

**Faculty of Nuclear Sciences and Physical Engineering (FNSPE)  
Czech Technical University**

<b>Brief history:</b>	<b>1955</b> - founded as the Faculty of Technical and Nuclear Physics (then under Charles University, to prepare experts for the starting nuclear programme) <b>1959</b> - independent faculty of the Czech Technical University <b>1968</b> - renamed the Faculty of Nuclear Sciences and Physical Engineering
<b>Current dean:</b>	<b>Doc. Ing. Miroslav Čech CSc.</b>
<b>Vice-deans:</b>	Student Affairs Research and International Relations Development
<b>Dean's office:</b>	<b>Břehová 7, 110 00 Prague 1</b>
<b>Departments (10):</b>	<b>Mathematics</b> <b>Physics</b> <b>Languages</b> <b>Solid State Engineering</b> <b>Physical Electronics</b> <b>Materials</b> <b>Nuclear Chemistry</b> <b>Dosimetry and Application of Ionizing Radiation</b>  <b>Nuclear Reactors</b> <b>Software Engineering</b>
<b>Attached research and training centres:</b>	<b>Centre for Radiochemistry and Radiation Chemistry (CRRRC) (2003)</b> <b>Doppler Institute (1993)</b> <b>Centre for Physics of Ultra-Relativistic Nuclear Collisions</b> <b>VR-1 training and research reactor</b> <b>Centre for training visually impaired</b>
<b>Mission:</b>	to offer excellent foundations in respective fields through teaching and involvement in research and development in applied natural sciences (mathematics, physics, nuclear sciences, nuclear chemistry as well as information technology) and their interdisciplinary applications

<b>Duration of study:</b>	Bachelor: 3 years Master: 2 years Ph.D. full-time: 4 years
<b>Degrees:</b>	Bc. (Bachelor), Ing. (approximate equivalent of MSc), Ph.D. (Doctor of Philosophy)
<b>Number of all students:</b>	about 2,000
<b>Number of PhD students:</b>	about 300
<b>Bachelor programme: Fields/branches:</b>	<p><b>Applied Natural Sciences</b></p> <ul style="list-style-type: none"> <li>- Mathematical Engineering (MI)</li> <li>- Mathematical Informatics (MINF)</li> <li>- Information Physics (IF)</li> <li>- Applied Software Engineering (ASI)</li> <li>- Applied Information Technology (APIN)</li> <li>- Nuclear Engineering (JI)</li> <li>- Dosimetry and Application of Ionizing Radiation (DAIZ)</li> <li>- Experimental Nuclear and Particle Physics (EJCF)</li> <li>- Radiological Technology (RT)</li> <li>- Solid State Engineering (IPL)</li> <li>- Diagnostics of Materials (DM)</li> <li>- Physics and Technology of Thermonuclear Fusion (FTTF)</li> <li>- Physical Electronics (FE)</li> <li>- Laser and Instrument Technology (LPT)</li> <li>- Technology in Physics (FYT)</li> <li>- Nuclear Chemical Engineering (JCHI)</li> </ul>
<b>Master programme: Fields/branches:</b>	<p><b>Applied Natural Sciences</b></p> <ul style="list-style-type: none"> <li>- Mathematical Engineering (MI)</li> <li>- Mathematical Physics (MF)</li> <li>- Applied Mathematico-stochastic Methods (AMSM)</li> <li>- Mathematical Informatics (MINF)</li> <li>- Information Physics (IF)</li> <li>- Applied Software Engineering (ASI)</li> <li>- Nuclear Engineering (JI)</li> <li>- Dosimetry and Application of Ionizing Radiation (DAIZ)</li> <li>- Experimental Nuclear and Particle Physics (EJCF)</li> <li>- Radiological Physics (RF)</li> </ul>

- Solid State Engineering (IPL )
- Diagnostics of Materials (DM)
- Physics and Technology of Thermonuclear Fusion (FTTF)
- Laser Technology and Electronics (LTE)
- Optics and Nanostructures (ON)
- Nuclear Chemistry (JCH)

**PhD programme:  
Fields/branches:**

**Applied Natural Sciences**

- Mathematical Engineering
- Physical Engineering
- Nuclear Engineering
- Radiological Physics
- Nuclear Chemistry

**Research fields of departments:**

**Mathematics ( e.g.)**

- Methods of algebraic and functional analysis in applications
- Mathematical modelling
- Traffic flow

Close **cooperation** with Canadian partners

**Physics (e.g.)**

- Particle physics
- Heavy ion physics
- Quantum computing and cryptography
- Mathematical and statistical physics

Close **cooperation** with: CERN – ALICE, ATLAS,

LH

BNL – STAR, FNAL

ESA, IAEA, ELI

**Solid State Engineering (e.g.)**

- Applied photonics
- X-ray structures
- Neutron diffraction
- Optical spectroscopy
- Control of experiments

**Physical Electronics (e.g.)**

- Laser and plasma physics
- Satellite laser ranging
- Optics and X-ray optics
- Ion beam modification

**Cooperation** with Japan and South Korea, PALS, ELI

**Materials (e.g.)**

- Fractographic methods
- Mathematical modelling of mechanical failures
- Image analysis
- Safety of nuclear installations

Long-standing **cooperation** with France

**Nuclear Chemistry (e.g.)**

- Behaviour and speciation of radionuclides in the environment
- Methods for treating liquid radioactive waste
- Radiation chemical environmental technologies

**Dosimetry and Application of Ionizing Radiation (e.g.)**

- X-ray fluorescence analysis
- 3D gel dosimetry
- Radon measurements
- Dosimetry of the environment
- In-situ gamma spectroscopy

**Cooperation** with CERN - DIRAC, hospitals

**Nuclear reactors (e.g.)**

- Reactor physics
- Thermohydraulics
- Nuclear fuel cycle
- Operation, safety and security of NPP and RR

**Cooperation** with IAEA, JINR; universities in Berlin, Edinburgh, Bratislava, Budapest, Vienna, Stockholm, Aachen

**Software Engineering (e.g.)**

- Applications in medicine, economics, business

**International cooperation:**

- cooperation in research with a number of foreign institutions, see above
- participation in the Erasmus programme
- joint degrees (e.g. awarded jointly by FNSPE and French universities)
- offer of study programmes in English
- exchange of academics and students

**Annual events:**

- **Winter School** of Mathematical Physics
- **Open House** (the Faculty is open to the public; organizes visits to departments and laboratories, meetings with staff and students)

- **Remedial Mathematics Week** for new students
- **“Bažantrikulace”** - Initiation Party for first-year students
- **FNSP Spring Ball** “Všejaderná fúze”

**Founding Fathers:**

**Prof. Dr. František Běhounek, DrCs. (1898-1973)**

Specialist in natural and artificial radioactivity, student of M. Curie-Sklodowska, survivor of Nobile's disastrous airship Italia expedition to the North pole; first Head of the Department of Nuclear Chemistry, founder of the Department of Dosimetry and Application of Ionizing Radiation

**Prof. Ing. Bohumil Kvasil, DrSc. (1920-1985)**

Specialist in microwave technology, quantum radiophysics, lasers and holography, first Head of the then Department of Nuclear Engineering, and the Department of Physical Electronics, Dean of the Faculty between 1957 – 60

**Prof. Dr. Ing. Vladimír Majer, DrSc. (1903 –1998)**

Specialist in nuclear chemistry, founder of nuclear chemical studies at the Faculty, successor of Prof. Běhounek as Head of the Department of Nuclear Chemistry (1959)

**Prof. RNDr. Václav Petržílka (1905 – 1976)**

Father and pioneer of Czech and Slovak experimental nuclear physics, specialist in piezoelectric effects and nuclear reactions; studied in Cavendish Laboratory in UK, was Head of the Department of Physics and first Dean of the Faculty (1955 – 57)

**Prof. Ing. Čestmír Šimáně, DrSc. (1919 – 2012)**

Specialist in experimental nuclear physics, founder and pioneer of our nuclear research, father of our first nuclear reactor, student of F. Joliot-Curie; research scientist in JINR Dubna, Academy of Sciences, IAEA; spent 40 years with FNSPE, its Dean between 1967 – 72

**Prof. RNDr. Václav Votruba (1909 – 1990)**

Specialist in quantum electrodynamics, theory of relativity and quantum theory, studied in Zurich; author of excellent textbooks, one of the first professors to join the new Faculty

