

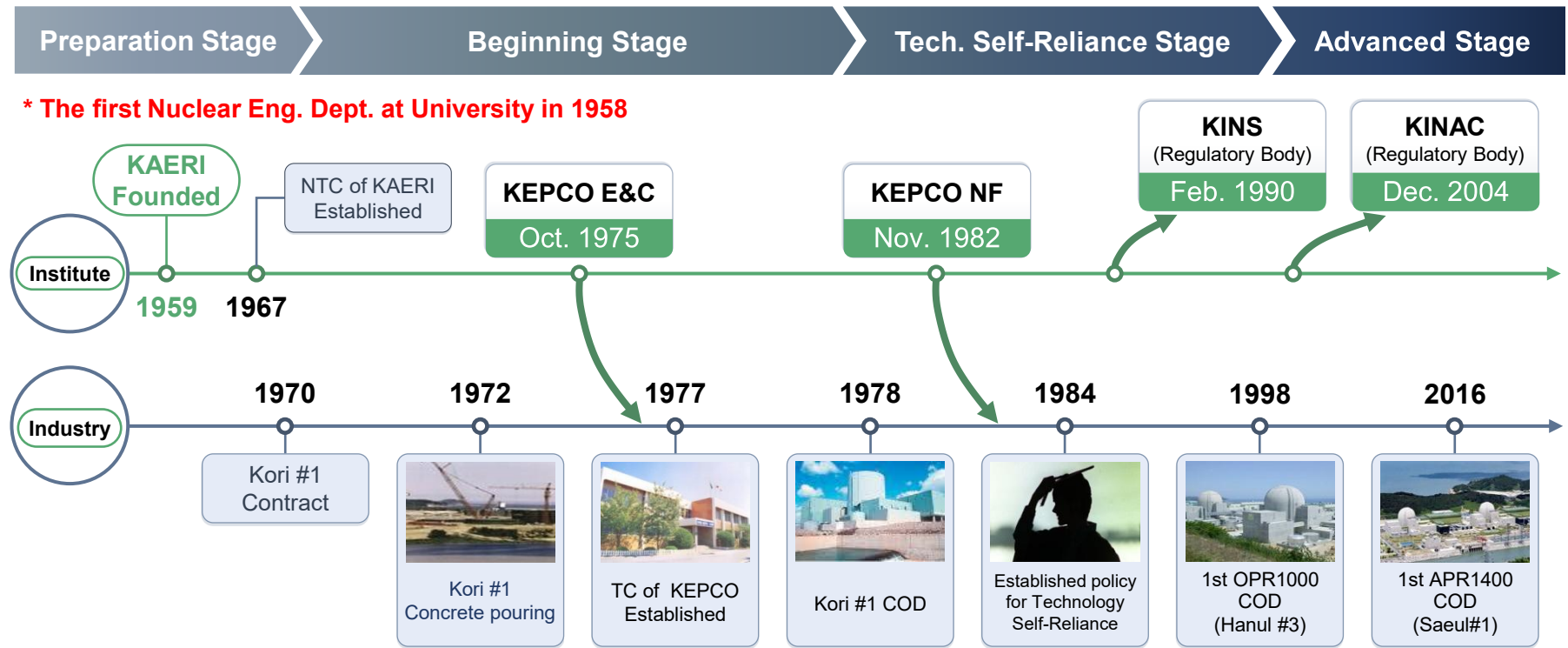
KINGS, Building Bridges of Nuclear Human Resource Development for 100-year Partnership

19 June, 2025



KEPCO International Nuclear Graduate School

History of Nuclear Human Resource Development in Korea



Domestic Training

Basic training at NTC of KAERI

Training Center of KEPCO, KHNP and etc.

Invited nuclear overseas experts

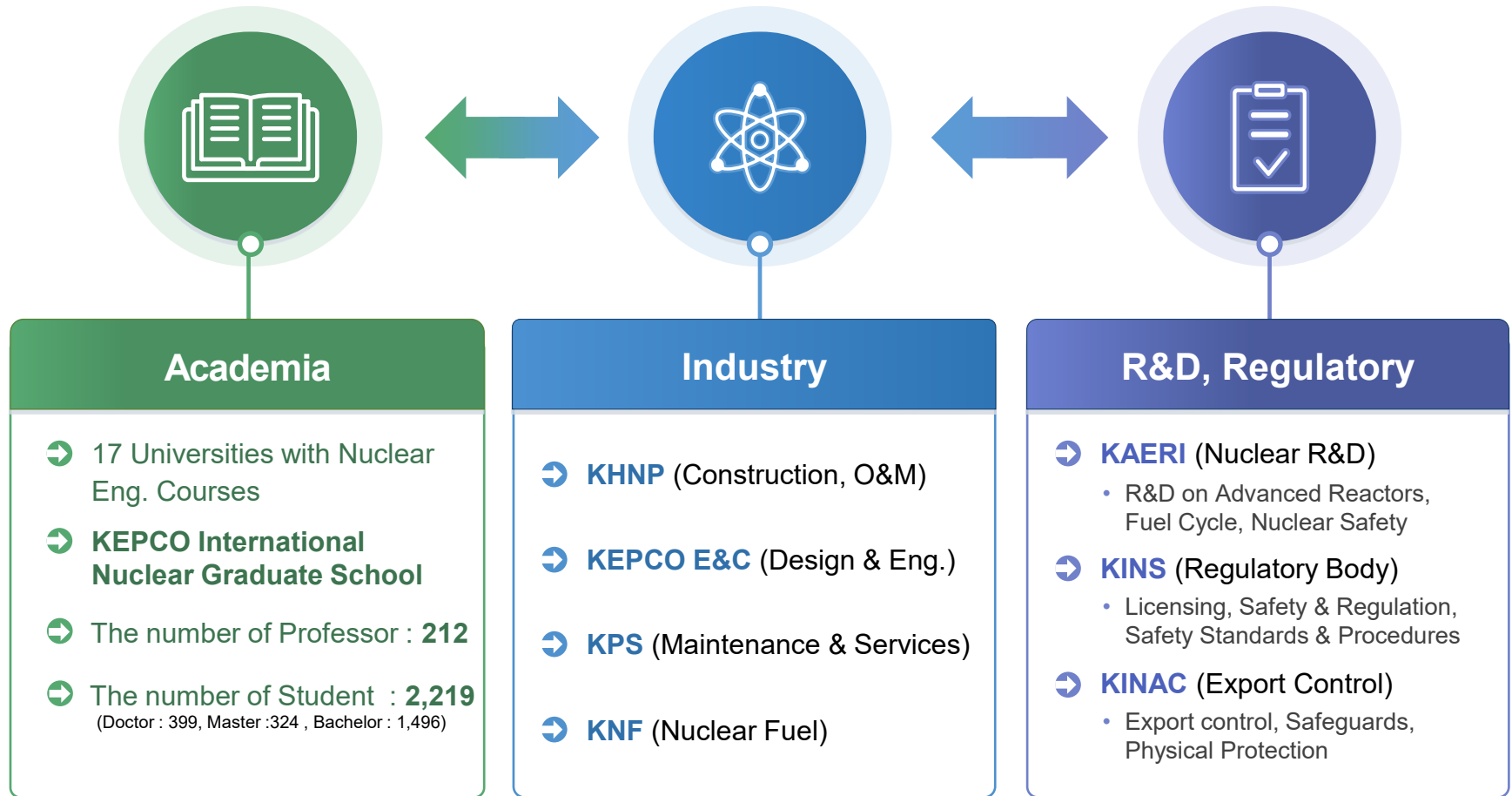
Overseas Training

Participated training from foreign suppliers (WEC, GE, Bechtel, etc.)

IAEA assistance

Industry Scholarship & Participation in workshops and conference

Highly Integrated HRD Systems



How many nuclear students are needed to sustain reactors?

8 Univs. with nuclear engineering departments (blue) and **9 Univs.** with energy-related majors in Korea, 2022

Univ.	Department Name	Establishment Year	Main Educational Contents
Hanyang Univ.	Dept. of Nuclear Eng.	1958	Training of nuclear energy and nuclear physics experts through integrated master's and doctoral programs and nuclear physics programs
Seoul National Univ.	Dept. of Nuclear Eng.	1959	Nuclear power personnel training in the fields of nuclear power system engineering, nuclear fusion/plasma engineering, and radiation engineering
Kyung Hee Univ.	Dept. of Nuclear Eng.	1979	Divided into single major and multi-major courses to train nuclear power personnel according to their characteristics
Korea Advanced Institute of Science and Technology	Dept. of Nuclear and Quantum Eng.	1980	Conducting basic and applied research in the fields of nuclear and radiation, and quantum technology development
Chosun Univ.	Dept. of Nuclear Eng.	1985	Education is implemented through industry-academic cooperation in areas such as radiation and nuclear chemical engineering, reactor machinery, control, and waste management
Jeju National Univ.	Dept. of Nuclear & Energy Eng.	1990	Conducting training on nuclear power systems, nuclear fusion and plasma applications, renewable energy and environmental technology
Uiduk Univ.	Major in NPP Control System Eng.	2006	Nuclear power plant control system engineering major in the Dept. of Energy and Electrical Engineering is linked to industry to foster personnel around nuclear power plants
Dongguk Univ.	Major in Energy Electrical Eng.	2008	Training of energy experts in nuclear power system engineering, chemical processes, nuclear fuel and metal materials, and radiation utilization
Ulsan National Institute of Science and Technology	Dept. of Nuclear Eng.	2009	Training of specialists in the fields of nuclear materials, radiation, nuclear fuel and nuclear cycle, core design, radioactive waste, etc.
Pohang Univ. of Science and Technology	Div. Of Advanced Nuclear Eng.	2010	To foster world-class scholars in the nuclear energy field, it is operated as a master's, doctoral, and integrated master's and doctoral program
Kyungpook National Univ.	Major in Renewable Energy	2011	Nurturing nuclear energy experts in the renewable energy field with two majors: renewable energy and energy conversion
Pusan National Univ.	Major in Nuclear System	2011	A nuclear power plant system major within the Dept. of Mechanical Engineering, reflecting regional characteristics such as reactor systems, radiation engineering, and radioactive waste
KEPCO International Nuclear Graduate School	Dept. of Nuclear Power Plant Eng.	2012	Nurturing global talents for the nuclear power export industry in Korea and education for foreigners from countries who are interested in nuclear power plants (All classes in English)
Sejong Univ.	Dept. of Quantum and Nuclear Eng.	2013	Specializing in nuclear power generation and training human resources through collaboration with companies
Chung-Ang Univ.	Major in Nuclear	2013	Training of personnel in nuclear power generation, electricity, and machinery within the Dept. of Energy Systems Eng.
Jeonbuk National Univ.	Dept. of Quantum System Eng.	2014	Training of personnel related to quantum systems, nuclear energy, radiation and plasma eng.
Dankook Univ.	Dept. of Energy Eng.	2015	Nurturing professional human resources who will lead the policy and research and development of the nuclear industry

620 Graduate Students Every Year (Bachelor: 378, Master: 165, Doctor: 77)

KINGS Commitment to Support Czech Students

Year	2-year Master Degree Program	Exchange Student Program (Master and Ph.D)	Nuclear Youth Summer Program	Sum
2019	-	4 (BUT)	-	4
2020	-	2 (BUT)	-	2
2021	1 (BUT)	6 (BUT, UWB)	-	7
2022	1 (BUT)	7 (CTU, BUT)	10 (CTU, BUT, UWB)	18
2023	1 (BUT)	8 (BUT, UWB)	6 (CTU, BUT, UWB)	15
2024	-	9 (CTU, BUT)	15 (CTU, BUT, UWB) - Spring program	24
2025	2 (BUT, UWB)	14 (CTU, BUT)	-	16
	5	50	31	86

Personnel in Key Fields of Nuclear Industry in Korea, 2022

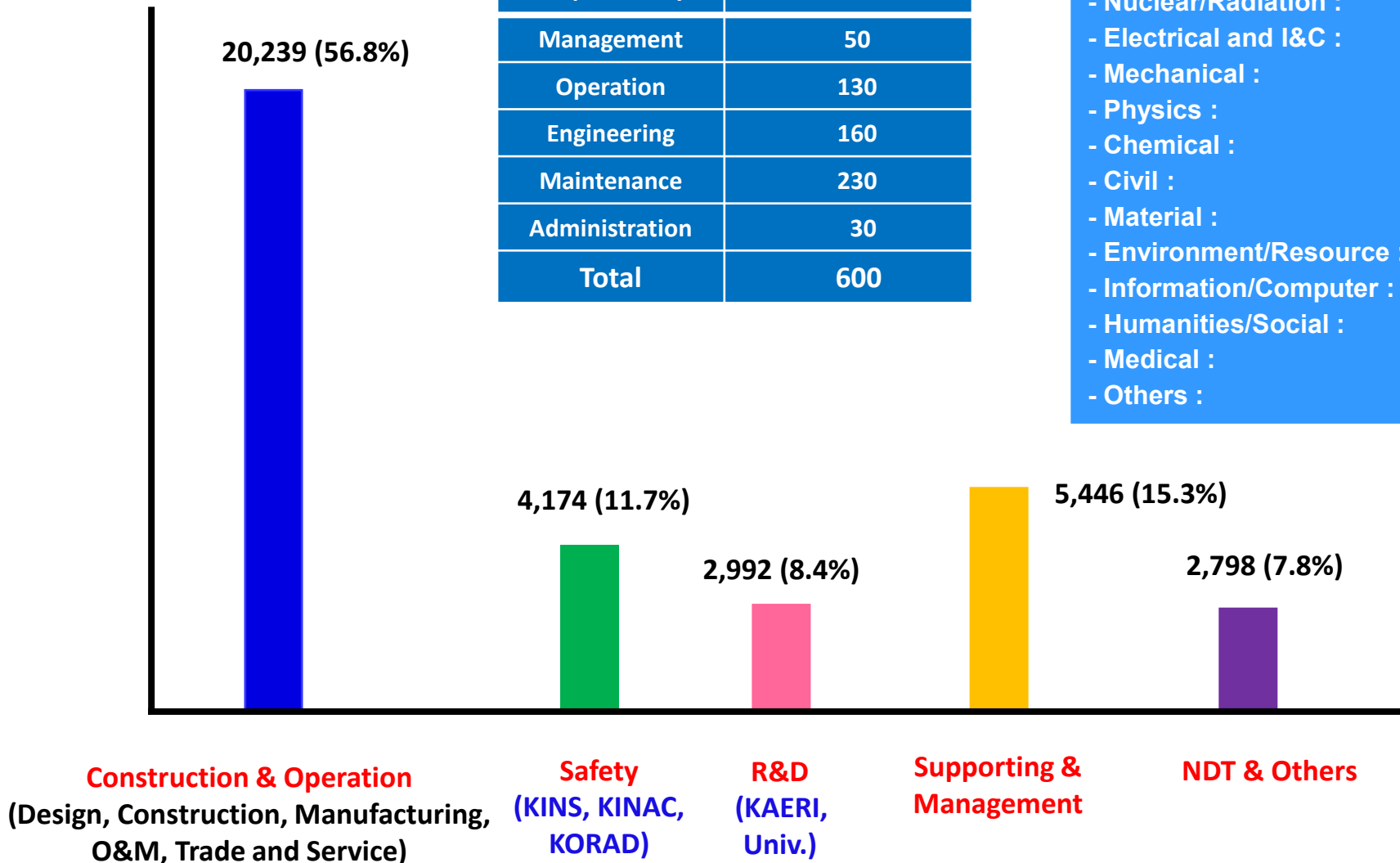
Total 35,649

Number of personnel required to operate two reactors on the same site in Korea

Responsibility	Personnel
Management	50
Operation	130
Engineering	160
Maintenance	230
Administration	30
Total	600

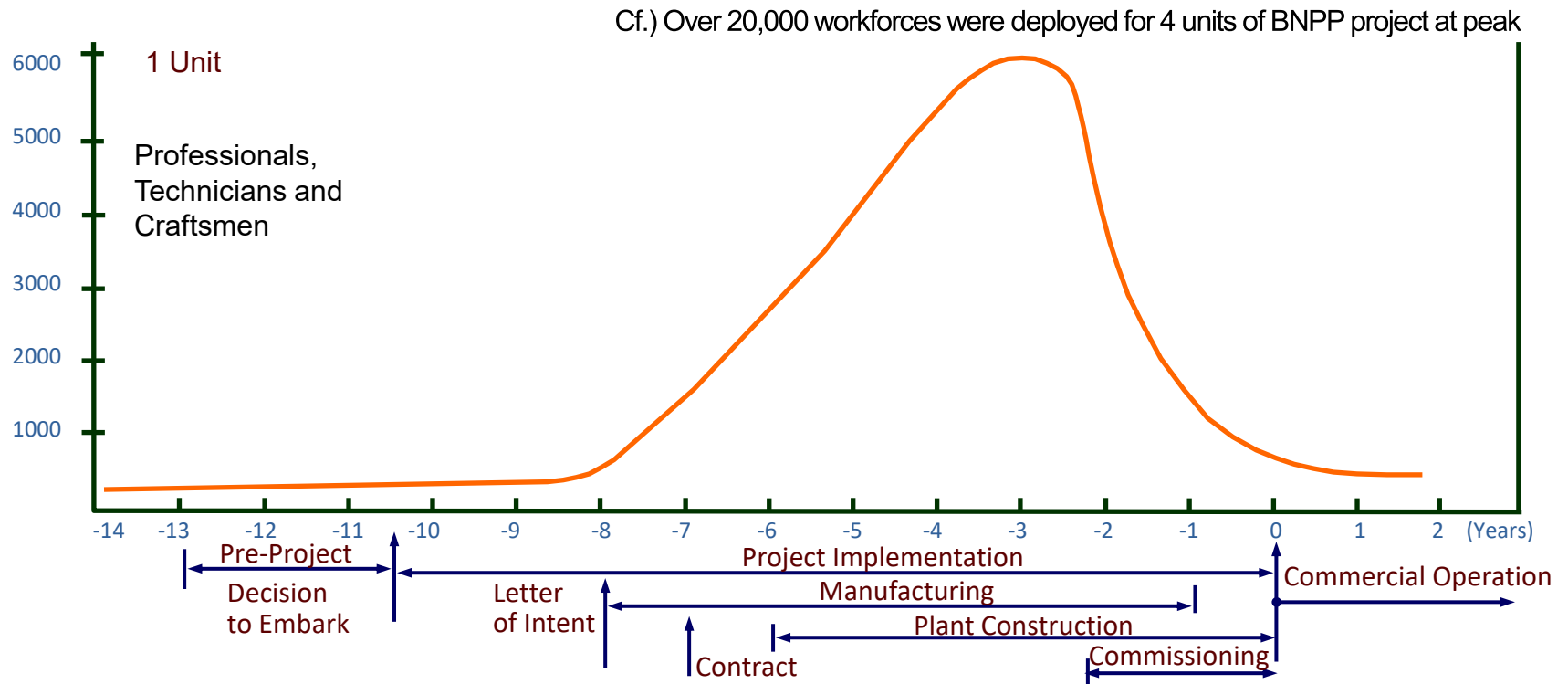
Manpower by Specialty

- Nuclear/Radiation :	10.4%
- Electrical and I&C :	21.9%
- Mechanical :	23.1%
- Physics :	1.9%
- Chemical :	3.0%
- Civil :	4.9%
- Material :	2.9%
- Environment/Resource :	5.5%
- Information/Computer :	5.6%
- Humanities/Social :	10.7%
- Medical :	0.7%
- Others :	9.4%



Manpower Development for Nuclear Power by IAEA

9,000 workers at peak construction reported by NEI

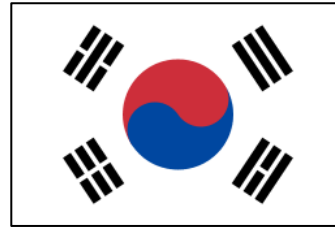
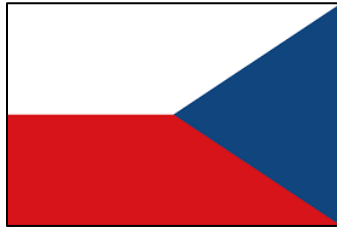


Nuclear Education Platform for Academia

- Exchange student program that can be recognized by Univ. credit
- Joint degree or double degree for nuclear engineering master program
- Ph.D thesis co-supervisor program by conducting joint R&D projects
ex) Erasmus Mundus Joint Master Degree, Nuclear Collaboration Center

Nuclear Training Center for Industry, R&D and Regulatory Body

- Capacity building program for employees
- Tacit Knowledge transfer program for nuclear youth
- Train-the-trainers and leadership program for managerial level staff
ex) Czech Nuclear Education Network, Association of Nuclear Veterans



Deploying the Right number of the Right people
at the Right place, and at the Right time!