratories, quality control services, research and metrology departments of facilities and organizations | 72 hours                  | <ul style="list-style-type: none"> <li>- key terminology and definitions in the field of metrology support to measurements</li> <li>- calculations of random error and bias;</li> <li>- methods of mathematical statistics for metrology support to operations.</li> </ul> | 7                          |
| 5. | Certification of methods for measurements, tests and measurement monitoring                | Employees of analytical laboratories, quality control services, research and metrology departments of facilities and organizations | 72 hours                  | <ul style="list-style-type: none"> <li>- estimation of errors of measurements and tests;</li> </ul>  | 7                          |

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| 6.  | State-of-the-art methods for quality control of measurements                     | Employees of analytical laboratories, quality control services, research and metrology departments of facilities and organizations        | 72 hours | <ul style="list-style-type: none"> <li>- setting up the system of internal quality control for measurements;</li> <li>- selecting optimal scheme for control and calculating norms;</li> <li>- control of measurement quality.</li> </ul>  | 7 |
| 7.  | Using the method of inductively coupled plasma mass spectrometry                 | Employees of analytical laboratories, quality control services, environmental monitoring and chemical water treatment departments at NPP. | 72 hours | <ul style="list-style-type: none"> <li>- features and prospects of effective use of the method of inductively coupled plasma spectrometry ;</li> </ul>   | 7 |
| 8.  | Using the method of atomic emission spectrometry with inductively coupled plasma | Employees of analytical laboratories, quality control services, environmental monitoring and chemical water treatment departments at NPP. | 72 hours | <ul style="list-style-type: none"> <li>- features and prospects of effective use of the method of inductively coupled plasma spectrometry ;</li> </ul>   | 7 |
| 9.  | Industrial spectrometry  | Employees of radiation safety and nuclear security departments, radiological monitoring services  | 72 hours | <ul style="list-style-type: none"> <li>- physical processes associated with recording radiation;</li> <li>- issues of processing spectra illustrated by operational examples;</li> <li>- selecting tools and software for addressing specific tasks of interest;</li> </ul>  | 7 |
| 10. | Safety of research nuclear reactors  | Managers and employees of NPPs, nuclear fuel cycle facilities, nuclear industry   | 72 hours |  | 7 |
| 11. | Radioactive waste management   | Managers and employees of NPPs, nuclear fuel cycle facilities, nuclear industry   | 72 hours | <ul style="list-style-type: none"> <li>- waste classification</li> <li>- production processes and equipment to process waste</li> <li>- decontamination of process equipment</li> <li>- storage and disposal of radioactive waste</li> <li>- radiation monitoring and radiation safety</li> <li>- control and accounting of RS and RW</li> <li>- ensuring radioecological safety.</li> </ul> | 7 |

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| 12. | Radiation safety: concept, standards and rules, monitoring                                  | Managers of facilities using sources of ionizing radiation, heads of environmental monitoring services   | 72 hours | <ul style="list-style-type: none"> <li>- organization of works presenting radiation hazard in accordance with the ALARA principles;</li> <li>- dose planning;</li> </ul>  | 7 |
| 13. | Radiation safety in operations of sources of ionizing radiation                             | Heads of occupational safety departments and employees of facilities using sources of ionizing radiation, workers of environmental monitoring services | 72 hours | <ul style="list-style-type: none"> <li>- monitoring of external and internal radiation, the radiological situation, concentrations of radioactive aerosols in air of work premises;</li> <li>- organization of monitoring and instrumentation provision for internal and external radiation exposure</li> </ul>   | 7 |
| 14. | Ensuring nuclear safety at nuclear fuel cycle facilities                                    | Managers and employees responsible for nuclear safety during operations with fissile materials   | 72 hours | <ul style="list-style-type: none"> <li>- nuclear technologies and safety;</li> <li>- ground rules of nuclear safety in use, processing, storage and transportation of fissile materials ;</li> <li>- principles and systems for monitoring flows of fissile materials in production processes ;</li> <li>- emergency alarm systems for works with fissile materials ;</li> <li>- risks of consequences of nuclear accidents.</li> </ul> | 7 |
| 15. | Safety culture for activities presenting radiation hazards                                  | Managers and employees of NPPs, industrial facilities of nuclear fuel cycle, research institutes, design organizations in nuclear industry             | 72 hours | <ul style="list-style-type: none"> <li>- legal framework for developing standards of personnel and population exposure to radiation ;</li> <li>-organization of works presenting radiation hazard in accordance with the ALARA principles;</li> <li>- dose planning.</li> </ul>   | 7 |
| 16. | Issues of improving maintenance and operation of NPP control systems (for NPP shop foremen) | - employees of information security departments  | 36 hours | - maintenance and operation of NPP control systems  | 7 |

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| 17. | Systematic approach to training | Teachers: managers and employees engaged in training on technical competencies. Staff of training centers and departments | 72 hours | -development and conducting training based on activity analysis  | 7 |
| 18. | Basics of instructor skills     | Instructors providing professional training for personnel   | 72 hours | - preparation and conducting sessions on selected topic  | 7 |
| 19. | Basics of safety culture        | Managers and employees of main divisions of the facilities  | 72 hours | - enhancing safety culture in organization;<br>- development of action plan for preventing failures and malfunctions | 7 |