

Job Description for Professional Posts

Reference: NE2025/07

Position and Grade:	Associate Nuclear Engineer (AI4NP), P2
Organizational Unit:	Nuclear Power Technology Development Section Division of Nuclear Power
Duty Station:	Vienna, Austria
Type/Duration of Appointment:	FT – JPO, 1 year

Organizational Setting

The objective of the Department of Nuclear Energy (NE) is to foster the efficient and safe use of nuclear power by supporting interested Member States in: improving the performance of nuclear power plants, the nuclear fuel cycle, and the management of nuclear wastes; catalysing innovation in nuclear power and fuel cycle technologies; developing indigenous capabilities around the world for national energy planning; deploying new nuclear power plants; preserving and disseminating nuclear information and knowledge; and advancing science and industry through improved operation of research reactors.

The department has a dynamic, participative and interactive operating environment with inputs received from the Board of Governors, the General Conference, policy and decision-makers, and technical counterparts in Member States and the international development community.

The Division of Nuclear Power comprises the Nuclear Power Engineering Section, the Nuclear Power Technology Development Section, the Nuclear Infrastructure Development Section and the INPRO (International Project on Innovative Nuclear Reactors and Fuel Cycles) Section. The Division provides core engineering, technological, human resource development and management support to interested Member States in the field of nuclear power.

The Nuclear Power Technology Development Section assists Member States in developing safe, environmentally benign, economically viable, proliferation resistant and sustainable innovative solutions for all civil reactor technologies, including water-cooled reactors, gas-cooled reactors, fast neutron systems (both critical and sub-critical) as well as small and medium-sized reactors. The section fosters international collaboration on technology development for reactor plants and for non-electric uses of nuclear power by facilitating coordinated research projects, technical meetings, and training courses. The section also maintains the Advanced Reactor Information System (ARIS) and Thermophysical Properties of Nuclear Materials (THERPRO) databases.

Main Purpose

The Associate Nuclear Engineer (AI4NP) assists NPTDS in their activities on advanced nuclear energy technologies, by supporting on-going and planned IAEA's projects related to integration of Artificial Intelligence (AI) into nuclear technology to support the development of advanced reactor designs. This includes preparing, verifying, finalising, and distributing information and technical documents on AI concepts in reactor technology and design optimization. She/he reports to the Technical Lead of Water Cooled Reactor Technology Development.

Role

The Associate Nuclear Engineer (AI4NP) fulfils the role of a technical expert by providing assistance in conducting various activities relevant to development and assessment of AI technologies in collaboration with the Member States within the IAEA framework. She/he will assist in preparing, organizing and conducting the joint IAEA-ICTP School on AI in nuclear engineering and technology in 2025 and will support planned activities of the IAEA Collaborating Centre on AI4NP at Purdue Campus in the USA (endorsed in December 2023).

Partnerships

The Associate Nuclear Engineer (AI4NP) works closely with members of the NPTDS, as well as with the counterparts from Member States and international institutions for data collection and organizational discussions.

Functions / Key Results Expected

- Assist in organizing and conducting the joint IAEA-ICTP School on AI in nuclear engineering and technology to be held in 2025.
- Participate in organizing and conducting IAEA training courses, workshops and webinars on the AI for nuclear power.
- Provide assistance in the ongoing technical activities related to AI use in nuclear power, gain an overall understanding of the outputs/outcomes and support in preparation of technical reports and documents.
- Support the activities of the IAEA Collaborating Centre on AI4NP at Purdue Campus in the USA (endorsed in December 2023). Both technical and managerial assistance is necessary.
- Participate in development and publication of training and education materials supported by hands-on exercises; specifically develop eLearning module on AI4NP in closely working with the IAEA Collaborating Centre on AI4NP at Purdue Campus in the USA.
- Prepare end-of-term report and presentation demonstrating experience and results obtained during the term.

Competencies and Expertise (do not revise or edit)

Core Competencies		
Competence	Occupational Role	Behavioural Indicator
Communication	Individual Contributor	Communicates orally and in writing in a clear, concise and impartial manner. Takes time to listen and understand the perspective of others and proposes solutions.
Achieving Results	Individual Contributor	Takes initiative in defining realistic outputs and clarifying roles, responsibilities and expected results in the context of the Department/Division's programme. Evaluates his/her results realistically, drawing conclusions from lessons learned.
Teamwork	Individual Contributor	Actively contributes to achieving team results. Supports team decisions.

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Planning and Organizing	Individual Contributor	Plans and organizes his/her own work in support of achieving the team or Section's priorities. Takes into account potential changes and proposes contingency plans.
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Functional Competencies		
Competence	Occupational Role	Behavioural Indicator
Analytical Thinking	Associate	Gathers and analyses information, identifying critical relationships and patterns among data and proposes workable solutions
Judgement/decision making	Associate	Consults with supervisor/manager and makes decisions in full compliance with the Agency's regulations and rules.
Partnership building	Associate	Develops and maintains partnerships needed for his/her work. Establishes and nurtures positive relations with partners and stakeholders.
Technical/scientific credibility	Associate	Acquires and applies new skills to remain up to date in his/her area of expertise. Reliably applies knowledge of basic technical/scientific methods and concepts.

Expertise	
Expertise	Description
Nuclear Engineering Advanced Nuclear Power Systems	Expertise in research and technology development in the field of advanced nuclear reactors. Familiarity with AI applications in advanced reactor designs, operation and management.
Nuclear Engineering Nuclear Engineering and Technology	Knowledge of the fundamental concepts of artificial intelligence and machine learning in nuclear engineering and technology. Understanding of the AI theory, concepts, and approaches, as well as their various applications in nuclear engineering and technology,

Education, Experience and Language Skills

- University degree in nuclear engineering, mechanical engineering or reactor physics.
- Minimum two years of relevant experience or familiarity with AI applications in engineering, especially in nuclear engineering and reactor design and operation.
- Familiarity with advanced nuclear reactor concepts, specifically water-cooled reactor technologies of large and small power outputs.
- Published papers in the field is an asset.
- Excellent oral and written command of English. Knowledge of other official IAEA languages (Arabic, Chinese, French, Russian and Spanish) is an asset.

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