MEPhI: BASIC UNIVERSITY FOR NUCLEAR INDUSTRY IN RUSSIA



ROSATOM

UNIVERSITY

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MEPhI and its branch campuses





Cooperation with strategic industrial partner



Formats of cooperation between MEPhI and **State Atomic Energy Corporation ROSATOM**

- joint development of educational programs .
- professional accreditation of educational programs .
- qualification certification for graduates

online courses 100

5

new educational programs

educational programs with Council on Atomic Energy Professional Qualifications accreditation

ROSATOM

in the world

by the number of NPPs being constructed abroad

in the world

by installed capacity among nuclear generating companies

uranium enrichment services for foreign design reactors in uranium reserves

>30%

in the world

uranium mining

Initiators of educational programs:

- Electric Power Division
- Nuclear Defense Complex
- Engineering Division

- Rusatom Healthcare
- Rusatom Overseaes
- etc.

ROSATOM activities

in the world

- ✓ Nuclear power complex
 - · Design, engineering and construction of NPP
 - Power generation
 - Nuclear and energy engineering
 - Mining and enrichment of uranium

- ✓ Nuclear defense complex
- ✓ Nuclear icebreakers fleet
- ✓ Nuclear medicine

Export of nuclear education





Nuclear industry: Engineering vs IT



New technologies in Life-cycle of Complex engineering systems



New formats of engineering curricular

Digital technologies for complex engineering facilities:

- Data engineering
- Data analytics
- Digital engineering design

Digital management tools for engineering systems lifecycle

Dynamic information model for construction and commissioning of complex engineering facility

VR/AR in engineering design



VR model for practice "Uraniumgraphite subcritical assembly".



MEPhI Nuclear education: international presence





ENEN-RU II PROJECT (2014 - 2017)



"Strengthening Cooperation and Exchange in Nuclear Education and Training between the European Union and the Russian Federation"

Objectives (selected)

- > Establishment of the criteria for mutual BSc, MSc and training levels (WP1) recognition
- > Organisation of the ENEN-RU E&T Forum aimed to discuss short and long term common strategies (WP2)
- > Students and teachers mobility (MSc and PhD level) utilizing, among others, distant learning tools (WP3)
- > Development of joint training activities (WP4)
- > Further advancement of E&T Facilities database, Laboratories and Equipment (WP5)

MEPhI in ENEN-RU II Educational projects

- > Internships for graduate students from universities ENEN at MEPhI
- ➢ Summer School "Engineering Computer Simulation"
- > Master's Program in Nuclear Engineering (NE) for ENEN-RU II universities graduates
- > Joint development of educational and methodological materials to gain the recognition of NE in ENEN
- Signing of the agreements with partner universities to obtain "Double diploma "status for NE programs"

NEA/OECD and MEPhl cooperation



Mainstream: Integration of NEA/OECD products in educational process at MEPhI

- Invited lecturers and international experts (SMEs)
- Regular courses for Bachelor, Master and Specialists programs
- Workshops and seminars
- Competencies and skills build up for nuclear engineers and young scientists

NEA/OECD products at MEPhI

- > MEPhI as a regional hub for scientific nuclear data
- Hosting NEA/OECD products
 - Data bank, JANIS, Computer programs collection, etc.
- > MEPhI as a repository of validated data and trusted source of information

Joint activities in scientific and industrial codes development

- Graduate and post-graduate students exchange, internships
- Network education
- Code validation and benchmarking

Local services and products support

- Localization (including translation in Russian)
- Training courses and scientific forums



STAR-NET: Regional network for education and training in nuclear technology



November 2018

March 2017

2017

20-21 April 2017

STAR-NET Workshop

STAR-NET LMS was launched

Administrative group of the educational platform was created License agreement for use of **digital educational** resources was prepared

The Fourth General Assembly

7 COLLABORATIVE EDUCATIONAL PROJECTS IN 2018



STAR-NET UNITES

14 universities from 7 countries

STAR-NET FOCUSES ON

- developing **nuclear education agenda**;
- sharing best practices in nuclear education:
- promoting nuclear R&E collaborations;
- activating exchange with knowledge, methodological materials and advanced tools for R&E:
- promoting development of joint curricula and facilitating mutual **recognition** of degrees;
- promoting academic exchange: • students, academic staff and researchers;
- promoting collaboration with other regional educational networks.

THANK YOU FOR ATTENTION!



NUCLEA

UNIVERSITY MEPh

2019 ATOMEXPO

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1) new generation education and training for the nuclear industry in Russia

2) the role of international cooperation in advancement of nuclear education