Czech Technical University in Prague

Curricula 2025—2026

Faculty of Nuclear Sciences and Physical Engineering

CONTENT

FACULTY OF NUCLEAR SCIENCES AND PHYSICAL ENGINEERING

CZECH TECHNICAL UNIVERSITY IN PRAGUE

The Faculty of Nuclear Sciences and Physical Engineering (FNSPE) was established in 1955, as part of the Charles University, but in 1959 became a new special faculty of the Czech Technical University in Prague. The establishment of the Faculty was connected with the beginning of a new era of the peaceful use of nuclear energy. A complex approach to all nuclear branches was intended, so specialists from universities, technological institutions, and industry were brought together to comply with this task. Later, newly developed areas of physics application, e.g. plasma and solid state physics, lasers, cosmic research were included in the Faculty curricula.

The characteristics of the Faculty activities developed during its history, and the most advanced areas of technological progress have always attracted its attention. Students with a special interest in mathematics were taught individually, and, subsequently, the study of mathematical engineering was established. In the last fifteen years the rapidly developing branches of mathematical and software engineering, interdisciplinary application to ecology, medicine, economy, archeology have been also evolved. The Faculty is equipped with several large research facilities, such as the VR-1 training nuclear reactor, scanning electron microscopes, high power laser systems, computational and advanced radiochemical laboratories, and satellite laser ranging station (Helwan, Egypt).

ANNUAL ACADEMIC CALENDAR 2025 – 2026

ACADEMIC YEAR

Sep 22 2025 – Sep 20 2026

ENROLLMENT

Aug 27 - Aug 29 2025	1st year of bachelor's program
Aug 1 – Sep 21 2025	higher years
Sep 12 2025	self-payers
Sep 15 – Sep 19 2025	Orientation Week

WINTER SEMESTER

Oct 3 2025	Commencement Ceremony for new students
Sep 22 2025 – Dec 19 2025	scheduled classes (13 weeks)
Dec 22 2025 – Jan 4 2026	winter holidays
Jan 5 2026 – Feb 15 2026	examination period (6 weeks)
until Nov 30 2025	applications for February final examinations
until Jan 5 2026	theses submission for February final examinations
until Jan 16 2026	closure of study results for February final examinations
Jan 26 – Feb 6 2026	February final examinations

SUMMER SEMESTER

Jan 12 – Feb 15 2026	enrollment to summer semester
Feb 16 – May 15 2026	scheduled classes (13 weeks)
May 18 – May 22 2026	additional classes
May 25 – Jun 28 2026	examination period (5 weeks)
Jun 29 – Aug 30 2026	summer holidays
Aug 31 – Sep 18 2026	extended examination period (3 weeks)
until March 31 2026	applications for June final examinations
until May 8 2026	theses submission for June final examinations
until May 22 2026	closure of study results for June final examinations
until May 31 2026	applications for September final examinations
until Aug 3 2026	theses submission for September final examinations
until Aug 14 2026	closure of study results for September final examinations
Jun 1 – Jun 12 2026	June final examinations
Aug 24 – Sep 9 2026	September final examinations
May 13 2026	Rector's Day

Approved by the management of the FNSPE CTU in Prague on March 19, 2025. .

Czech Technical University in Prague

https://www.cvut.cz/en

MEMBERS OF THE TOP MANAGEMENT OF CTU

Vice-Rector entrusted with managing the university	prof. Ing. Oldřich Starý, CSc.
Vice-rectors	doc. Dr. Ing. Gabriela Achtenová Vice-Rector for Bachelor and Master Studies
	prof. Ing. Zbyněk Škvor, CSc. Vice-Rector for Science, Creative Activities and PhD Studies
	prof. Ing. Oldřich Starý, CSc. Vice-Rector for International Relations
	Ing. Veronika Kramaříková, MBA Vice-rector for Development and Strategy
	prof. Ing. Alena Kohoutková, CSc. FEng Vice-Rector for Construction
	Ing. Radek Holý, Ph.D. Vice-Rector for Quality Management
Registrar	Mgr. Jiří Špelina
Chancellor	Mgr. Jiří Špelina (temporarily entrusted)

FACULTY OF NUCLEAR SCIENCES AND PHYSICAL ENGINEERING

https://fjfi.cvut.cz/en/

GOVERNANCE AND ACADEMIC BODIES

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Vice-deans	prof. Mgr. Milan Krbálek, Ph.D. Vice-dean for Student Affairs
	prof. Dr. Ing. Petr Haušild Vice-dean for Science and Research
	doc. Ing. Jan Čepila, Ph.D. Vice-dean for Development
	prof. RNDr. Jan Vybíral, Ph.D. Vice-dean for Public Relations
Secretary	Mgr. Alena Králová
Ombudsman	Bc. Radka Mika Havlíková

SCIENTIFIC BOARD

Chair	doc. Ing. Václav Čuba, Ph.D., Dean of the Faculty
Internal members	prof. Dr. Ing. Petr Haušild
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	prof. Ing. Jan John, CSc.
	prof. Ing. Ivan Richter, Dr.
	doc. Ing. Ladislav Kalvoda, CSc.
	doc. Ing. Jaromír Kukal, Ph.D.
	prof. Ing. Jiří Kunz, CSc.
	prof. Ing. Ladislav Musílek, CSc.
	prof. Ing. Zuzana Masáková, Ph.D.
	doc. Ing. Petr Průša, Ph.D.
	doc. Ing. Ľubomír Sklenka, Ph.D.
	doc. Ing. Martin Štefaňák, Ph.D.
	prof. RNDr. Marie Demlová, CSc. (FEL ČVUT)
	prof. Ing. Jaroslav Fořt, CSc. (FS ČVUT)
	doc. RNDr. Pavel Krejčí, CSc. (FSv ČVUT)
External members	Ing. Pavel Bakule, DPhil. (FZÚ AV ČR, v.v.i.)
	Ing. Marie Davídková, Ph.D. (SÚRO, v.v.i.)
	Ing. Dana Drábová, Ph.D., dr. h. c. (SÚJB)
	Ing. Jiří Hejtmánek, CSc. (FZÚ AV ČR, v.v.i.)
	prof. Ing. Aleš Helebrant, CSc. (FCHT VŠCHT)
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	doc. Mgr. Alexander Kupčo, Ph.D. (FZÚ AV ČR, v.v.i.)
	prof. Ing. Ondřej Lebeda, Ph.D. (UJF - AV ČR, v.v.i.)
	doc. Ing. Jan Mareš, Ph.D. (FCHI VŠCHT)

ACADEMIC SENATE

Academic staff:

Ing. Kamil Augsten, Ph.D.
Ing. Josef Blažej, Ph.D.
doc. Mgr. Jaroslav Bielčík, Ph.D.
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doc. Ing. RNDr. Petr Distler, Ph.D. et Ph.D.
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Ing. Zdeněk Potůček, Ph.D.
Ing. Pavel Strachota, Ph.D.
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Eliška Havlová
Ing. Lukáš Heriban
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DEAN'S OFFICE – ADMINISTRATIVE DEPARTMENTS

The Dean's office is the executive body of the Faculty. It is responsible for Faculty operations, including its economy, management issues, and business activities. The Dean's Office is headed by the Faculty Secretary.

STUDY OFFICE

The department is responsible for administering academic matters for all bachelor and master students from the time they are admitted until they graduate as well as for reviewing the Faculty's activities. The department is responsible to the Vice-dean for Student Affairs.

Department of Student Affairs in Prague

Tuesday	from 9.00 a.m. to 11.30 a.m.	
Wednesday	from 9.00 a.m. to 11.30 a.m.	from 1.00 p.m. to 3.00 p.m.
Thursday		from 1.00 p.m. to 3.00 p.m.

Department of Student Affairs in Děčín

Monday to Friday	from 8:30 a.m. to 11:00 a.m

Department of Science, Research, and International Relations

The department is responsible for the agenda of Doctoral Programme students. It also administers business trips and study trips abroad for students and employees, visits of foreign guests, and, with the respective departments, records international contracts, grant applications, awarded grants, and publications. It also prepares all documents for regular meetings of the Scientific Board (endowment and professorship procedures), appointments for the State Doctoral Examination Board, approval of supervisors, etc.

Open to PhD students:

Monday	from 9.00 a.m. to 11.00 a.m.	from 1.00 p.m. to 3.00 p.m.
Wednesday	from 9.00 a.m. to 11.00 a.m.	from 1.00 p.m. to 3.00 p.m.

THE LIBRARY / READING ROOM IS OPEN

Monday	from 9:00 a.m. to 4:00 p.m.
Tuesday	from 9:00 a.m. to 12:00 p.m., 1:00 p.m. to 4:00 p.m.
Wednesday	from 9:00 a.m. to 6:00 p.m.
Thursday	from 9:00 a.m. to 12:00 p.m., 1:00 p.m. to 4:00 p.m.
Friday	from 9:00 a.m. to 12:00 p.m.

THE BOX OFFICE IS OPEN

Monday to Thursday	from 10.00 a.m. to 11.00 a.m. from 2.00 p.m. to 3.00 p.m.
Friday	from 10.00 a.m. to 11.00 a.m.

LIST OF DEPARTMENTS

DEPARTMENT	ABBREVIATION	CODE
Department of Mathematics	KM	01
Department of Physics	KF	02
Department of Human Sciences and Languages	KJ	04
Department of Solid State Engineering	KIPL	11
Department of Laser Physics and Photonics	KLFF	12
Department of Materials	KMAT	14
Department of Nuclear Chemistry	KJCH	15
Department of Dosimetry and Application of Ionising Radiation	KDAIZ	16
Department of Nuclear Reactors	KJR	17
Department of Software Engineering	KSI	18

DEPARTMENTS

14101 DEPARTMENT OF MATHEMATICS - KM

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Department Secretary	Ing. Pavel Strachota, Ph.D.
Department Assistant	Bc. Ivana Kukalová
Academic staff	prof. Dr. Ing. Michal Beneš prof. RNDr. Čestmír Burdík, DrSc. prof. Ing. Jan Flusser, DrSc. prof. Ing. Václav Klika, Ph.D. prof. Mgr. Milan Krbálek, Ph.D. prof. Mgr. David Krejčiřík, Ph.D., DSc. prof. Ing. Zuzana Masáková, Ph.D. prof. Ing. Jiří Mikyška, Ph.D. prof. Ing. Edita Pelantová, CSc. prof. Ing. Pavel Šťovíček, DrSc. prof. RNDr. Jan Vybíral, Ph.D. doc. Ing. Ľubomíra Dvořáková, Ph.D. doc. Ing. Radek Fučík, Ph.D. doc. Ing. Tomáš Hobza, Ph.D. doc. Ing. Tomáš Oberhuber, Ph.D. doc. Ing. Severin Pošta, Ph.D. doc. Ing. František Štampach, Ph.D. doc. Ing. Matěj Tušek, Ph.D. Ing. Petr Ambrož, Ph.D. Ing. Jiří Franc, Ph.D. Ing. Miroslav Kolář, Ph.D. Ing. Václav Kůs, Ph.D. Ing. Pavel Strachota, Ph.D. Ing. Zdeněk Čulík Mgr. Maksym Dreval Ing. Petr Vokáč
Administrative staff and technicians	Pavel Kerouš

Mathematics is one of the main theoretical disciplines at FNSPE. The Department of Mathematics provides all mathematics teaching for all study programs at FNSPE. Mathematics is taught in the first three years of study, i.e., at the bachelor's level. Students gain relatively deep knowledge of calculus and linear algebra, at three levels of difficulty: A, B, or in the subject Mathematics. They become familiar with the basics of working on computers. This is followed by courses in other mathematical disciplines, differing in difficulty according to the requirements of individual fields of study, such as ordinary and partial differential equations, numerical methods, probability theory and mathematical statistics.

The Department of Mathematics guarantees education in three bachelor's programs and five master's programs. In the bachelor's program, it is the Mathematical Engineering (MI) program with specializations in Mathematical Modeling and Mathematical Informatics (MINF), and the Applied Mathematical-Stochastic Methods (AMSM) and Applied Algebra and Analysis (AAA) programs. In the master's program, they are followed by the MI, AMSM, MINF and AAA programs. Students are thoroughly trained in classical and modern parts of mathematics and computer science, including advanced theoretical and application areas. These include in particular general algebra, functional analysis, mathematical physics, numerical mathematics, probability theory and mathematical statistics, and a number of subjects from the field of discrete mathematics and theoretical computer science. In all fields, emphasis is placed on the application of acquired knowledge, including solving problems using modern computer technology. Graduates of the MI program will find employment in the mathematical solution of natural and technical problems. Graduates of the AMSM program will gain a high-quality theoretical foundation in mathematical and statistical disciplines reflecting modern scientific trends and practical experience in selected areas of applied research. Graduates of the MINF program will apply themselves in designing, analyzing and creating demanding software projects and solving mathematical problems of a discrete nature. Graduates of the AAA program will apply their deep knowledge in a number of mathematical disciplines together with analytical skills in solving specific problems in various areas of science and technology.

Teaching in the master's degree program is consistently conducted "in science", in the last two years of study, students solve tasks within the Research Project and Diploma Thesis subjects that most often arise from both theoretical and practical problems arising in various fields of science, technology and social practice.

A new, professionally focused, combined master's degree program Didactics of Mathematics for Secondary Schools has been opened, which emphasizes the quality preparation of teachers who deeply understand mathematics, its current trends and applications and are also able to implement an interdisciplinary approach in teaching oriented in Science. The study is intended for graduates of bachelor's degree programs in mathematics.

The department also provides the Applied Informatics (APIN) field of study in the bachelor's degree program. Students of this field will be thoroughly familiarized with all practical aspects of using computers and will undergo a significantly expanded English course with the opportunity to pass a state language exam.

The department's staff is engaged in scientific research activities, in particular:
- applications of algebra, functional analysis and geometry in mathematical and theoretical physics, biology and medicine, in thermomechanics and in data analysis;
- mathematical modeling oriented towards the creation and analysis of deterministic and stochastic models of physical, technical, biomedical and ecological processes;
- use of algebraic number theory and discrete mathematics in symbolic dynamic systems;

• analysis of the microscopic structure of traffic flows and modeling of agent systems and statistical processing of general monitoring signals with applications in acoustic defectoscopy of materials.

14102 DEPARTMENT OF PHYSICS - KF

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	Ing. Libor Škoda
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	Ing. Zdenko Janoška, Ph.D.
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	Ing. Filip Petrásek, Ph.D.
	Ing. Josef Schmidt, Ph.D.
	Ing. Peter Švihra, Ph.D.
	Dr. Otari Javakhishvili
	Ing. Oleksandr Korchak
	Ing. Anhelina Kostina
	Ing. Monika Kuncová
	Bc. Denis Lednický
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	Josef Kohák
	Bc. Vojtěch Kráčmar
	Monika Mikšovská
	Lucie Tomášová
	Ing. Barbora Janošková

The Department of Physics provides a basic course in physics for undergraduate students. Lectures cover mechanics, electricity and magnetism, thermodynamics and statistical physics, waves, optics and atomic physics, and classical theoretical physics. The department also prepares students for laboratory work in the courses Fundamentals of Physical Measurements, Physics Laboratory, and Experimental Physics. In the profile part of

the Bachelor's degree, the department covers the areas of quantum mechanics, nuclear and particle physics and plasma physics. The physical knowledge and insights acquired during the basic course of study are essential for further study in the specialised departments, where students are prepared for their chosen specialisation.

In undergraduate studies, the Department of Physics guarantees the study programmes Nuclear and Particle Physics (JCF), Quantum Technologies (QT) and guides students in the specialisations Mathematical Physics (MF) and Plasma Physics and Thermonuclear Fusion (FPTF), from the undergraduate study programmes Mathematical Engineering and Physical Engineering, respectively. All programmes are followed by Master's degree programmes of the same name.

Graduates of all specializations are prepared for both scientific and experimental work. Due to their broad and thorough training, they find employment in research centres and in commercial companies oriented towards state-of-the-art technologies.

In addition to mathematical physics, plasma physics and theoretical, experimental and instrumental nuclear and particle physics, the research activities of the department are also oriented towards theoretical physics, statistical physics, quantum technologies, quantum optics, quantum information and computational physics. In all of these areas, the Department provides professional guidance to PhD students.

The scientific research activities of the Department are developed in cooperation with foreign partners, scientific research centres (CERN, Fermilab, GSI, BNL) and institutes of the Academy of Sciences of the Czech Republic. The Department cooperates closely with the Doppler Institute and develops especially mathematical physics and related fields. Within the Centre for the Development of Advanced Ionising Radiation Detection Technologies, hybrid and monolithic silicon detectors for industrial and research applications are developed, and cooperation.

14104 DEPARTMENT OF HUMANITIES AND LANGUAGES - KHVJ

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Department of Humanities and Languages provides courses of English, German, French, Russian, Spanish and Czech (for foreign students only), and focuses mainly on professional and academic English. However, it offers also complete language training for beginners (excluding English and German), intermediate and advanced students. The Department also runs compulsory courses in Rhetoric, Introduction to Law, Introduction to Psychology and Ethics in Science and Technology. First-year students can also register for a Course of English Conversation running for one semester.

The courses are provided as part of the Bachelor Programme (3 and 5 semesters), the Master Programme (1 to 2 semesters) and the Doctoral Programme (2 semesters). For details see instructions for language courses and article 6 in the Principles of Study.

Closely cooperating with FNSPE departments (in particular the Department of Mathematics), The Department offers English language courses as part of the Bachelor Programme Specialization Applied Informatics, teachers of English assuming the role of language supervisors of students writing their Bachelor Project in English.

The Department also provides consultations to other departments of FNSPE, and offers consultation, language review and language proofreading services. The Faculty staff are offered a course of English and a course of Czech for Foreigners. Moreover, the Department staff adapt various professional materials for didactic use in class, study the problems of professional style and methodology of teaching English at technical universities. The Department also invites and offers regular posts to foreign lectures, mainly - but not only - for English courses.

The Department has also assumed responsibility for the international student and - in part - for academic staff mobility, mainly under the Erasmus+ Project. Cooperating with the Faculty Administration Office, it offers information, consultation and administrative services both to outgoing Faculty students and incoming foreign students. Students outgoing within the Erasmus+ Programme are subject here to language tests, the results of which prove their language competences and qualify them for a place on the Programme.

Since 2014, the Department staff has regularly participated in pedagogical development projects of CTU aiming at developing more profound language competences in spoken and written professional style of FNSPE students and graduates.

14111 DEPARTMENT OF SOLID STATE ENGINEERING - KIPL

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	Dominik Váňa
	Bc. Milan Vrána

The Department educates specialists in physical engineering, specifically in solid state engineering. Their study combines broad theoretical foundations in mathematics and physics with experimental and engineering courses. Students will become familiar with the key concepts in modern theoretical and experimental physics of condensed matter, applied optics, nuclear physics, and electronics. Within the master's course, they build up on their bachelor course foundations, adding to them quantum theory of solid matter in general, as well as topics related to selected physical systems and problems: superconductors and their theory; low temperature physics; dielectric and semiconductor materials; magnetism of solids; physics of surfaces and interfaces; phase transitions in solids; basics of programming and microelectronics; computer simulations of structure and propeties of solids; characterization of biological structures and "smart" materials. The courses are also focused on many other disciplines, for example, technology and analysis of semiconductors, development of optical fibre sensors and special photonic materials, application of dielectric crystals, use of special diffraction techniques for material testing, use of databases providing information on material research or mathematical modelling of structures, properties, physical phenomena and technological processes.

The scientific and research activities of the Department concentrate in specialised scientific centres – laboratories, involved in both fundamental and applied research tasks. Courses in all study programmes (Bachelor, Master, Doctoral) are closely linked with research projects of the department's laboratories and are performed in cooperation with research and educational institutions from the Czech Republic and abroad.

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14112 DEPARTMENT OF LASER PHYSICS AND PHOTONICS – KLFF

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Troja:
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Deputy Head of Department	doc. Ing. Milan Šiňor, Dr. doc. Ing. Ondřej Klimo, Ph.D.
Department Secretary	Bc. Radka Mika Havlíková
Department Assistant	Lucie Žárová
Academic staff	prof. Ing. Jiří Čtyroký, DrSc. prof. Ing. Helena Jelínková, DrSc. prof. Ing. Václav Kubeček, DrSc. prof. Ing. Jiří Limpouch, CSc. prof. Ing. Richard Liska, CSc. prof. Ing. Ivan Procházka, DrSc. prof. Ing. Ivan Richter, Dr. doc. Ing. Miroslav Čech, CSc. doc. Ing. Ondřej Klimo, Ph.D. doc. Ing. Milan Kuchařík, Ph.D. doc. Ing. Michal Němec, Ph.D. doc. Ing. Antonín Novotný, DrSc. doc. Ing. Ladislav Pína, DrSc. doc. Ing. Jan Pšikal, Ph.D. doc. Ing. Milan Šiňor, Dr. doc. Ing. Pavel Váchal, Ph.D. Ing. Josef Blažej, Ph.D. Ing. Miroslav Dvořák, Ph.D. Ing. Alexandr Jančárek, CSc. Ing. Michal Jelínek, Ph.D. Ing. Pavel Kwiecien, Ph.D. RNDr. Martin Michl, Ph.D. Ing. Jan Šulc, Ph.D. Ing. David Vyhlídal, Ph.D. Ing. Jaroslav Pavel RNDr. Jan Proška Bc. Radka Mika Havlíková
Professional staff	prof. Naděžda Bobrova, DrSc. Ing. Milan Burda, Ph.D. Ing. Martin Fibrich, Ph.D. Ing. Milan Frank, Ph.D.

	Ing. Martin Jirka, Ph.D. Ing. Nikola Jurkovič, Ph.D. Ing. Matěj Klíma, Ph.D. Luca Mascaretti, MSc., Ph.D. Ing. Jaroslav Nejdl, Ph.D. Ing. Michal Nevrkla, Ph.D. Ing. Adam Říha, Ph.D. Ing. Richard Švejkar, Ph.D. Ing. Miroslav Coubal Ing. Lubomír Hudec Ing. Dominka Jochcová Ing. Kryštof Kadlec Ing. Karel Kouba Ing. Jan Kratochvíl Ing. Jiří Löffelmann Ing. Lucie Marešová Ing. Dominika Popelová, Ph.D. Ing. Jan Olšan Ing. Jan Vábek, Ph.D. Ing. Karel Veselský
Administrative staff and technicians	Josef Brzák Daniel Hausenblas Dita Pokorná

The Department of Laser Physics and Photonics is one of the oldest departments of our faculty. It was originally founded as the Department of Nuclear Engineering, which at that time also included the physical electronics, but in a much narrower concept than it is today. Following the independence of part of the Department of Nuclear Power Engineering, the main part of the original Department formed the Department of Electronics in 1961, and this as such, by extending its teaching and research activities, became the Department of Physical Electronics in the academic year 1967/68. Recently, with the new statute of the faculty, the Department of Physical Electronics, after 57 years, was renamed as the *Department of Laser Physics and Photonics – DLPP* (April 24, 2024), in better accordance with the activities currently being addressed.

In 2019, the DLPP accredited, in cooperation with other departments, the following study programmes: the Bachelor's degree programme *Physical Engineering*, where the department provides 2 specializations in *Laser Technology and Photonics* and in *Computational Physics*. In addition, the Department provides a follow-up Master's degree programme in *Physical Electronics* with three specializations in *Laser Physics and Engineering*, *Photonics*, and *Computational Physics*. The Department also contributes significantly to other degree programmes for both the bachelor level (Quantum Technologies, Physical Engineering, specialization in Plasma Physics and Thermonuclear Fusion) and the master level (Quantum Technologies, Plasma Physics and Thermonuclear Fusion). In addition, the Department offers a number of compulsory and optional courses in other programmes for both levels.

As for the doctoral studies, the department is involved in teaching and scientific education of students in the newly re-accredited (since 2023-24) doctoral programme in *Physical Engineering* (including, in addition to KLFF, also KIPL, KMAT and KF). In 2020, the faculty

accredited a new PhD programme in *Quantum Technologies*, in which the Department of Laser Physics and Photonics is significantly involved (together with KF, KIPL, KM and KMAT). The department also collaborates on other PhD programmes (High Temperature Plasma Physics and Thermonuclear Fusion - joint PhD programme with Ghent University and Applied Computer Science).

The broad profile of the Department allows students to gain, in addition to the general foundations of applied physics, deeper knowledge and experimental experience in the field of physics and technology of lasers and photonics. In addition, the department provides courses in classical and quantum optics and photonics, nanophotonics, microelectronics, plasma physics, computational physics, nanophysics and nanostructures, and in modern quantum technologies. Students at the department can also expand their knowledge in applied computer science and computational physics, especially in relation to modelling of physical processes and computational numerical methods. The Department also participates in providing the introductory courses *Introduction to Laser Technology* and *Introduction to Photonics and Nanostructures* in the first year, as well as numerical mathematics, computer science and scientific computing. The Department also provides courses in the field of basic electronics.

Scientific research activities at the Department provide students with the opportunity to join departmental and external scientific teams, to participate in research projects at the domestic and international level, and to gain training in creative activities for broad application in research and applied fields. The Department has 5 research groups - Solid State Lasers, Computational Physics, X-ray Photonics, Nanophotonics and Quantum Technologies, and Advanced Space Technologies. The Department has well-equipped specialized laboratories with modern experimental and computing equipment as well as laboratories for practical teaching of students (laser technology, optics and optoelectronics, vacuum technology, electronics). The department also manages some of the faculty's computer laboratories (PC and workstations, Quantum Hyperion computing cluster together with KIPL), which students can use in continuous operation. The Quantum Technology Laboratories, together with KIPL, include a joint technology group dedicated to the preparation of thin films and multilayer structures for advanced applications including, for example, nanoplasmonics, chemical sensors, quantum systems, high-temperature superconductors, and functional protective layers. The research in the laboratories of the Department is of both basic research and applied science character and is carried out in collaboration with other departments of the faculty, academic and industrial partners (e.g. Institute of Photonics, Institute of Physics including Hilase, Institute of Plasma Physics including the PALS Centre, Institute of Macromolecular Chemistry, J. Heyrovsky Institute of Physical Chemistry, Institute of Molecular Genetics of the Academy of Sciences of the Czech Republic, Eli ERIC Beamlines, Faculty of Mathematics and Physics of the Charles University, Faculty of Science of the Palacky University, VSB – Technical University of Ostrava, Ceitech Brno, Crytur and many others).

14114 DEPARTMENT OF MATERIALS - KMAT

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Deputy Head of Department	prof. Ing. Jiří Kunz, CSc.
Department Secretary	Ing. Jaroslav Čech, Ph.D.
Department Assistant	Helena Knoppová
Academic staff	prof. Dr. Ing. Petr Haušild prof. Dr. RNDr. Miroslav Karlík prof. Ing. Jiří Kunz, CSc. doc. Ing. Petr Kopřiva, CSc. doc. Ing. Hynek Lauschmann, CSc. doc. Ing. Aleš Materna, Ph.D. doc. Ing. Vladislav Oliva, CSc. doc. Ing. Jan Siegl, CSc. Ing. Jaroslav Čech, Ph.D. Ing. Ondřej Kovářík, Ph.D. Ing. Karel Tesař, Ph.D.
Professional staff	Ing. Jan Adámek Ing. Kateřina Jiroušková doc. Ing. Radek Mušálek, Ph.D. Dr. Carl Peter Romao
Administrative staff and technicians	Jiří Švácha

Courses offered by the Department are firmly anchored in general foundations of mathematics and physics, upon which higher advanced courses can develop knowledge of solid state physics, applied mechanics, fracture mechanics as well as other physical and mathematical disciplines. Considerable emphasis is placed on training in experimental methods for studying properties of materials. Students also acquire knowledge and skills needed for creative use of computer technology. The professional profile of future graduates is based on early involvement in solving research problems for the Department and research institutions.

Scientific and research activities of the Department in fundamental research and research in cooperation with industry arise from a complex approach towards the study of fatigue properties of bodies and structures, comprising physical and metallurgical aspects, application of fracture mechanics, mathematical modelling of stress and strain fields, research of fatigue processes in micro-volumes and probabilistic approach towards the study of systems reliability.

The department is equipped with a wide range of laboratory and experimental facilities, including scanning electron microscopes with energy-dispersive X-ray spectroscopy and EBSD, a laser confocal microscope, metallographic microscopes, microhardness testers, a nanoindenter, and fatigue testing machines capable of biaxial cyclic loading. The department

also includes a biolaboratory designed for mechanical and corrosion testing of biodegradable implants. An integral part of the department is the fractography laboratory, which holds the status of a unique scientific workplace within CTU.

14115 DEPARTMENT OF NUCLEAR CHEMISTRY - KJCH

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Deputy Head of Department	prof. Ing. Jan John, CSc.
Department Secretary	Ing. Miroslava Semelová, Ph.D.
Department Assistant	Marie Kotasová
Academic staff	prof. Ing. Jan John, CSc. prof. Ing. Viliam Múčka, DrSc. doc. Ing. Václav Čuba, Ph.D. doc. Ing. Mojmír Němec, Ph.D. doc. RNDr. Ján Kozempel, Ph.D. doc. RNDr. Ing. Petr Distler, Ph.D. et Ph.D. doc. Mgr. Dušan Vopálka, CSc. RNDr. Martin Daňo, Ph.D. RNDr. Martin Vlk, Ph.D. Ing. Jan Bárta, Ph.D. Ing. Pavel Bartl, Ph.D. Ing. Kateřina Čubová, Ph.D. Ing. Barbora Drtinová, Ph.D. Ing. Helena Filipská, Ph.D. Ing. Lenka Prouzová Procházková, Ph.D. Ing. Miroslava Semelová, Ph.D. Ing. Alena Zavadilová, Ph.D. Mgr. Aleš Vetešník, Ph.D.
Emeritus Academic staff memeber	doc. Ing. Karel Štamberg, CSc.
Professional staff	doc. Merja Johanna Herzig, Ph.D. Mgr. Lucie Baborová, Ph.D. Ing. Xenie Popovič, Ph.D. Ing. Marta Burešová Ing. Miriam Mindová Ing. Tomáš Prášek Ing. Michal Sakmár Ing. Kristýna Havlinová Ing. Jan Král Ing. Tereza Janská Ing. Ondřej Holas Ing. Jan Houzar Mgr. Petros Leivadaros Ing, Filip Babčický Ing. Michal Ficel Ing. Marie Skálová Ing. Jakub Sochor

Staff of Education in Chemistry	RNDr. Ivona Štefková, Ph.D. RNDr. David Šarboch, Ph.D. Ing. Lukáš Tomaník, Ph.D.
Administrative staff and technicians	Ing. Šárka Hráčková Mgr. Štěpánka Maliňáková Alena Matyášová Olga Múčková Jana Steinerová Martin Šácha

For admission into the Continuation Master Programme, sufficiently broad foundations in mathematics and physics, as well as and in the theoretical and applied knowledge of all fundamental fields of chemistry, i.e. physical, inorganic, analytical, general, and organic chemistry and in biochemistry, are required. Based on these foundations, the specialised nuclear chemistry disciplines are then developed in the Continuation Master Course, i.e. applied nuclear chemistry, environmental chemistry, radiation chemistry, and radioecology, or nuclear chemistry for biology and medicine. The Department also offers Doctoral Programme courses, which are closely related to the actual research topics and projects. Graduates at all levels gain in-depth theoretical knowledge and sufficient practical training to work in radiochemical and chemical laboratories. They are able to use chemical and nuclear chemical methods to solve analytical, environmental, physico-chemical, biomedical, radiopharmaceutical and technological problems. They find employment in research institutes, nuclear power plants, health care, research and operations management. In addition, department organises specialised Lifelong Learning courses even at an international level in cooperation with other Faculty departments, national institutions, or European structures.

Science and research of the Department are focused on radioecology, research into radionuclides and the behaviour of trace elements in the environment, separation of radionuclides and heavy metals, radioanalytical chemistry, radiopharmaceutical chemistry, waste management, application of radiation chemistry methods, modelling of separation and migration processes, and use of radionuclides and ionizing radiation in research.

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14116 DEPARTMENT OF DOSIMETRY AND APPLICATION OF IONIZING RADIATION - KDAIZ

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Deputy Head of Department	prof. Ing. Tomáš Čechák, CSc.
Department Secretary	Ing. Kamil Augsten, Ph.D.
Department Assistant	Ing. Zuzana Augstenová
Academic staff	prof. Ing. Tomáš Čechák, CSc. prof. Ing. Ladislav Musílek, CSc. prof. Ing. Tomáš Trojek, Ph.D. doc. Ing. Jaroslav Klusoň, CSc. doc. Ing. Petr Průša, Ph.D. Ing. Kamil Augsten, Ph.D. Ing. Pavel Dvořák, Ph.D. RNDr. Jan Smolík, Ph.D. RNDr. Lenka Thinová, Ph.D. Ing. Petra Trnková, Ph.D. Ing. Tomáš Urban, Ph.D.
Professional staff	Ing. Jaroslav Čeřovský MSc. Andrej Gvozdic Ing. Tereza Hanušová, Ph.D. M.Sc. Chia-Wei Huang Ing. Anna Jelínek Michaelidesová, Ph.D. Ing. Eliška Jelínková Ing. Martin Kaschner Ing. Irena Koniarová, Ph.D. Ing. Ondřej Kořistka Bc. Zbyněk Král Ing. Karolína Lavičková Ing. Monika Kotyková Ing. Vladimír Linhart, Ph.D. Ing. Jiří Martinčík, Ph.D. Ing. Josef Novotný, Ph.D. Ing. Pavel Novotný, Ph.D. Ing. Kateřina Pilařová, Ph.D. Mgr. Václav Procházka, Ph.D. Mgr. Hana Průšová, Ph.D. M.Sc. Chrysoula Rousi

	Ing. Václav Štěpán, Ph.D.
Ing. Jiří Trnka, Ph.D.	
Administrative staff and technicians	Ing. Zuzana Augstenová
	Simona Možnarová
	Jana Mužáková
	Vladimír Němec
	Petra Urbanová

Courses offered by the Department put considerable emphasis on experimental nuclear physics and technology, personal dosimetry, environmental issues, dosimetry of nuclear power facilities, radiation metrology, applications of ionizing radiation in science, technology, medicine and other fields using radiation sources or radionuclides. Significant attention is also paid to the use of computational methods in monitoring interactions of radiation with matter and to the evaluation of biological effects of radiation based on determination of relevant dosimetric quantities.

The Department staff are involved in solving fundamental and applied research projects both on dosimetry and radiation protection and on specialised areas of ionising radiation. Members of the Department also closely cooperate in teaching and R&D activities with other universities, research institutes in the Czech Republic as well as abroad.

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14117 DEPARTMENT OF NUCLEAR REACTORS - KJR

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Web: https://reaktor-vr1.cz/en/

Head of Department	**Ing. Jan Rataj, Ph.D.**
Deputy Head of Department	Ing. Jan Frýbort, Ph.D.
Department Secretary	Ing. Tomáš Bílý, Ph.D.
Department Assistant	Zdeňka Chaberová Romana Šimonová
Academic staff	prof. Ing. Bedřich Heřmanský, CSc. prof. Ing. Marcel Miglierini, DrSc. doc. Ing. Martin Kropík, CSc. doc. Ing. Ľubomír Sklenka, Ph.D. doc. Ing. Milan Štefánik, Ph.D. Ing. Tomáš Bílý, Ph.D. Ing. Martin Cesnek, Ph.D. Ing. Filip Fejt, Ph.D. Ing. Jan Frýbort, Ph.D. Ing. Lenka Frýbortová, Ph.D. Ing. Ondřej Huml, Ph.D. Ing. Dušan Kobylka, Ph.D. Ing. Jan Rataj, Ph.D. Ing. Martin Ševeček, Ph.D. Ing. Miloš Tichý, CSc.
Professional staff	Ing. Adam Kecek, Ph.D. Ing. Evžen Losa, Ph.D. Ing. Jana Matoušková, Ph.D. Ing. Ondřej Novák, Ph.D. Mgr. Michal Herčík Ing. Ján Kozic Ing. Ondřej Lachout Ing. Jakub Mátl Ing Josef Sabol Ing. Sebastian Nývlt Ing. Radovan Starý Ing. Pavel Suk Ing. Ondřej Zlámal

Project management	Alena Šedlbauerová
Administrative staff and technicians	Bc. Linda Keltnerová Vojtěch Fornůsek Jan Hrubý Marek Šedlbauer

The Department offers English-speaking students a study in master degree programme Nuclear Engineering, specailization Nuclear Reactors and in two doctoral degree programmes Nuclear Engineering and Nuclear Safety, Security and Forensics.

In these courses, they can study advanced topics of neutron physics and thermohydraulics focused on the theory, design and operation of nuclear reactors. Moreover, they also gain practical engineering knowledge of the construction and operation of nuclear facilities. Attendance of theoretical courses is supplemented with experimental training in the Department´s laboratories, and hands-on training on the training reactor VR-1 & VR-2 reactors.

The scientific activities of the Department are focused on theoretical and experimental reactor physics, neutron applications, nuclear analytical methods, fuel cycle, thermohydraulics, thermomechanics of nuclear fuel, safe and reliable operation of nuclear facilities, analysis of nuclear reactor core and spent nuclear fuel, development of new nuclear technologies including SMR and many other issues related to the use of nuclear energy and ionizing sources.

The Department cooperates with many foreign universities such as UK Defence Academy, University of Manchester, KTH Royal Institute of Technology in Stockholm, STU Bratislava, TU Vienna, Middlebury Institute of International Studies at Monterey, University of Tennessee, Knoxville, Kepco International Nuclear Graduate School, Korea Advanced Institute of Science & Technology and others.

The Department closely cooperates with a number of industrial and research partners, state and international organizations such are ČEZ a.s., ÚJV Řež a.s., ŠKODA JS a.s., ÚJP a.s, Czechatom a.s., KHNP, EDF, Westinghouse, Centrum výzkumu Řež s.r.o., AV ČR, SÚJB, SÚRAO, SÚRO v.v.i, KAERI, IAEA, Joint Research Centre - European Commission, OECD NEA and many others.

14118 DEPARTMENT OF SOFTWARE ENGINEERING - KSI

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Department Assistant (Prague)	Ing. Klára Kuchyňková
Department Assistant (Děčín)	Dana Landovská
Department Secretary (Prague)	Ing. Jakub Klinkovský, Ph.D.
Department Secretary (Děčín)	Bc. Josef Drobný
Academic staff	doc. Ing. Jaromír Kukal, Ph.D. doc. Ing. Vojtěch Merunka, Ph.D. doc. Ing. Quang Van Tran, Ph.D. doc. Ing. Miroslav Virius, CSc. doc. Ing. Adam Borovička, Ph.D. Ing. Pavel Eichler, Ph.D. Mgr. Jiří Fišer, Ph.D. Jooyoung Hahn, Ph.D. Ing. Kateřina Horaisová, Ph.D. Ing. Vladimír Jarý, Ph.D. RNDr. Petr Kubera, Ph.D. Mgr. Dana Majerová, Ph.D. Ing. Josef Nový, Ph.D. RNDr. Zuzana Petříčková, Ph.D.
Professional Staff	Ing. Mgr. Radek Hřebík, Ph.D. Ing. Jakub Klinkovský, Ph.D. Ing. Michal Moc Ing. Jakub Solovský, Ph.D.
Library Worker (Děčín)	Helena Hauzírková

The Department of Software Engineering trains bachelor's and consecutive master's students within the study program *Applications of Informatics in Natural Sciences*, which is based on an interdisciplinary approach combining computer science with the natural sciences, especially applied physics. During their studies, students also become familiar with applications of computer science in economics and processing large volumes of data. The bachelor's program is offered in Prague and at the department's branch campus in Děčín, where students can also utilize the 3D printing laboratory within 3D modeling. The department educates doctoral students in the field of *Applied Informatics*.

The department's scientific research activities span a wide spectrum of areas related to computer science applications and software development. The primary disciplines pursued at the department include:

- Machine learning, neural networks, and artificial intelligence (ranging from the development and implementation of machine learning and artificial intelligence algorithms to their applications).
- Data acquisition, data processing, and optimization (processing medical imaging data from PET, SPECT, or MRI; applying mathematical optimization methods; processing financial time series).
- Programming and data management (databases, parallel and distributed computing, algorithm optimization, control of physical experiments).
- Mathematical modeling (natural, industrial, and economic processes; numerical solutions of partial differential equations; economic development prediction).
- Applications of 3D modeling (advanced methods of 3D modeling, applications in medicine, 3D printing laboratory in Děčín).

The international collaboration of the Department of Software Engineering focuses on the development and application of machine learning algorithms for data processing and advanced methods of mathematical modeling for studying and predicting natural phenomena. In cooperation with world experts, the department contributes to the development of intelligent data acquisition systems (DAQ) used in high-energy physics experiments. Students have the opportunity to participate in experiments such as AMBER (CERN), DUNE (Fermilab), or PANDA (Darmstadt) already during their bachelor's studies. Members of the COMPASS team and the follow-up AMBER experiment are responsible for implementing and ensuring the smooth operation of real-time, high-volume data acquisition systems and experiment control.

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DEGREE PROGRAM STRUCTURE

ACCREDITED BACHELOR'S DEGREE PROGRAMS

PROGRAM	CODE	ABBREVIATION	TIME EXTENT
Mathematical Engineering	B0541A170022	P_ MIB	3
Applied Mathematical Stochastic Methods	B0541A170024	P_ AMSMB	3
Nuclear and Particle Physics	B0533A110015	P_JCF	3
Physical Engineering	B0533A110016	P_FIB	3
Nuclear Chemistry	B0531A130028	P_JCHB	3
Decommissioning of Nuclear Facilities	B0588A110002	P_VJZPB	3
Quantum Technologies	B0533A110024	P_QTB	3
Applied Analysis and Algebra	B0541A170025	P_AAAB	3

ACCREDITED MASTER'S DEGREE PROGRAMS

program	code	abbreviation	time extent
Mathematical Engineering	N0541A170028	P_MIN	2
Mathematical Informatics	N0541A170031	P_MINFN	2
Mathematical Physics	N0533A110032	P_MFN	2
Applied Mathematical Stochastic Methods	N0541A170029	P_AMSMN	2
Nuclear Engineering	N0533A110041	P_JIN	2
Nuclear and Particle Physics	N0533A110030	P_JCFN	2
Physical Electronics	N0533A110043	P_FEN	2
Solid State Engineering	N0533A110038	P_IPLN	2
Physical Engineering of Materials	N0533A110036	P_FIMN	2
Plasma Physics and Thermonuclear Fusion	N0533A110034	P_FPTFN	2
Nuclear Chemistry	N0531A130039	P_JCH	2
Decommissioning of Nuclear Facilities	N0788A110002	P_VJZPN	2
Quantum Technologies	N0533A110047	P_QTN	2
Applied Analysis and Algebra	N0541A170035	P_AAAN	2

BACHELOR'S DEGREE PROGRAMS

open in the academic year 2025 - 2026

MATHEMATICAL ENGINEERING

Area of education: Matematika (100 %)
Program coordinator: prof. Dr. Ing. Michal Beneš
Specializations of the study program:

- ***Mathematical modelling (MM)***
- ***Mathematical Physics (MF)***
- ***Mathematical Informatics (MINF)***

Goals and Outcomes:

The degree course in Mathematical Engineering interrelates courses of several branches of study, namely classical and modern topics of mathematics, physics, and informatics and guides students in the use of the above disciplines in engineering and natural sciences.

Mathematics courses include selected topics of calculus, algebra, differential equations, and numerical mathematics. Physics courses concentrate on mechanics, electricity and magnetism, and waves and optics. Informatics courses equip students with basic computer skills, and develop their abilities in programming, discrete mathematics, and theoretical informatics.

The degree course in Mathematical Engineering offers three specializations of modern mathematics applied to engineering practice. Thus, Mathematical Modelling develops students´ knowledge of functional analysis, partial differential equations, probability, mathematical statistics, and numerical mathematics, and their ability to use them in producing and processing mathematical models for science and engineering via up-to-date computer technology. Mathematical Physics provides an insight into theoretical physics, partial differential equations, and methods of mathematics and geometry used in physics. Mathematical Informatics equips students with a solid knowledge of theoretical informatics, classical and modern programming, network technologies and operation systems.

Understanding the closer links between modern mathematics, physics, and informatics is a good basis for students to obtain a higher academic degree and then be eligible for posts applying their knowledge of mathematics, physics, and natural sciences to practice, science, research, or engineering.

Graduate Profile:

Knowledge: Graduates will have gained the knowledge of fundamental disciplines of mathematics, physics, and informatics. According to graduates´ specialization, this basic body of knowledge is enhanced and supplemented with topics of modern mathematics, physics, and informatics. This knowledge will be applied to developing mathematical models, to the use of mathematical methods of theoretical physics, theoretical informatics, and up-to-date methods of mathematical informatics. Graduates can continue their academic training by entering the Continuation Master Programme or a programme of similar character.

Skills: The skills acquired comprise the following: application of methods and techniques common in the basic fields of mathematics and physics to solving engineering problems via modern computer methods; application of the above methods and techniques to solving real problems in research and engineering practice, in dynamics of continuum, stochastic systems, optimal control, image processing, mathematical and theoretical physics, and in theoretical and mathematical informatics; ability to interpret results of computations and compare them with the mathematical methods used; ability to follow new trends in a given

field, have a quick overview of interdisciplinary findings; to analyse issues, and to synthetize results. The newly acquired skills will also include a sense of responsibility for the work done and decisions made.

Competence: Analytical and systematic approach to what they do - based on the body of knowledge and skills acquired and on the use of information technologies - makes the bachelor graduates well prepared for jobs in industry, for professional use of information, and computer equipment. , for research, and the private sector. They can also continue their academic training in a Continuation Master Programme, develop and administer software applications, process and analyse data and use mathematical methods in practice.

Specializations:

According to the set of compulsory courses, the degree programme further splits into the following specializations.

Mathematical Modelling (MM)

The specialization offers a deeper insight into functional analysis, partial differential equations, probability, mathematical statistics, and numerical mathematics as being used to create and to treat computationally mathematical models for science and engineering in practice.

Mathematical Physics (MF)

The specialization offers a deeper insight into theoretical physics, partial differential equations, and methods of mathematics and geometry used in physics.

Mathematical Informatics (MINF)

The specialization focuses on theoretical informatics, classical and modern programming, network technologies, and operational systems.

State final examination:

- Calculus and linear algebra – compulsory part of examination
- Foundations of numerical mathematics – optional part of examination
- General algebra and its applications – optional part of examination
- Analytical mechanics – optional part of examination

MASTER'S DEGREE PROGRAMS

open in the academic year 2025 - 2026

NUCLEAR AND PARTICLE PHYSICS

Area of education: Physics 100 %

Program coordinator: doc. Dr. rer. nat. Mgr. Jaroslav Bielčík

Specializations of the study program:

- ***The program has no specialization***

Goals and Outcomes:

The master´s degree course is oriented towards nuclear and elementary particle physics, these are the fields of study that bring fundamental knowledge about the structure of matter and basic interactions that are happening in the microworld. Many discoveries and knowledge from physics are already in our daily life and are used in many fields that are not just physics. The study plan that this programme offers is mainly based on advanced modules, such as quantum field theory, particle physics and system of modern detectors together with data analysis and data processing. These modules were chosen due to the needs of modern research in the field of nuclear and elementary physics, students then may further specialize by choosing one of the compulsory elective courses. Students can choose to do theoretical or experimental or accelerators.

The fundamentals of the specialized study are the following common theoretical modules. Such as Quantum field theory 1 and 2, Introduction to Theory of Electroweak Interactions and Introduction to Quantum Chromodynamics. These subjects are then supplemented by subjects of profiling basis such as Modern Detectors, Detector Systems and Data Acquisition together with the Statistical Data Analysis 1 and 2, which will acquaint students with modern technology and the industry. Students will attend a series of seminars 1-4 where they will be presenting their research together with talks about the latest news in physics. Students can specialize by choosing one of the three groups of compulsory elective courses. In the experimentally focused group E they complete the subjects Extreme states of matter and Physics of Ultrarelativistic Nuclear Collisions, in the theoretically focused group T they complete the General Theory of Relativity and in the instrumentally focused group I where they complete Accelerators 1 and 2.

The program emphasizes on modern methods of obtaining experimental data and their processing using computer technology, machine learning, and physical interpretation of experimental results, which is then formulated into theoretical models and possible practical applications for acquired data. Teaching is represented by the form of choice of optional subjects, work in specialized laboratories. There are preferred individual forms of teachings under a supervisor together with seminars. Students are involved in ongoing researches projects where they can contribute to their problem-solving skills and are slowly being prepared for modern collective forms of scientific work in an international group. Teaching takes place in close cooperation with non-faculty workplaces such as (Academy of Sciences of the Czech Republic, CERN Geneva, Brookhaven National Laboratory, GSI Darmstadt, etc.). It is, therefore, a comprehensive study program with interdisciplinary content, the aim of which is to prepare graduates for work in academia and industry.

Graduate Profile:

Knowledge: Graduate will gain the most comprehensive possible knowledge of modern nuclear and particle physics, which will enable him to creatively participate in solving new interdisciplinary scientific and technical problems. The acquired knowledge covers all areas of nuclear, particle and quantum physics, detection methods, ionizing radiation detectors and accelerators. The graduate may directly continue in a follow-up doctoral study in the same or a related field.

Skills: Graduate will gain skills in the application of methods of modern physics in solving problems. The acquired skills will consist of preparation and implementation of experiments

and subsequent processing of measurement results which then can be interpreted, this includes a comprehensive analysis of statistical and systematic errors. The graduate will also gain experience working in large international collaborations and the ability to present, communicate and defend the results obtained and, last but not least, will gain skills to participate in the preparation and construction of accelerators.

Competence: Graduates will find employment in industry, basic and applied research and the private sector thanks to the analytical way of work, the systematic approach given by the acquired knowledge and the ability to work with modern computer technology and machine learning methods. They can work in nuclear research institutions, healthcare or the automotive industry. They acquire the qualification of a physicist - researcher with a wide range of possible applications in research (basic, applied, strategic) and in development for technical practice. They will be prepared to solve physical problems using modern experimental techniques, process large-volume data and operate accelerators.

State final examination:

- defence of the diploma project
- oral examination in the general subject
  Particle Physics
- oral examination in the profile subject
  Experimental Methods
- oral examination in the profile subject with optional choice:
  General Theory of Relativity
  Heavy Ion Physics
  Accelerators

PHYSICAL ELECTRONICS

Area of education: Physics 100 %

Program coordinator: prof. Dr. Ing. Ivan Richter, Dr.

Specializations of the study program:

- ***Laser Physics and Technology***
- ***Photonics***
- ***Computational Physics***

Goals and Outcomes:

The master´s degree multidisciplinary program of *Physical Electronics* is oriented towards classical and modern areas of physics, mathematics, and informatics. Specifically, these includes the fields that bring fundamental knowledge about, following the three specializations, laser physics and technique, photonics, and computer physics. The program leads graduates to applications of physical methods in natural-science and engineering practice, often with the help of modern computer technique. The program enables deeper focus in one of the following three specializations of modern applied physics. In the specialization *Laser physics and technology*, students are prepared in the areas and technical applications of coherent laser and charged particle beams and plasma physics. In the specialization *Photonics*, students are prepared in the modern areas of optics, photonics, and photonic nanostructures, including theoretical design, analysis, realization, characterization, and applications. In the specialization *Computational Physics*, students are equally acquired with knowledge of physical backgrounds of high-tech state-of-the-art technologies and modern informatics and computer systems. Deeper interconnection of modern physics, mathematics, and informatics, enables the program graduates to further increase their qualification to higher study degrees, and thus acting in the physical, natural-science, and technical practice, or application in science, research, and technical practice. Many discoveries and knowledge from these areas of applied physics are already applied in our daily life and are used in many surrounding fields. The study plans this program are based on advanced modules, either general or specific to each specialization, such as classical electrodynamic, physical optics, quantum electronics, quantum optics, nonlinear and statistical optics, laser technique, etc. These modules were chosen due to the needs of modern research in the fields of laser physics and technique, photonics, and computer physics.

The program emphasizes on modern methods of obtaining both theoretical and experimental data and their processing using current computer technology, and physical interpretation of experimental results, which is then formulated into theoretical models and possible practical applications. Mandatory courses in each specialization are amended by the form of choice of optional subjects, and work in specialized practical laboratories. Students are involved in ongoing researches projects where they can contribute to their problem-solving skills and are slowly being prepared for modern forms of scientific work. Teaching takes place in close cooperation with non-faculty workplaces such as the Academy of Sciences of the Czech Republic. It is, therefore, a comprehensive study program with interdisciplinary content, the aim of which is to prepare graduates for work in academia and industry.

Graduate Profile:

Knowledge: A graduate will gain the most comprehensive knowledge of fundamental physical, mathematical, and informatics fields which are, in dependence on the particular specialization, deepened in the areas of most important experimental methods and theoretical models of current laser physics and technique, photonics, and computer physics. This will enable the graduates to creatively participate in solving new interdisciplinary scientific and technical problems in the related areas. The graduates may directly continue in

a follow-up doctoral study in the same or a related field (Physical Engineering, Quantum Technologies, and others).

Skills: A graduate will gain skills in the application of methods of modern physics and engineering in solving realistic problems, with the help of modern computer technique. The acquired skills, using the methods and techniques of mathematics and physics, will enable solving realistic research and engineering problems in the areas of laser physics and technique, photonics, and computer physics. The graduate will also gain experience and skills to follow new trends in given areas, and quickly orient in multidisciplinary problems, analyze them and synthesize the results, together with the ability to present, communicate, and defend the results obtained.

Competence: Master graduates will find employment in industry, basic and applied research, and the private sector thanks to the analytical way of work, the systematic approach given by the acquired knowledge and the ability to work with modern computer technology and machine learning methods. They will be prepared to solve physical problems using modern theoretical and experimental techniques. They acquire the qualification of a physicist - researcher with a wide range of possible applications in research (basic, applied, strategic) and in development for technical practice. They can either continue in their studies in doctoral programs, or work in research laboratories, in the development, and test and / or product certificate centers, in metrology, and in various applications of laser and photonic techniques and technologies.

State final examination:

- defence of the diploma project
- oral examination in the general subject
  Electrodynamics
- oral examination in the profile subject with optional choice:
  Optics and Quantum Electronics
  Computational Physics
- oral examination in the profile subject with optional choice:
  Laser Physics and Technology
  Photonics
  Numerical Methods in Applied Physics
  Physics of Laser Plasma and Inertial Fusion

MATHEMATICAL PHYSICS

Area of education: Physics 100 %

Program coordinator: doc. Ing. Libor Šnobl, Ph.D.

Specializations of the study program:

- ***The program has no specialization***

Goals and Outcomes:

The study of Mathematical Physics is focused on advanced areas of modern mathematical physics and applied mathematics. It leads its graduates to apply the acquired knowledge in the development of theoretical physics, with a particular focus on mathematically rigorous procedures and methods, as well as in theoretical analysis and description of physical models for more experimentally focused physics disciplines, in scientific and engineering practice, also involving modern computer technology.

The subjects of the study are focused on deepening the knowledge of the needed fields of physics and mathematics and provide sufficient overview of the current state of theoretical and mathematical physics. The programme also involves compulsory student projects designed to work on an individually assigned research topic. These projects allow each student a better orientation in the field of his specialization and usually lead to original research results publishable in international professional journals.

Students gain deeper insight especially in quantum mechanics and field theory, classical and quantum

theories of gravity, statistical physics, quantum information theory, and related modern fields of mathematics, e.g. in differential geometry and topology, theory of Lie groups, algebras and their representations, functional analysis and in the spectral theory of operators.

The programme is designed for particularly gifted students, with great motivation to study and with an inclination towards academic career.

Graduate Profile:

Knowledge: The graduates will gain a broad knowledge of the above mentioned advanced mathematical and physical disciplines, which depending on their particular specialization can be deepened in the fields of particle physics, applied mathematics or scientific and technical calculations.

Skills: Application of methods and procedures from various areas of mathematics and physics towards the solution of theoretical and application-oriented scientific, research and engineering problems. In addition to the special knowledge gained from the study, they also include typical sfot skills of students of the Mathematical Physics programme: adaptability, quick orientation in new interdisciplinary issues, analysis of problems and their computer processing, synthesis of results and good written expression.

Competence: Graduates will find employment in the academic sphere, applied research and industry thanks to their analytic and systematic approach to problems and their ability to work with modern computing technology. The primary focus of the study programme is to prepare its graduates to work at universities, in

institutes of the Academy of Sciences and other research organizations. However, given the skills acquired, in particular analytical way of thinking, it is possible to successfully apply them in research, development and analytical departments of companies across the economy, including banks, insurance companies and

consulting firms.

State final examination:

- defence of the diploma project
- oral examination in the general subject

  Quantum Physics
- oral examination in the profile subject

  Advanced Geometric Methods in Physics
- oral examination in the profile subject with optional choice:

  Quantum Field Theory

  Lie Algebras, Lie Groups and Their Applications

  Statistical Physics

SOLID STATE ENGINEERING

Area of education: Physics 100 %

Program coordinator: doc. Ing. Ladislav Kalvoda, CSc.

Specializations of the study program:

- ***The program has no specialization***

Goals and Outcomes:

Study in *Solid State Enginering* is oriented towards advanced parts of solid state physics and their practical applications in engineering and scientific practice. The aim of the study is to pass a graduate knowledge of the physical nature, theoretical description and interpretation of a variety of special phenomena and properties resulting from the diversity of the internal order of solids, explain and demonstrate the main methods of their experimental studies and computer modeling and give an overview of current and potential applications, which these phenomena and properties use, including interdisciplinary context. The study includes specialized laboratory courses and separate student projects for work on an individually assigned research topic. These projects allow students to asquire a deeper understanding the scientific nature of the given problem and to exercise the already acquired theoretical knowledge, and generally lead to the original results publishable in scientific journals or applicable in the development of new engineering technologies.

Graduate Profile:

Knowledge: The graduate will asquire a broad knowledge in physics, theory and properties of solids, become familiar with theoretical basics and practical implementation of the main experimental methods applied in the study of solids and the basics of computer modeling of their structure and properties, and get sufficient relevant orientation in technical multi-discilinary applications of solid state structures.

Skills: The graduate is able to understand and analyze the physical and technical problems in the field of *Solid State Engineering*, formulate and solve new problems, and the achieved solutions transform to practically applicable results instrumental in solving real engineering, research and scientific problems. In addition to special knowledge acquired by studies, the typical skills of *Solid State Engineering* program graduates involve adaptability, fast orientation in new interdisciplinary issues, analysis of problems and their computer processing, synthesis of final knowledge and good written expression. The acquired features also include personal responsibility for the work done and decisions taken.

Competence: Graduates will find very good applications in industry, research and private sphere due to their working skills combining analytical and synthetic methods, a systematic approach to problems' solution based on the acquired knowledge and the ability to work with modern computing and experimental techniques and technologies. Engineer - Graduated in the Program – finds, due to the acquired widespread knowledge, good application in all academic and industrial workplaces dealing with research and development in one of the fields that use solid state physics, such as microelectronics, surface physics, thin films and low-dimensional systems, sensors, imaging techniques, photovoltaics, low temperature and superconductivity physics, applied photonics and telecommunications, and further in specialized analytical and development laboratories that utilize spectroscopic techniques, X-ray and neutron diffraction, electrical and magnetic measurements or advanced procedures of computer simulations and properties of solids / condensed matter. Due to the analytical and mathematical knowledge, the graduates also apply in the field of management and finance and succeed in leading functions.

State final examination:

- defence of the diploma project
- oral examination in the general subject
  Theory of Solids
- oral examination in the profile subject
  Physics of Solids
- oral examination in the profile subject with optional choice:
  Properties of Solids

QUANTUM TECHNOLOGIES

Area of education: Physics 100 %

Program coordinator: doc. Ing. Martin Štefaňák, PhD.

Specializations of the study program:

- ***The program has no specialization***

Goals and Outcomes:

Continuation master's study programme Quantum Technologies is a multidisciplinary study programme aimed at the education of the next generation of experts in the fields of quantum information, quantum communication, quantum optics, lasers physics and technology, condensed matter physics and nanomaterials, who will engage in research and development of modern technologies. The main part of the study is focused on advanced topics of quantum physics and its applications in solid state, light-matter interactions and quantum information. Studies foster independent analytical thinking skills of students and their ability to employ learned methods in various branches of physics and technology. Great emphasis is placed on preparation of students to conduct independent research. Part of the study is the individual student's research project culminating in the master's thesis. Results obtained in the master's thesis will be targeted for publication in a scientific journal.

Graduate Profile:

Knowledge: Graduates acquire a broad knowledge of modern parts of physics, especially of quantum theory, solid state physics and laser theory. Depending on the scientific focus of the graduate the education is further intensified in the fields of quantum optics, quantum information, lasers or nanomaterials. Graduates can proceed with their studies in the follow-up doctoral study programme in the same or related field.

Skills: Application of methods and techniques from various fields of mathematics and physics to solve both theoretical and real-world engineering, research and scientific problems in the areas of quantum theory, classical and quantum optics, quantum information, condensed matter, physics and technology of lasers. Employment of modern computational and laboratory equipment. Ability to pursue modern trends in the respective field of the graduate. Rapid orientation in multidisciplinary issues, analysis of problems and synthesis of results. Responsibility at work and the ability to present the obtained results in a comprehensible way.

Competence: Graduates find application in higher education, research and industry thanks to the acquired knowledge, analytical skills, systematic approach and the ability to work with modern computational technologies. Graduates can work at universities, academic institutes and research and development centers in industry. Competence of graduates lies in the development of modern technologies e.g. in nanomaterials, metrology, informatics or secure communication. Apart from professional expertise the graduates have the ability to succeed in management.

State final examination:

- defence of the diploma project
- oral examination in the general subject
  Methods of Quantum Technologies
- oral examination in two profile subjects with optional choice:
  - Quantum Field Theory
  - Quantum Optics
  - Theory of Solid States

- Quantum Generators of Optical Radiation
- Quantum Information and Communication

POLICIES AND PROCEDURES FOR THE BACHELOR COURSES AND CONTINUATION MASTER COURSES AT THE FACULTY OF NUCLEAR SCIENCES AND PHYSICAL ENGINEERING (FNSPE) OF THE CZECH TECHNICAL UNIVERSITY (CTU) IN PRAGUE

ACADEMIC YEAR 2025-2026

The Policies and Procedures of the FNSPE of the CTU in Prague complement and specify the rules and regulations introduced by the Higher Education Act and the Academic and Examination Statute of the CTU in Prague. This document is binding on all academics and students of FNSPE.

The term **Study Programme** (studijní program in Czech) - as used in this text - refers to the complete programme of academic training duly accredited by FNSPE. The Study Programmes offered by FNSPE are structured and are comprised of Bachelor and Continuation Master Studies. Compliant with the valid accreditation, some Study Programmes are subdivided into **Specializations** (specializace in Czech). If the programme in question does not offer any Specializations, the term **Field of Study** (studijní směr in Czech) refers to the Study Programme. In other cases, it refers to every single Specialization of the Study Programme.

Curriculum (studijní plán in Czech) refers to the set of academic responsibilities to be assumed by students of a specific Field of Study as set by the present White Book of Study Programmes. **Individual Curriculum** (individuální studijní plán in Czech) is a term used to express a unique full-time curriculum which suits a single student, thus, e. g, typically extending a standard curriculum to a longer period of time or adding to it several required prerequisites student did not cope with in the past period of study. **Personal Curriculum** (osobní studijní plán in Czech) then includes the set of personal academic responsibilities (courses to be taken) of a particular student.

Curricula of every single Field of Study of the Bachelor and Continuation Master Programmes, compliant with the CTU Academic and Examination Statute, Sec.4, list both the compulsory and core-elective courses as well as optional courses recommended for the respective Field of Study.

Section 1

Bachelor Programme (BP)

1. Curricula in the Bachelor´s Degree Programme contain compulsory, optional, and core-elective bachelor courses.
2. In the Bachelor Programme, it is not permitted to register for courses of the Continuation Master Programme, the exception being given by Sec. 2, Par. 4 a.

Section 2

Continuation Master Programme (MCP)

1. Curricula in the Field of Study of the Continuation Master´s Degree Programme (CMP) list compulsory, core-elective, and optional master courses. In the Continuation Master Programme, it is not permitted to enrol into courses of the Bachelor´s Degree Programme.
2. To be eligible for the CMP, (in terms of conditions set by law and rules of the admission procedure), all applicants are required to have completed a Bachelor Programme in a related or identical field of study as well as to have successfully passed the entrance examination. However, student may be exempt from the examination on the Dean´s recommendation.
3. If necessary, for the first two years, student on the CMP will have an individual curriculum, so as to attain the competences required for the completed Bachelor´s Degree Course and develop them. The individual curriculum follows from consultations with the respective programme guarantor, and its final version will be available before start of first semester classes.
4. For transfer from the Bachelor Programme to the respective CMP, the following rules are imposed:
   a. In the Bachelor´s Degree Programme, it is possible to register for courses in the recommended 1st year CMP programme provided the credits obtained do not exceed the total number of 30. Such credits must be grated beyond the limit of 180 credits obtained in the Bachelor´s Degree Course.
   b. Provided student has graduated from a Bachelor Course at FNSP and transfers to the CMP, on application, courses listed in the recommended 1st year CMP curriculum can be counted for up to 30 credits if obtained beyond the mandatory minimum of 180 credits as set for the Bachelor Programme by the CTU Academic and Examination Statute.
   c. The CMP will not recognize courses taken within the Bachelor Programme beyond those recommended by the programme of a given field.

Section 3

Enrollment

1. Bachelor and Continuation Master Degree student will register for the winter semester prior to its beginning. The prerequisite for passage to summer semester is the fulfilment of conditions given by the CTU Academic and Examination Statute, and, upon doing so, student can register (enroll) for the summer semester, prior to its beginning.
2. Students on higher courses of Bachelor and Continuation Master Programmes will register for the following academic year courses prior to their beginning on having fulfilled passage requirements for the following academic year given by the CTU Academic and Examination Statute.
3. To be eligible for registration to the following academic year, student will have obtained all the required end-of-unit assessments (“zápočet” in Czech, i.e. recognition of the current semester coursework responsibilities) and passed all examinations in the re-registered (i.e. registered for a second time) obligatory courses enrolled for the second

time. Moreover, the student must meet the minimum credit quota set by the Academic and Examination Statute of the CTU in Prague.

4. Student will register for each course in the electronic information system of the CTU in order that they may function as their personal semester/year study curriculum according to Par.1 and 2, respectively, in agreement with these procedures and the CTU Academic and Examination Statute. To register, the following rules are to be observed:
   a. All students of respective fields of study will register for compulsory courses (see Sec. 4 and 5).
   b. Student will register for optional and core-elective courses according to their choice, taking into account the rules of the curriculum, in particular the sequence of courses, sometimes subject to and required by the curriculum of the field of study.
   c. Bachelor students of a given study programme may register for optional courses of their programme (recommended optional courses or any other courses of other bachelor programmes offered at FNSPE). Upon this, these courses are regarded as an optional part of student´s respective curriculum.
   d. Master students of a given continuation study programme may register for optional courses in the same programme (recommended optional courses) or any courses in the continuation master study programmes of FNSPE. Upon this, these courses are regarded as an optional part of student´s respective field of study curriculum.
   e. Registration to an optional course offered by another institution of higher education is possible on student´s application to the Department of Student Affairs. If successful, student can list the course as optional in their curriculum.
5. Student must not re-register for the same course if they have passed the examination or obtained the "zápočet", as the case may be.
6. If student has discontinued their study in the immediately preceding semester, requirements to be fulfilled are postponed towards the next registration.
7. Details on registration are gradually specified by notices of the Department of Student Affairs.

Section 4

Compulsory Courses under Changes in Curricula

1. If in the course of their programme, a compulsory course is removed from the list, student is not required to complete it; if, however, the respective course is replaced by another compulsory course (and its title or extent is changed, its contents remaining unaltered), student is obliged to take the new course (unless they have completed its previous version).
2. When included into student´s curriculum, the new course must be completed only by students studying no longer than the year of the recommended curriculum to which the new course is transferred. If required, the decision to take the course is made by the head of the respective department guaranteeing the corresponding field of study.

Section 5

Measuring and Assessing Student´s Academic Attainment

1. The main instruments for assessing and measuring student´s academic attainment include the end-of-unit-assessment ("zápočet"), graded assessment ("klasifikovaný zápočet"), and examinations. The term "end-of-unit assessment only" ("samostatný zápočet") is used if the course is not concluded by an examination. Obtaining a "zápočet" is a prerequisite for being admitted to take an examination preceded by such "zápočet".
2. Examinations are usually administered during the respective semester examination period. An adequate number of evenly spread examination dates will be announced by the tutor in order that students may take the examination within the examination period.
3. End-of-unit assessments and examinations may not be administered before student has completed the respective course. If registered for the course a second time, student may take the end-of-unit assessment or examination any time in the course of the academic year provided they have fulfilled all academic obligations to finish the course and obtained the tutor´s agreement.
4. Winter semester examinations and end-of-unit assessments may be administered during the summer semester or summer semester examination period. No examinations and tests for the end-of-unit assessment for the past academic year will be administered after commencement of the next academic year.
5. To take an examination, student will have registered for it and gained the end-of-term assessment (if required by the curriculum). If student has registered for an examination date and cannot be present for the examination on the chosen date, an advance apology must be made. A belated apology is accepted for serious reasons of absence (mainly on health), but no later than 5 days after the examination date they have been registered for. The examiner will judge the legitimacy of the apology. If student failed to be present for the examination and no apology was made in advance or was not accepted, the examination term expires and the examination is graded as "failure".
6. If student has not registered for any examination in the respective course within the examination period and has not made any arrangements with the examiner as to the examination term, the examination is graded as "failure."
7. The tutor´s/examiner´s obligation is to enter immediately the result/grade into the CTU electronic information system, within 5 days at the latest, and the department´s non-electronic registers independent of the CTU´s electronic system. If student requests recognition of a course on the list of some other degree course or in cases given by notices concerning student on Bachelor or Continuation Master Courses, such entries may be the responsibility of the Study Office.
8. The succession of courses is stated in the recommended time schedule of the programme and student will adhere to it for course registrations. Provided the courses run for more semesters or in succession, student cannot obtain an end-of-unit assessment only ("samostatný zápočet") or take an examination in a course scheduled for a later semester unless they have satisfied the requirements of the previous course. The eligibility requirements are specified by the head of the department responsible for the course.
9. Courses marked A or B are understood to comprise one course, as given by the Academic and Examination Statute of CTU.

Section 6

Languages

1. As part of the Bachelor Programme, student will register for and pass examinations in two of the foreign languages offered in the curriculum. Foreign students – with the exception of Slovak students and those who passed an examination in Czech as part of their school-leaving examination - will register for Czech as their second foreign language.
2. Language courses, according to Par. 1, are offered in three to five semester cycles, the exception being students of Applied Information Technology. The time schedule of these courses is part of the curriculum.
3. According to Par. 2, each semester is a self-contained unit concluded by a "zápočet". If student is re-admitted to the Bachelor Course (i.e. registers for it a second time), they do not have to re-register for the parts of cycle they had already passed. Semesters of the cycle follow the course sequence stated in Section 5, Par.8. Each semester of the cycle is concluded by a "zápočet" only if student has obtained a "zápočet" for the previous semester course. The language programme cycle is concluded by an examination.
4. Language courses can be offered in several groups according to student´s language competence. The level of course to be chosen rests with the student and takes into account their previous language training and results achieved. Transfers between courses are possible solely on tutor´s recommendation or student´s application, within two weeks of language course commencement, but not later.
5. Applied Information Technology programme follows an extended language programme targeted at professional oral and written communication and includes also a second foreign language course of student´s choice. The time schedule of these courses is part of this study programme curriculum. The bachelor project in this study programme is submitted and defended in English. Supposing they have satisfied criteria defined by the Department of Humanities and Languages, and having completed 5 semesters of the Applied Informatics programme, student can register for a State Language Examination.
6. Exceptions to compulsory training in more than two foreign languages are judged by the Department of Humanities and Languages on individual basis. Student can choose and register for a third language only if they had concluded the cycle of two languages as stated in Par.1 of this Section.
7. Details for language training are given in the binding regulations for language courses issued by the Department of Humanities and Languages.

Section 7

Bachelor Project, Research Project, and Master Thesis

1. A compulsory part of the Bachelor´s Degree Course is the Bachelor Project defended by student as part of the State Final Examination. A compulsory part of the Continuation Master Course is a Research Project and Master Thesis. Student may not register for them while still registered for the Bachelor Course. The Research Project is defended before the board nominated by the respective department. Defence of the Master Thesis is part of the State Final Examination. The Research Project can be assigned only after student has defended their Bachelor Project. The degree thesis can be assigned only after student has completed and successfully defended Research Project 2.

2. The administrators (guarantors) will announce the topics of Bachelor Projects, Research Projects, and Master Theses no later than end of the previous academic year. Bachelor Projects and Master Theses are assigned to students by the Dean; Research Projects are assigned to students by the Head of Department.
3. The Bachelor Project, Research Project, as well as Master Thesis will be written in Czech, Slovak, or English.
4. The Bachelor Project, Research Project as well as Master Thesis can be assigned in Czech or in English. The Czech version of these assignments will include the title (both in Czech and English). The outline, recommended literature, supervisor´s name and affiliation, date of assignment, and date of submission will be written in Czech. If the Bachelor Project, Research Project, or Master Thesis is assigned in English, a Czech version of the assignment must be also prepared. The topic of the assignment must be in agreement with the domain of education to which the study programme belongs. The assignment is valid for two years.
5. The Bachelor Project, Research Project, and Master Thesis are assigned to student at the beginning of the winter and/or summer semester. It is the student‘s obligation to receive the work assignment within 40 days from the beginning of semester. If student fails to do so, the assignment is postponed until the next semester. Assignment of the Bachelor Project and Master Thesis at an extraordinary term is a prerogative of the Dean, whereas assignment of the research project at an extraordinary term is a prerogative of the Head of Department.
6. The Bachelor Project and Master Thesis will include items required for bibliography (in Czech: the title, author’s name, study programme (or its specialization), type of work, supervisor, consulting tutor (if assigned), abstract, and key words; in English: the title, author‘s name, abstract, key words, as well as work assignment in compliance with the principle of public access to Bachelor Projects and Master Theses according to the given standard.
7. An essential part of a bachelor's thesis, research project or diploma thesis is a declaration of independent work and adherence to ethical principles in its processing, in accordance with the Methodological Guidelines for the Assignment, Submission, Storage and Access to Bachelor's and Diploma Theses (see https://edu.fjfi.cvut.cz/edu/Agenda_SZZ_VSKP/20250326-metodicky-pokyn-c-62023.pdf).
8. Student will submit the Bachelor Project or Master Thesis to the respective department electronically via the KOS component.
9. In justified cases, a student may request a postponement of the publication of the final thesis (or part thereof) for a period of 1 to 5 years. The relevant request, including the justification for the postponement, must be signed by the thesis supervisor and the head of the department and submitted no later than 30 days before the submission of the final thesis to the faculty's study department.
10. If justified, on the supervisor´s suggestion public access to the project or thesis may be postponed for 1, 2, or 3 years. An application to do so justifying postponement (and signed by the Head of Department) must be submitted along with the Bachelor Project and Master Thesis, but no later than 30 days prior to submission.
11. The Bachelor Project and Master Thesis are evaluated by the supervisor and reviewed by at least one reviewer. In their reviews they also suggest the final grade.

12. Bachelor Projects and Master Theses are submitted by the date given in the time schedule of the academic year, taking also into account the dates of the State Final Examination, i.e. at least three weeks prior to the first day of the State Final Examination of the given field of study or specialization.
13. If student fails to submit the Bachelor Project or the Master Thesis at the time agreed, the assignment can still be used for the time period it is valid. If, however, student fails to observe the scheduled deadline and the Bachelor Project or Master Thesis is submitted after the assignment validity has come to an end, a new assignment has to be given.
14. Supervisor´s and reviewer´s reports must be made available to student at least 5 working days prior to the date of the State Final Examination.
15. Academic degree status of the person supervising the Bachelor Project or Master Thesis is expected to be at least a level above the level of the degree programme to be achieved by student. Exceptions are subject to decision of the Scientific Board of FNSPE.
16. In case the supervisor is a professional not affiliated with the university, a requisite for nominating a consulting co-supervisor is employment relationship with CTU.
17. Reviewer of the Master Thesis may not be nominated from the same place of work (e.g. the department, division) as the supervisor, which, however, does not refer to the Bachelor Project. An exception may be made on application submitted to the Department of Student Affairs and assessed by the Dean.
18. The peer-review must include

    - Type of review (written by the supervisor / the reviewer).
    - Title of the reviewed work.
    - Author´s name, surname and titles/degrees, as applicable.
    - Final grade, written in full and in letter form.
    - Details on the reviewer´s place of work.
    - Review date.

19. Technicalities of submitting the Research Project and defending it, as well as conditions for administering the "zápočet" are within responsibility of the Head of Department and so is the defence of the Research Project, usually held at two ordinary dates - namely after end of the winter/summer semester courses of the academic year. In case student fails to defend their Research Project at an ordinary date, they can defend it (within the same registration) at an extraordinary date during the prolonged examination period of the academic year.

20. Bachelor Project 1, Research Project 1 and Master Thesis 1 courses run for two semesters. Thus, student cannot register for Bachelor Project 1 and Bachelor Project 2, Research Project 1 and Research Project 2 courses in the same semester, and, likewise, for Master Thesis 1 and Master Thesis 2 courses. These courses can be passed provided student meets the requirements given in the valid work assignment. The students obtains the assignment in the semester first registering for the first part of the course. Student may not register for the Master Thesis 1 course before the semester following their successful defence of Research project 2.

Section 8

Study Visits Abroad

1. As part of their Bachelor and Continuation Master Programme, student may spend some time on a study visit or bilateral agreement exchange programme abroad. These activities, as e.g. ERASMUS+ programme or ATHENS, are organized by the International Office at the CTU Rector´s Office.
2. All study visits of Bachelor and Continuation Master Programme students follow the rules and regulations of CTU and are recorded by the Department of Student Affairs of FNSPE CTU in Prague. These rules also include the following conditions for study visits of CTU students:
    a. student on any type of degree course is eligible for 2 long-term visits abroad not exceeding 2 semesters
    b. under extraordinary conditions the visit may be extended on application addressed to the Department of Student Affairs
    c. MCP student´s intention to work on some part of the Master Thesis or complete it abroad within their visit is to be confirmed by the consent given in writing by the respective Head of Department and also including the name of the assigned deputy supervisor of the thesis from the respective host institution. The statement confirms that both parties agreed on details concerning thesis supervision, and the supervisor gave a written consent to the procedures agreed. The same refers to a research project.
    d. student staying abroad can be signed in for the semester without being registered for a specific course; in well-founded cases they may apply for exception on a standard application addressed to the Department of Student Affairs.

3. In compliance with the CTU‘s rules, arrangements for a study visit or exchange programme abroad comprise:
    a. student´s study schedule approved of by the respective department and submitted to the Department of Student Affairs of FNSPE CTU prior to the visit
    b. assessment and evaluation of the study visit and programme taken abroad, credit and course transfer approved by the respective department and FNSPE Department of Student Affairs
    c. fulfilment of general requirements set by the CTU Academic and Examination Statute (i.e. gaining at least 20 credits per semester transferred from the host university)

Section 9

Completion of Study Programme

1. In compliance with the Academic and Examination Statute of the CTU in Prague, student will conclude their studies by having finished their curriculum and passed the State Final Examination including defence of the Master Thesis or Bachelor Project.

2. To complete the Bachelor Degree Programme curriculum, student must have passed examinations in all compulsory courses of their respective curriculum (see Sections 4 and 5), having gained at least 180 credits.
3. To complete the Continuation Master Programme (MCP), student must have passed examinations in all compulsory and core-elective courses as stated in the respective curriculum (see Sec. 4 and 5 with respect to Sec. 2, Par. 1) and gained at least 120 credits.

Section 10

State Final Examination

1. Student is eligible to take the State Final Examination only if they have completed their curriculum, gained the required number of credits, and submitted by the given date their Bachelor Project or Master Thesis.
2. State Final Examinations of the Bachelor´s Degree Programme may be held at two terms: usually in September or in February, which is in accordance with the time schedule of the Academic Year or at an extraordinary date subject to the respective department´s request.
3. State Final Examinations of the Continuation Master Programme are held at two terms (usually in June or February) according to the time schedule of the Academic Year, or on an extraordinary term subject to the respective department´s request.
4. Student's application for admission to the State Final Examination will include the optional subjects chosen for the examination. Applications for the February term are accepted by the end of November of the previous calendar year, for June term by the end of March, and for the September term by the end of May, or no later than two months prior to the extraordinary term of State Final Examinations. The examination terms are given in the time schedule of the Academic Year. Applications submitted after the given date will not be considered.
5. If student did not take the State Final Examination in the Academic Year they had submitted the Bachelor Project or Master Thesis, the respective review reports are no longer valid.
6. The examination follows the Rules of Procedure of the State Final Examination issued by the Dean.
7. The oral part of the State Final Examination in the Bachelor Programme or Continuation Master Programme consists of a core subject or subjects out of the package of specialization courses (with a possible option) and a subject or subjects of more detailed specialization (with a possible option). The number of subjects in a respective category (common core, specialization), as well as option are defined according to the definition of the State Final Examination included in the accreditation materials of the respective field of study.
8. In accordance with the CTU Academic and Examination Statute, student must take the State Final Examination, and, if such is the case, retake it, within one year and a half of the

date they have satisfied all the other requirements of the study programme. The date is understood to be the last day of examination period of the last semester student was registered for courses of their personal curriculum. Afterwards, this student still remains enrolled as a student until they have passed the last part of the State Final Examination; however, this period must not exceed one and a half year.

Section 11

Termination of Studies

1. By virtue of Sec. 56, Par. 1, Letter b) of Act No. 111/19898 of Coll., as amended, and Sec. 34, Par. 7, Letter b) of the Academic and Examination Statute of CTU, these documents state the following conditions for terminating studies due to failure to satisfy the requirements and academic obligations following from the study programme and Academic and Examination Statute of CTU:
   - failure to fulfil academic responsibilities and gain 15 credits after the first semester on the Bachelor Programme and 20 credits after the first semester on the Master Programme
   - failure to gain "zápočet" after second registration for a compulsory course
   - failure to pass examination on last retake after second registration for a compulsory course
   - failure to pass examination by the end of Academic Year after second registration for a compulsory course
   - failure to satisfy eligibility conditions to register for the next Academic Year (semester)
   - failure to pass the State Final Examination within one and a half year of completing studies
   - failure to pass the State Final Examination within the maximum study period
   - failure to pass the retaken State Final Examination
2. Other reasons for terminating studies:
   - failure to register for academic year within a given period without accepted apology or failure to perform electronic registration within the given period of time
   - failure to register after the end-date of discontinued studies
   - failure to register for courses after period of deferral
   - transfer to other faculty
   - withdrawal from studies
   - expulsion from the CTU

Dean of the Faculty

EXPLANATORY NOTES

for notations in the curriculum

The curriculum contains in each row

- course name
- shortcut used in the university database KOS
- name of the lecturer
- extent in the winter and summer semester
- credits in the winter and summer semester

In case the course spans over two semesters with different parts denoted by numbers, they can be contained in one row.

The extent of the course is indicated by number of teaching hours of the lecture + number of teaching hours of the lecture together with the indication of the grading (see later i nthis text). In case the teaching hours of the lecture and exercise are not distinguished, the course extent is indicated by one number.

LANGUAGE COURSES IN THE ENGLISH BACHELOR PROGRAMME IN PRAGUE:

It is obligatory for a student to attain a pass in the Czech language course as well as in a second foreign language course of his/her choice, i.e. English (advanced course), German, French, Russian, or Spanish. The student qualifies for the examination only after he/she has been awarded all the required assessments ("zápočet" in Czech) in the respective language course. Beginners courses of English and German are not offered.

Czech language course – duration: **beginners course:** 3 semesters - 2 classes per week, opening in the 1st semester of the Bachelor Programme

English - advanced language course - duration: 3 semesters – 2 classes per week, opening in the 3rd semester of the Bachelor Programme

Other language courses (French, Russian, Spanish) - duration: **beginners course:** 5 semesters - 4 classes per week, opening in the 2nd semester of the Bachelor Programme

Other language courses (French, German, Russian, Spanish) - duration: **intermediate and advanced course:** 3 semesters - 2 classes per week, opening in the 3rd semester of the Bachelor Programme

1st year				
Semester	winter	summer	credits	
Czech language for foreigners - beginners	0+2 z	0+2 z	2	2
Second foreign language - beginners	-	0+4 z	-	2

2nd year				
Semester	winter	summer	credits	
Czech language for foreigners - beginners	0+2 z, zk	-	2/4	-
Second foreign language - English language - advanced	0+2 z	0+2 z	2	2
Second foreign language - beginners	0+4 z	0+4 z	2	2
Second foreign language – intermediate /advanced	0+2 z	0+2 z	2	2

3rd year				
Semester	winter	summer	credits	
English language - advanced	0+2 z, zk	-	2/4	-
Second foreign language - beginners	0+4 z	0+4 z, zk	2	2/3
Second foreign language – intermediate /advanced	0+2 z, zk	-	2/4	-

HOW TO REGISTER FOR FOREIGN LANGUAGE COURSES - DETAILS FOR EVERY YEAR OF THE BACHELOR PROGRAMME

Czech:		
beginners (Z)		
04XCESZ1	0+2 z	WS
04XCESZ2	0+2 z	SS
04XCESZ3	0+2 z	WS
04XCESZZK	zk	
z (zápočet) - assessment – 2 credits		
zk (zkouška) - examination – 4 credits		

Second foreign language:

English:		
advanced (P)		
04XAP1	0+2 z	WS
04XAP2	0+2 z	SS
04XAP3	0+2 z	WS
04XAPZK	zk	
z (zápočet) - assessment – 2 credits		
zk (zkouška) - examination – 4 credits		

German:				
intermediate (M)			*advanced (P)*	
04XNM1	0+2 z	WS	04XNP1	0+2 z
04XNM2	0+2 z	SS	04XNP2	0+2 z
04XNM3	0+2 z	WS	04XNP3	0+2 z
04XNMZK	zk		04XNPZK	zk
z (zápočet) - assessment – 2 credits			z (zápočet) - assessment – 2 credits	
zk (zkouška) - examination – 4 credits			zk (zkouška) - examination – 4 credits	

French:		
beginners (Z)		
04XFZ1	0+4 z	SS
04XFZ2	0+4 z	WS
04XFZ3	0+4 z	SS
04XFZ4	0+4 z	WS
04XFZ5	0+4 z	SS
04XFZZK	zk	
z (zápočet) - assessment – 2 credits		
zk (zkouška) - examination - 3 credits		

French:				
intermediate (M)			*advanced (P)*	
04XFM1	0+2 z	WS	04XFP1	0+2 z
04XFM2	0+2 z	SS	04XFP2	0+2 z
04XFM3	0+2 z	WS	04XFP3	0+2 z
04XFMZK	zk		04XFPZK	zk
z (zápočet) - assessment – 2 credits			z (zápočet) - assessment – 2 credits	
zk (zkouška) - examination – 4 credits			zk (zkouška) - examination – 4 credits	

Spanish:		
beginners (Z)		
04XSZ1	0+4 z	SS
04XSZ2	0+4 z	WS
04XSZ3	0+4 z	SS
04XSZ4	0+4 z	WS
04XSZ5	0+4 z	SS
04XSZZK	zk	
z (zápočet) - assessment – 2 credits		
zk (zkouška) - examination – 3 credits		

Spanish:					
intermediate (M)				*advanced (P)*	
04XSM1	0+2 z	WS		04XSP1	0+2 z
04XSM2	0+2 z	SS		04XSP2	0+2 z
04XSM3	0+2 z	WS		04XSP3	0+2 z
04XSMZK	zk			04XSPZK	zk
z (zápočet) - assessment – 2 credits				z (zápočet) - assessment – 2 credits	
zk (zkouška) - examination – 4 credits				zk (zkouška) - examination – 4 credits	

Russian:		
beginners (Z)		
04XRZ1	0+4 z	SS
04XRZ2	0+4 z	WS
04XRZ3	0+4 z	SS
04XRZ4	0+4 z	WS
04XRZ5	0+4 z	SS
04XRZZK	zk	
z (zápočet) - assessment – 2 credits		

zk (zkouška) - examination – 3 credits

Russian:					
intermediate (M)				*advanced (P)*	
04XRM1	0+2 z	WS		04XRP1	0+2 z
04XRM2	0+2 z	SS		04XRP2	0+2 z
04XRM3	0+2 z	WS		04XRP3	0+2 z
04XRMZK	zk			04XRPZK	zk
z (zápočet) - assessment – 2 credits				z (zápočet) - assessment – 2 credits	
zk (zkouška) - examination – 4 credits				zk (zkouška) - examination – 4 credits	

For detailed information on language courses see Art. 6 of the Policies and Regulations for Bachelor´s and Master´s Degree Programmes at FNSPE and also Rules for Language Study available on the web pages of the Department of Humanities and Languages.

Bachelor´s Degree Programme

Physical Engineering

Specialization Plasma Physics and Thermonuclear Fusion 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus	01YMAN	Strachota, Pelantová	4+4 z	-	4	-
Calculus 1, examination (1)	01YMANZ	Strachota, Pelantová	- zk	-	4	-
Linear Algebra 1	01YLAL	Ambrož, Dvořáková	2+2 z	-	2	-
Linear Algebra 1, examination (2)	01YLALZ	Ambrož, Dvořáková	- zk	-	2	-
Mechanics	02YMECH	Břeň, Yalcinkaya	4+2 z	-	4	-
Mechanics, examination	02YMECHZ	Břeň, Yalcinkaya	- zk	-	2	-
Basics of Programming	18YZPRO	Virius, Klinkovský, Petříčková, Jarý	4 z	-	4	-
Preparatory week	00YPT	FJFI	1 week z	-	2	-
Calculus 2	01YMAN2	Pelantová, Pošta	-	4+4 z, zk	-	8
Linear Algebra 2	01YLAL2	Dvořáková, Ambrož	-	2+2 z, zk	-	4
Electricity and Magnetism	02YELMA	Chadzitaskos, Yalcinkaya	-	4+2 z, zk	-	6
Heat and Molecular Physics	02YTER	Petrásek	-	2+2 z, zk	-	4
Introduction to Laser Technology	12YULTB	Jelínková, Němec, Šulc	-	2+1 kz	-	3
Seminar on Plasma Physics	02YSFP	Svoboda	-	0+2 z	-	2
Language Courses (3)	04..	KHVJ	-	-	-	-
Optional courses:						
Minimum in Mathematics 1	00YMAM1	Břeň	0+1 z	-	1	-
Minimum in Mathematics 2	00YMAM2	Pošta	0+1 z	-	1	-
History of Physics 1	02YDEF1	Jex	2+0 z	-	2	-
Discrete Mathematics 1, 2 (4)	01YDIM12	Masáková	2+0 z	2+0 z	2	2
History of Physics 2	02YDEF2	Jex, Myška	-	2+0 z	-	2
Fundamentals of Physical Measurements 1, 2 (4)	02YZM12	Chaloupka, Škoda, Rojas	2+0 zk	0+4 kz	2	4
Introduction to Solid State Physics	11YUFP	Kolenko	-	2+0 zk	-	3
Physical Seminar 1	02YFYS1	Petrásek	0+2 z	-	2	-
Fundamentals of Algorithmization	18YZALG	Virius, Jarý	-	2+2 z, zk	-	4
General Chemistry 1, 2 (5)	15YCH12	Distler	2+1 z	2+1 z, zk	3	3
Introduction to Photonics and Nanostructures	12YUFN	Kwiecien, Richter, Proška	-	2+1 kz	-	3

(1) Examination in 01YMANZ can be taken provided the assessment in 01YMAN is obtained.
(2) Examination in 01YLALZ can be taken provided the assessment in 01YLAL is obtained.
(3) Enrollment in language courses follows the rules given separately.
(4) The indicated courses can be scheduled simultaneously.
(5) Enrollment of 15YCH2 is possible only after passing 15YCH1.

Bachelor´s Degree Programme

Physical Engineering

Specialization Plasma Physics and Thermonuclear Fusion 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus B 3, 4	01YANB34	Krbálek, Kolář	4+4 z, zk	2+4 z, zk	8	6
Numerical Methods 1	12YNME1	Váchal	-	2+2 z, zk	-	4
Waves, Optics and Atomic Physics	02YVOAF	Novotný P., Schmidt	4+2 z, zk	-	6	-
Thermodynamics and Statistical Physics	02YTSFA	Jex, Novotný J.	-	2+2 z, zk	-	4
Theoretical Physics 1(1)	02YTEF1	Hrivnák, Novotný P.	2+2 z, zk	-	4	-
Experimental Laboratory 1, 2	02YPRA12	Bielčík, Rojas	0+4 kz	0+4 kz	6	6
Experimental Physics	02YEXF	Křížková-Gajdošová, Trzeciak	2+0 zk	-	2	-
Laboratory of Plasma Diagnostics	02YUPP	Brotánková, Svoboda	-	0+2 kz	-	3
Language Courses (2)	04..	KHVJ	-	-	-	-
Social Sciences						
Presentation Course	04YAPI	Vadillo	0+2 z	-	2	-
Optional courses:						
Theoretical Physics 2 (3)	02YTEF2	Hrivnák, Novotný P.	-	2+2 z, zk	-	4
Introduction to Probability 1, 2	01YUP12	Krbálek, Vybíral	1+1 z, zk	1+1 z, zk	3	3
Introduction to Elementary Particle Physics	02YUFEC	Matas	2+0 z	-	2	-
Special Theory of Relativity	02YSTR	Břeň	-	2+0 zk	-	2
Basic Electronics 1, 2 (4)	12YZEL12	Pavel	2+1 z, zk	2+1 z, zk	3	3
Selected Topics in Modern Physics (4)	12YVPMF	Pšikal	-	2+1 z	-	3
Programming in C++ 1, 2	18YPRC12	Virius, Jarý	2+2 z	2+2 kz	4	4
Physical Training 1, 2	TV-12	ČVUT	- z	- z	1	1

(1) Examination in 02YTEF1 can be taken only if 02YMECHZ in passed.
(2) Enrollment in language courses follows the rules given separately.
(3) Examination in 02YTEF2 can be taken only if 02YELMA and 02YTEF1 are passed.
(4) The indicated courses can be scheduled simultaneously.

Bachelor´s Degree Programme

Physical Engineering

Specialization Plasma Physics and Thermonuclear Fusion 3rd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Equations of Mathematical Physics (1)	01YRMFB	Klika, Konopka	2+2 z, zk	-	5	-
Fundamentals of Solid State Physics	11YZFP	Kalvoda, Mihóková	2+0 zk	-	3	-
Bachelor Project 1, 2	02BPTF12	Svoboda	0+5 z	0+10 z	5	10
Bachelor Seminar	11YBSEM	Kalvoda, Havlíková	-	0+2 z	-	1
Probability and Statistics	01YPRST	Hobza	3+1 z, zk	-	4	-
Quantum Physics	02YKF	Jizba, Petrásek	2+1 z, zk	-	3	-
Vacuum Technology	12YVKT	Petráček, Švejkar	2+2 kz	-	4	-
Fundamentals of Electrodynamics	12YZELD	Šiňor	1+1 z, zk	-	2	-
Fundamentals of Nuclear Physics	02YZJFY	Wagner	3+2 z, zk	-	5	-
Introduction to Computational Physics 1	12YUPF1	Kuchařík, Liska	1+1 z, zk	-	2	-
Introduction to Nuclear Fusion	02YUFU	Brotánková, Ficker	-	2+2 z, zk	-	4
Principles of Plasma Physics	12YZFP	Limpouch, Jirka	-	3+1 z, zk	-	4
Power Engineering	17YENER	Novák, Tichý	-	2+0 zk	-	2
Language Courses (2)	04...	KHVJ	-	-	-	-
Optional courses:						
Transport Phenomena/Nonequilibrium Systems	02YTJNS	Jex	-	2+0 kz	-	2
Atomic and Molecular Spectroscopy	02YAMS	Civiš	2+2 z, zk	-	4	-
Basic Optical Laboratory	12YZPOP	Jančárek	-	0+4 kz	-	6
Basic Laser Technology Laboratory (3)	12YZPLT	Blažej	-	0+4 kz	-	6
Measurement and Data Processing	12YZMDT	Blažej, Procházka	1+1 z, zk	-	2	-
Engineering Mechanics	14YTEM	Kunz	2+2 z, zk	-	4	-
Fundamentals of Electronics	17YZEL	Kropík	2+2 kz	-	3	-
Molecular Physics	12YMOF	Michl, Proška	-	2+0 zk	-	2
Physical Training 3, 4	TV-34	ČVUT	- z	- z	1	1

(1) Examination in 01YRMFB can be taken only if all courses in Calculus and Linear Algebra are passed.
(2) Enrollment in language courses follows the rules given separately.
(3) Enrollment in 12YZPLT is possible only after passing 12YULTB.

Bachelor´s Degree Programme

Physical Engineering

Specialization Solid State Engineering 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus	01YMAN	Strachota, Pelantová	4+4 z	-	4	-
Calculus 1, examination (1)	01YMANZ	Strachota, Pelantová	- zk	-	4	-
Linear Algebra 1	01YLAL	Ambrož, Dvořáková	2+2 z	-	2	-
Linear Algebra 1, examination (2)	01YLALZ	Ambrož, Dvořáková	- zk	-	2	-
Mechanics	02YMECH	Břeň, Yalcinkaya	4+2 z	-	4	-
Mechanics, examination	02YMECHZ	Břeň, Yalcinkaya	- zk	-	2	-
History of Physics 1	02YDEF1	Jex	2+0 z	-	2	-
Basics of Programming	18YZPRO	Virius, Klinkovský, Petříčková, Jarý	4 z	-	4	-
Preparatory week	00YPT	FJFI	1 week z	-	2	-
Calculus 2	01YMAN2	Pelantová, Pošta	-	4+4 z, zk	-	8
Linear Algebra 2	01YLAL2	Dvořáková, Ambrož	-	2+2 z, zk	-	4
Electricity and Magnetism	02YELMA	Chadzitaskos, Yalcinkaya	-	4+2 z, zk	-	6
Heat and Molecular Physics	02YTER	Petrásek	-	2+2 z, zk	-	4
Introduction to Solid State Physics	11YUFP	Kolenko	-	2+0 zk	-	3
Language Courses (3)	04.	KHVJ	-	-	-	-
Optional courses:						
Minimum in Mathematics 1	00YMAM1	Břeň	0+1 z	-	1	-
Minimum in Mathematics 2	00YMAM2	Pošta	0+1 z	-	1	-
History of Physics 2	02YDEF2	Jex, Myška	-	2+0 z	-	2
Fundamentals of Physical Measurements 1, 2	02YZM12	Chaloupka, Škoda, Rojas	2+0 zk	0+4 kz	2	4
Introduction to UNIX	12YUNXAP	Kuchařík	-	1+1 z	-	2
General Chemistry 1, 2 (4)	15YCH12	Distler	2+1 z	2+1 z, zk	3	3
Introduction to Photonics and Nanostructures	12YUFN	Kwiecien, Richter, Proška	-	2+1 kz	-	3
Fundamentals of GNU Plot	11YGPL	Dráb	0+2 z	-	2	-
Basics of Algorithmization	18YZALG	Virius, Jarý		2+2 z, zk		4
Programming in Python 1	18YPPY1	Klinkovský, Mojzeš		2 z		2

(1) Examination in 01YMANZ can be taken provided the assessment in 01YMAN is obtained.
(2) Examination in 01YLALZ can be taken provided the assessment in 01YLAL is obtained.
(3) Enrollment in language courses follows the rules given separately.
(4) Enrollment in 15YCH2 is possible only after passing 15YCH1.

Bachelor´s Degree Programme

Physical Engineering

Specialization Solid State Engineering 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus B 3, 4	01YANB34	Krbálek, Kolář	4+4 z, zk	2+4 z, zk	8	6
Numerical Methods 1	12YNME1	Váchal	-	2+2 z, zk	-	4
Waves, Optics and Atomic Physics	02YVOAF	Novotný P., Schmidt	4+2 z, zk	-	6	-
Thermodynamics and Statistical Physics	02YTSFA	Jex, Novotný J.	-	2+2 z, zk	-	4
Structure of Solid State	11YSPLA	Kolenko, Kraus	2+2 z, zk	-	4	-
Seminar on Solid State Physics	11YSFIPL	Kalvoda	1+1 kz	-	2	-
Theoretical Physics 1(1), 2 (2)	02YTEF12	Hrivnák, Novotný P.	2+2 z, zk	2+2 z, zk	4	4
GNU Programming	11YGNU	Dráb	-	2+2 kz	-	4
Language Courses (3)	04..	KHVJ	-	-	-	-
Social Sciences						
Presentation Course	04YAPI	Vadillo	0+2 z	-	2	-
Optional courses:						
Experimental Physics	02YEXF	Křížková-Gajdošová, Trzeciak	2+0 zk	-	2	-
Introduction to Probability 1, 2	01YUP12	Krbálek, Vybíral	1+1 z, zk	1+1 z, zk	3	3
Experimental Laboratory 1, 2	02YPRA12	Bielčík, Rojas	0+4 kz	0+4 kz	6	6
Basic Electronics 1	12YZEL1	Pavel	2+1 z, zk	-	3	-
Seminar on Computer Simulations	11YSPS	Drahokoupil	-	0+2 z	-	2
Computer Algebra Systems	12YPAS	Šiňor	1+1 z	-	2	-
Introduction to Scientific Computing	12YUVP	Šiňor	-	1+1 z	-	2
Electron Microscopy	14YELM	Karlík	-	2+0 kz	-	2
Programování v Pythonu 2, 3	18YPPY23	Klinkovský, Pecinovský	2 z	2 z	2	2
Physical Training 1, 2	TV-12	ČVUT	- z	- z	1	1

(1) Examination in 02YTEF1 can be taken only if 02YMECHZ in passed.
(2) Examination in 02YTEF2 can be taken only if 02YELMA and 02YTEF1 are passed.
(3) Enrollment in language courses follows the rules given separately.

Bachelor´s Degree Programme

Physical Engineering

Specialization Solid State Engineering 3rd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Equations of Mathematical Physics (1)	01YRMFB	Klika, Konopka	2+2 z, zk	-	5	-
Fundamentals of Solid State Physics	11YZFP	Kalvoda, Mihóková	2+0 zk	-	3	-
Bachelor Project 1, 2	11BPFI12	Kalvoda	0+5 z	0+10 z	5	10
Bachelor Seminar	11YBSEM	Kalvoda, Havlíková	-	0+2 z	-	1
Probability and Statistics	01YPRST	Hobza	3+1 z, zk	-	4	-
Quantum Mechanics 1, 2	02YKM12	Štefaňák	4+2 z, zk	4+2 z, zk	6	6
Diffraction Analysis of Solid State	11YDAPL	Čapek, Ganev	2+0 zk	-	2	-
Practical Training in Solid State Physics	11YCZF	Kučeráková	0+2 z	-	2	-
Applications of Group Theory in Solid State Physics	11YAPLG	Potůček	2+0 zk	-	2	-
Continuum in Solid State Physics	11YKFPL	Seiner	-	2+0 zk	-	2
Solid State Physics – Applications and Analytical Methods	11YMAPL	Kratochvílová	-	2+2 z, zk	-	4
Introduction to Condensed Matter Simulations	11YZSKL	Drahokoupil, Kalvoda	-	1+1 kz	-	2
Language Courses (2)	04...	KHVJ	-	-	-	-
Optional courses:						
Linear Circuit Analysis	11YANEL	Jiroušek, Levinský	4+0 z, zk	-	4	-
Logical Circuits and Microprocessors	11YMIK	Jiroušek, Levinský	-	4+0 z, zk	-	4
Structure and Function of Bio-Molecules	11YSFBM	Koval	2+1 z, zk	-	3	-
Atomic and Molecular Spectroscopy	02YAMS	Civiš	2+2 z, zk	-	4	-
Transport Phenomena/Nonequilibrium Systems	02YTJNS	Jex	-	2+0 kz	-	2
Molecular Physics	12YMOF	Michl, Proška	-	2+0 zk	-	2
Basic Optical Laboratory	12YZPOP	Jančárek	-	0+4 kz	-	6
Fundamentals of Optics	12YZAOP	Kwiecien	2+0 z, zk	-	2	-
Fundamentals of Photonic Structures	12YZFS	Čtyroký, Richter	-	2+0 z, zk	-	2
Nanotechnology	12YNT	Hulicius, Proška	2+0 zk	-	2	-
Vacuum Technology	12YVKT	Petráček,Švejkar	2+2 kz	-	4	-
Principles of Plasma Physics	12YZFP	Limpouch	-	3+1 z, zk	-	4
Functions of Complex Variable	01YFKO	Šťovíček	-	2+1 z, zk	-	3
Physical Training 3, 4	TV-34	ČVUT	- z	- z	1	1

(1) Examination in 01YRMFB can be taken only if all courses in Calculus and Linear Algebra are passed.
(2) Enrollment in language courses follows the rules given separately.

Bachelor´s Degree Programme

Physical Engineering

Specialization Laser Technology and Photonics 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus	01YMAN	Strachota, Pelantová	4+4 z	-	4	-
Calculus 1, examination (1)	01YMANZ	Strachota, Pelantová	- zk	-	4	-
Linear Algebra 1	01YLAL	Ambrož, Dvořáková	2+2 z	-	2	-
Linear Algebra 1, examination (2)	01YLALZ	Ambrož, Dvořáková	- zk	-	2	-
Mechanics	02YMECH	Břeň, Yalcinkaya	4+2 z	-	4	-
Mechanics, examination	02YMECHZ	Břeň, Yalcinkaya	- zk	-	2	-
History of Physics 1	02YDEF1	Jex	2+0 z	-	2	-
Basics of Programming	18YZPRO	Virius, Klinkovský, Petříčková,Jarý	4 z	-	4	-
Preparatory week	00YPT	FJFI	1 week z	-	2	-
Calculus 2	01YMAN2	Pelantová, Pošta	-	4+4 z, zk	-	8
Linear Algebra 2	01YLAL2	Dvořáková, Ambrož	-	2+2 z, zk	-	4
Electricity and Magnetism	02YELMA	Chadzitaskos, Yalcinkaya	-	4+2 z, zk	-	6
Heat and Molecular Physics	02YTER	Petrásek	-	2+2 z, zk	-	4
Language Courses (3)	04..	KHVJ	-	-	-	-
Required optional courses (4)						
Introduction to Laser Technology	12YULTB	Jelínková, Němec, Šulc	-	2+1 kz	-	3
Introduction to Photonics and Nanostructures	12YUFN	Kwiecien, Richter, Proška	-	2+1 kz	-	3
Optional courses:						
Minimum in Mathematics 1	00YMAM1	Břeň	0+1 z	-	1	-
Minimum in Mathematics 2	00YMAM2	Pošta	0+1 z	-	1	-
History of Physics 2	02YDEF2	Jex, Myška	-	2+0 z	-	2
Physical Seminar 1	02YFYS1	Petrásek	0+2 z	-	2	-
Fundamentals of Physical Measurements 1, 2	02YZM12	Chaloupka, Škoda, Rojas	2+0 zk	0+4 kz	2	4
Creation of Electronic Documents	14YTED	Materna	0+2 z	-	2	-
Introduction to UNIX	12YUNXAP	Kuchařík	-	1+1 z	-	2
General Chemistry 1, 2 (5)	15YCH12	Distler	2+1 z	2+1 z, zk	3	3
Introduction to Solid State Physics	11YUFP	Kolenko	-	2+0 zk	-	3
Fundamentals of Algorithmization	18YZALG	Virius, Jarý	-	2+2 z, zk	-	4

(1) Examination in 01YMANZ can be taken provided the assessment in 01YMAN is obtained.
(2) Examination in 01YLALZ can be taken provided the assessment in 01YLAL is obtained.
(3) Enrollment in language courses follows the rules given separately.
(4) At least one course is compulsory.
(5) Enrollment in15YCH2 is possible only after passing 15YCH1.

Bachelor´s Degree Programme

Physical Engineering

Specialization Laser Technology and Photonics 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus B 3, 4	01YANB34	Krbálek, Kolář	4+4 z, zk	2+4 z, zk	8	6
Numerical Methods 1	12YNME1	Váchal	-	2+2 z, zk	-	4
Waves, Optics and Atomic Physics	02YVOAF	Novotný P., Schmidt	4+2 z, zk	-	6	-
Thermodynamics and Statistical Physics	02YTSFA	Jex, Novotný J.	-	2+2 z, zk	-	4
Theoretical Physics 1(1), 2 (2)	02YTEF12	Hrivnák, Novotný P.	2+2 z, zk	2+2 z, zk	4	4
Experimental Laboratory 1, 2	02YPRA12	Bielčík, Rojas	0+4 kz	0+4 kz	6	6
Measurement and Data Processing	12YZMDT	Blažej, Procházka	1+1 z, zk	-	2	-
Laser Technology 1	12YLTB1	Jelínková, Němec, Šulc	-	2+1 z, zk	-	3
Language Courses (3)	04..	KHVJ	-	-	-	-
Social Sciences						
Presentation Course	04YAPI	Vadillo	0+2 z	-	2	-
Optional courses:						
Introduction to Scientific Computing	12YUVP	Šiňor	-	1+1 z	-	2
Introduction to Probability 1, 2	01YUP12	Krbálek, Vybíral	1+1 z, zk	1+1 z, zk	3	3
Computer Algebra Systems	12YPAS	Šiňor	1+1 z	-	2	-
Basic Electronics 1, 2	12YZEL12	Pavel	2+1 z, zk	2+1 z, zk	3	3
Microprocessors 1, 2	12YMPR12	Čech	4+0 zk	2+0 zk	4	2
Microprocessor Practicum 1, 2	12YMPP12	Vyhlídal	0+3 kz	0+3 kz	4	2
Electron Microscopy	14YELM	Karlík	-	2+0 kz	-	2
Programming in C++ 1, 2	18YPRC12	Virius, Jarý	2+2 z	2+2 kz	4	4
Physical Training 1, 2	TV-12	ČVUT	- z	- z	1	1
Selected Parts of Modern Physics	12YVPMF	Pšikal	-	2+1 z	-	3
Scientific and Technical Calculation	12YVTV	Procházka	-	1+1 z	-	2
Molecular Physics	12YMOF	Michl, Proška	-	2+0 zk	-	2
Display of Physical Data	12YZFD	Blažej	1+1 kz	-	2	-

(1) Examination in 02YTEF1 can be taken only if 02YMECHZ in passed.
(2) Examination in 02YTEF2 can be taken only if 02YELMA and 02YTEF1 are passed.
(3) Enrollment in language courses follows the rules given separately.

Bachelor´s Degree Programme

Physical Engineering

Specialization Laser Technology and Photonics 3rd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Equations of Mathematical Physics (1)	01YRMFB	Klika, Konopka	2+2 z, zk	-	5	-
Fundamentals of Solid State Physics	11YZFP	Kalvoda, Mihóková	2+0 zk	-	3	-
Bachelor Project 1, 2	12BPFI12	Havlíková	0+5 z	0+10 z	5	10
Bachelor Seminar	11YBSEM	Kalvoda, Havlíková	-	0+2 z	-	1
Quantum Mechanics 1	02YKM1	Štefaňák	4+2 z, zk	-	6	-
Fundamentals of Electrodynamics	12YZELD	Šiňor	1+1 z, zk	-	2	-
Fundamentals of Optics	12YZAOP	Kwiecien	2+0 z, zk	-	2	-
Laser Technology 2	12YLTB2	Kubeček, Šulc, Jelínek	2+1 z, zk	-	3	-
Fundamentals of Photonic Structures	12YZFS	Čtyroký, Richter	-	2+0 z, zk	-	2
Basic Optical Laboratory	12YZPOP	Jančárek	-	0+4 kz	-	6
Basic Laser Technology Laboratory (2)	12YZPLT	Blažej	-	0+4 kz	-	6
Language Courses (3)	04...	KHVJ	-	-	-	-
Optional courses:						
Probability and Statistics	01YPRST	Hobza	3+1 z, zk	-	4	-
Functions of Complex Variable	01YFKO	Šťovíček	-	2+1 z, zk	-	3
Numerical Methods 2	01YNME2	Beneš	-	2+0 kz	-	2
Introductory Practicum in Electronics 1, 2 (4)	12YEPR12	Procházka	0+2 kz	0+2 kz	3	3
Vacuum Technology	12YVKT	Švejkar, Petráček	2+2 kz	-	4	-
Quantum Mechanics 2	02YKM2	Štefaňák	-	4+2 z, zk	-	6
Nanotechnology	12YNT	Hulicius, Proška	2+0 zk	-	2	-
Operating Systems	12YOSY	Čech	3+0 zk	-	3	-
Regulation and Sensors	12YRSEN	Vyhlídal	4 z, zk	-	4	-
High Frequency and Pulse Technology	12YVFT	Pavel	-	2+0 z, zk	-	2
Laser Systems	12YLAS	Kubeček	-	2+1 z, zk	-	3
Application of Lasers	12YAPL	Jančárek, Jelínková	2+0 z, zk	-	2	-
Principles of Plasma Physics	12YZFP	Limpouch, Jirka	-	3+1 z, zk	-	4
Physical Training 3, 4	TV-34	ČVUT	- z	- z	1	1

(1) Examination in 01YRMFB can be taken only if all courses in Calculus and Linear Algebra are passed.
(2) For enrollment in 12YZPLT by students of other specializations, 12YULTB or 12YLTB1 is a prerequisite.
(3) Enrollment in language courses follows the rules given separately.
(4) For enrollment in 12YEPR12, 12YZEL12 is a prerequisite.

Bachelor´s Degree Programme

Physical Engineering

Specialization Computational Physics 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus	01YMAN	Strachota, Pelantová	4+4 z	-	4	-
Calculus 1, examination (1)	01YMANZ	Strachota, Pelantová	- zk	-	4	-
Linear Algebra 1	01YLAL	Ambrož, Dvořáková	2+2 z	-	2	-
Linear Algebra 1, examination (2)	01YLALZ	Ambrož, Dvořáková	- zk	-	2	-
Mechanics	02YMECH	Břeň, Yalcinkaya	4+2 z	-	4	-
Mechanics, examination	02YMECHZ	Břeň, Yalcinkaya	- zk	-	2	-
History of Physics 1	02YDEF1	Jex	2+0 z	-	2	-
Basics of Programming	18YZPRO	Virius, Klinkovský, Petříčková, Jarý	4 z	-	4	-
Preparatory week	00YPT	FJFI	1 week z	-	2	-
Calculus 2	01YMAN2	Pelantová, Pošta	-	4+4 z, zk	-	8
Linear Algebra 2	01YLAL2	Dvořáková, Ambrož	-	2+2 z, zk	-	4
Electricity and Magnetism	02YELMA	Chadzitaskos, Yalcinkaya	-	4+2 z, zk	-	6
Heat and Molecular Physics	02YTER	Petrásek	-	2+2 z, zk	-	4
Introduction to UNIX	12YUNXAP	Kuchařík	-	1+1 z	-	2
Language Courses (3)	04.	KHVJ	-	-	-	-
Optional courses:						
Minimum in Mathematics 1	00YMAM1	Břeň	0+1 z	-	1	-
Minimum in Mathematics 2	00YMAM2	Pošta	0+1 z	-	1	-
History of Physics 2	02YDEF2	Jex, Myška	-	2+0 z	-	2
Fundamentals of Physical Measurements 1, 2	02YZM12	Chaloupka, Škoda, Rojas	2+0 zk	0+4 kz	2	4
Creation of Electronic Documents	14YTED	Materna	0+2 z	-	2	-
General Chemistry 1, 2 (4)	15YCH12	Distler	2+1 z	2+1 z, zk	3	3
Fundamentals of Algorithmization	18YZALG	Virius, Jarý	-	2+2 z, zk	-	4
Introduction to Laser Technology	12YULTB	Jelínková, Němec, Šulc	-	2+1 kz	-	3
Introduction to Photonics and Nanostructures	12YUFN	Kwiecien, Richter, Proška	-	2+1 kz	-	3

(1) Examination in 01YMANZ can be taken provided the assessment in 01YMAN is obtained.
(2) Examination in 01YLALZ can be taken the assessment in 01YLAL is obtained.
(3) Enrollment in language courses follows the rules given separately.
(4) Enrollment in 15YCH2 is possible only after passing 15YCH1.

Bachelor´s Degree Programme

Physical Engineering

Specialization Computational Physics 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus B 3, 4	01YANB34	Krbálek, Kolář	4+4 z, zk	2+4 z, zk	8	6
Numerical Methods 1	12YNME1	Váchal	-	2+2 z, zk	-	4
Waves, Optics and Atomic Physics	02YVOAF	Novotný P., Schmidt	4+2 z, zk	-	6	-
Thermodynamics and Statistical Physics	02YTSFA	Jex, Novotný J.	-	2+2 z, zk	-	4
Theoretical Physics 1 (1), 2 (2)	02YTEF12	Hrivnák, Novotný P.	2+2 z, zk	2+2 z, zk	4	4
Computer Algebra Systems	12YPAS	Šiňor	1+1 z	-	2	-
Measurement and Data Processing	12YZMDT	Blažej, Procházka	1+1 z, zk	-	2	-
Programming in C++ 1, 2	18YPRC12	Jarý, Virius	2+2 z	2+2 kz	4	4
Introduction to Scientific Computing	12YUVP	Šiňor	-	1+1 z	-	2
Selected Topics in Modern Physics	12YVPMF	Pšikal	-	2+1 z	-	3
Language Courses (3)	04..	KHVJ	-	-	-	-
Social Sciences						
Presentation Course	04YAPI	Vadillo	0+2 z	-	2	-
Optional courses:						
Experimental Laboratory 1, 2	02YPRA12	Bielčík, Rojas	0+4 kz	0+4 kz	6	6
Basic Electronics 1, 2	12YZEL12	Pavel	2+1 z, zk	2+1 z, zk	3	3
Introduction to Probability 1, 2	01YUP12	Krbálek, Vybíral	1+1 z, zk	1+1 z, zk	3	3
Seminar on Solid State Physics	11YSFIPL	Kalvoda	1+1 kz	-	2	-
Physical Training 1, 2	TV-12	ČVUT	- z	- z	1	1
Scientific and Technical Calculation	12YVTV	Procházka	-	1+1 z	-	2
Molecular Physics	12YMOF	Michl, Proška	-	2+0 zk	-	2
Display of Physical Data	12YZFD	Blažej	1+1 kz	-	2	-

(1) Examination in 02YTEF1 can be taken only if 02YMECHZ is passed.
(2) Examination in 02YTEF2 can be taken only if 02YELMA and 02YTEF1 are passed.
(3) Enrollment in language courses follows the rules given separately.

Bachelor´s Degree Programme

Physical Engineering

Specialization Computational Physics 3rd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Equations of Mathematical Physics (1)	01YRMFB	Klika, Konopka	2+2 z, zk	-	5	-
Fundamentals of Solid State Physics	11YZFP	Kalvoda, Mihóková	2+0 zk	-	3	-
Bachelor Project 1, 2	12BPFI12	Havlíková	0+5 z	0+10 z	5	10
Bachelor Seminar	11YBSEM	Kalvoda, Mika Havlíková	-	0+2 z	-	1
Quantum Mechanics 1	02YKM1	Štefaňák	4+2 z, zk	-	6	-
Fundamentals of Electrodynamics	12YZELD	Šiňor	1+1 z, zk	-	2	-
Computer Algebra	12YPOAL	Liska, Šiňor	1+1 kz	-	2	-
Introduction to Computational Physics 1, 2	12YUPF12	Kuchařík, Liska	1+1 z, zk	1+1 z, zk	2	2
Fundamentals of Optics	12YZAOP	Kwiecien	2+0 z, zk	-	2	-
Principles of Plasma Physics	12YZFP	Limpouch, Jirka	-	3+1 z, zk	-	4
Scientific Programming in Python	12YPYTH	Váchal	-	0+2 z	-	2
Introduction to Continuum Dynamics	01YDYKO	Fučík, Strachota	-	2+1 z, zk	-	3
Language Courses (2)	04...	KHVJ	-	-	-	-
Optional courses:						
Administration of UNIX System	12YAUX	Šiňor	-	2+0 kz	-	2
Nanotechnology	12YNT	Hulicius, Proška	2+0 zk	-	2	-
Nuclear Physics B	02YZJFB	Wagner	3+0 kz	-	3	-
Programming in Java	18YPJ	Virius	2+2 z, zk	-	5	-
LaTeX - Publication Instrument	01YPSL	Ambrož	-	0+2 z	-	2
Fundamentals of Photonic Structures	12YZFS	Čtyroký, Richter	-	2+0 z, zk	-	2
Practical Classes of Programming	18YPROP	Klinkovský	0+2 kz	-	3	-
Machine Learning in Julia	00YFEL	Adam, Mácha	1+2 kz	-	3	-
Physical Training 3, 4	TV-34	ČVUT	- z	- z	1	1
Quantum Mechanics 2	02YKM2	Štefaňák	-	4+2 z, zk	-	6

(1) Examination in 01YRMFB can be taken only if all courses in Calculus and Linear Algebra are passed.
(2) Enrollment in language courses follows the rules given separately.

Bachelor´s Degree Programme

Nuclear and Particle Physics

1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus	01YMAN	Strachota, Pelantová	4+4 z	-	4	-
Calculus 1, examination (1)	01YMANZ	Strachota, Pelantová	- zk	-	4	-
Linear Algebra 1	01YLAL	Ambrož, Dvořáková	2+2 z	-	2	-
Linear Algebra 1, examination (2)	01YLALZ	Ambrož, Dvořáková	- zk	-	2	-
Mechanics	02YMECH	Břeň, Yalcinkaya	4+2 z	-	4	-
Mechanics, examination	02YMECHZ	Břeň, Yalcinkaya	- zk	-	2	-
Fundamentals of Physical Measurements 1, 2	02YZM12	Rojas, Škoda, Švihra	2+0 zk	0+4 kz	2	4
Preparatory week	00YPT	FJFI	1 week z	-	2	-
Basics of Programming	18YZPRO	Virius, Klinkovský, Petříčková, Jarý	4 z	-	4	-
Linear Algebra 2	01YLAL2	Dvořáková, Ambrož	-	2+2 z, zk	-	4
Calculus 2	01YMAN2	Pelantová, Pošta	-	4+4 z, zk	-	8
Electricity and Magnetism	02YELMA	Chadzitaskos, Yalcinkaya	-	4+2 z, zk	-	6
Heat and Molecular Physics	02YTER	Petrásek	-	2+2 z, zk	-	4
Language Courses (3)	04..	KHVJ	-	-	-	-
Optional courses:						
Minimum in Mathematics 1	00YMAM1	Břeň	0+1 z	-	1	-
Minimum in Mathematics 2	00YMAM2	Pošta	0+1 z	-	1	-
History of Physics 1	02YDEF1	Jex, Myška	2+0 z	-	2	-
General Chemistry 1, 2 (4)	15YCH12	Distler	2+1 z	2+1 z, zk	3	3
History of Physics 2	02YDEF2	Jex, Myška	-	2+0 z	-	2
Physical Seminar 1	02YFYS1	Petrásek	0+2 z	-	2	-
Introduction to Engineering	17YUING	Frýbort, Haušild, Mušálek	2+1 kz	-	3	-
Introduction to UNIX	12YUNXAP	Kuchařík	-	1+1 z	-	2
Basics of Algorithmization	18YZALG	Virius, Jarý	-	2+2 z, zk	-	4

(1) Examination in 01YMANZ can be taken provided the assessment in 01YMAN is obtained.
(2) Examination in 01YLALZ can be taken provided the assessment in 01YLAL is obtained.
(3) Enrollment in language courses follows the rules given separately.
(4) Enrollment in 15YCH2 is possible only after passing 15YCH1.

Bachelor´s Degree Programme

Nuclear and Particle Physics

2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus B 3, 4	01YANB34	Krbálek, Kolář	4+4 z, zk	2+4 z, zk	8	6
Numerical Methods 1	12YNME1	Váchal	-	2+2 z, zk	-	4
Waves, Optics and Atomic Physics	02YVOAF	Novotný P., Schmidt	4+2 z, zk	-	6	-
Theoretical Physics 1(1), 2 (2)	02YTEF12	Hrivnák, Novotný P.	2+2 z, zk	2+2 z, zk	4	4
Experimental Physics	02YEXF	Křížková-Gajdošová, Trzeciak	2+0 zk	-	2	-
Experimental Laboratory 1, 2	02YPRA12	Bielčík, Rojas	0+4 kz	0+4 kz	6	6
Thermodynamics and Statistical Physics	02YTSFA	Jex, Novotný J.	-	2+2 z, zk	-	4
Language Courses (3)	04..	KHVJ	-	-	-	-
Social Sciences						
Presentation Course	04YAPI	Vadillo	0+2 z	-	2	-
Optional courses:						
Introduction to Elementary Particle Physics	02YUFEC	Matas	2+0 z	-	2	-
Introduction to Probability 1, 2	01YUP12	Krbálek, Vybíral	1+1 z, zk	1+1 z, zk	3	3
Introduction to Quantum Theory	02YUKT	Štefaňák	-	2+0 z	-	2
Special Theory of Relativity	02YSTR	Břeň	-	2+0 zk	-	2
Programming in C++ 1, 2	18YPRC12	Jarý, Virius	2+2 z	2+2 kz	4	4
Physical Training 1, 2	TV-12	ČVUT	- z	- z	1	1

(1) Examination in 02YTEF1 can be taken only if 02YMECHZ in passed.
(2) Examination in 02YTEF2 can be taken only if 02YELMA and 02YTEF1 are passed.
(3) Enrollment in language courses follows the rules given separately.

Bachelor´s Degree Programme

Nuclear and Particle Physics

3rd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Subatomic Physics	02YSF	Karpenko	4+2 z, zk	-	6	-
Quantum Mechanics 1, 2	02YKM12	Štefaňák	4+2 z, zk	4+2 z, zk	6	6
Equations of Mathematical Physics (1)	01YRMFB	Klika, Konopka	2+2 z, zk	-	5	-
Detectors and Detection Principles 1, 2	02YDPD12	Contreras, Rojas	2+0 zk	4+0 zk	2	4
Workshop 1 (3)	02YVS1	Bielčík	1 týden z	-	1	-
Bachelor Thesis 1, 2	02BPJC12	Bielčík	0+5 z	0+10 z	5	10
Subatomic Physics 2	02YSF2	Óbertová	-	4+2 z, zk	-	6
Language Courses (2)	04...	KHVJ	-	-	-	-
Optional courses:						
Probability and Statistics	01YPRST	Hobza	3+1 z, zk	-	4	-
Numerical Methods 2	01YNME2	Beneš	-	2+0 kz	-	2
Fundamentals of Electronics	17YZEL	Kropík	2+2 kz	-	3	-
Tools for Simulation and Data Analysis 1	02NSAD1	Hubáček	2+0 z	-	2	-
Simulations and Data Analysis Tools 2	02NSAD2	Hubáček	-	2+0 z	-	2
Introduction to the Standard Model of Microworld	02ZSM	Hubáček	-	2+0 zk	-	2
Seminar on Quark-Gluon Plasma 1, 2	02YROZ12	Bielčík, Bielčíková, Tomášik	2+0 z	2+0 z	2	2
Scientific and Technical Computing	12YVTV	Procházka	-	1+1 z	-	2
Functions of Complex Variable	01YFKO	Šťovíček	-	2+1 z, zk	-	3
Scientific Programming in Python	12YPYTH	Váchal	-	0+2 z	-	2
Vacuum Technology	12YVKT	Švejkar, Petráček	2+2 kz	-	4	-
Physical Training 3, 4	TV-34	ČVUT	- z	- z	1	1

(1) Examination in 01YRMFB can be taken only if all courses in Calculus and Linear Algebra are passed.
(2) Enrollment in language courses follows the rules given separately.
(3) The course is intended for students of this programme only.

Bachelor´s Degree Programme

Mathematical Engineering

Specialization Mathematical Physics 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus 1	01YMAN	Strachota, Pelantová	4+4 z	-	4	-
Calculus 1, examination (1)	01YMANZ	Strachota, Pelantová	- zk	-	4	-
Calculus 2	01YMAN2	Pelantová, Pošta	-	4+4 z, zk	-	8
Linear Algebra 1	01YLAL	Ambrož, Dvořáková	2+2 z	-	2	-
Linear Algebra 1, examination (2)	01YLALZ	Ambrož, Dvořáková	- zk	-	2	-
Linear Algebra 2	01YLAL2	Dvořáková, Ambrož	-	2+2 z, zk	-	4
Mechanics	02YMECH	Břeň, Yalcinkaya	4+2 z	-	4	-
Mechanics - Examination	02YMECHZ	Břeň, Yalcinkaya	- zk	-	2	-
History of Physics 1	02YDEF1	Jex	2+0 z	-	2	-
Basics of Programming	18YZPRO	Virius, Klinkovský, Petříčková,Jarý	4 z	-	4	-
Preparatory Week	00YPT	FJFI	1 week z	-	2	-
Electricity and Magnetism (3)	02YELMA	Chadzitaskos, Yalcinkaya	-	4+2 z, zk	-	6
Heat and Molecular Physics	02YTER	Petrásek	-	2+2 z, zk	-	4
Language Courses (4)	04..	KHVJ	-	-	-	-
Optional courses:						
Essentials of High School Course 1	00YMAM1	Břeň	0+1 z	-	1	-
Essentials of High School Math Course 2	00YMAM2	Pošta	0+1 z	-	1	-
Discrete Mathematics 1, 2 (5)	01YDIM12	Masáková	2+0 z	2+0 z	2	2
History of Physics 2	02YDEF2	Jex, Myška	-	2+0 z	-	2
Physical Seminar 1	02YFYS1	Petrásek	0+2 z	-	2	-
Foundations of Physical Measurements 1, 2 (5)	02YZM12	Chaloupka, Škoda, Rojas	2+0 zk	0+4 kz	2	4
Introduction to Solid State Physics	11YUFP	Kolenko	-	2+0 zk	-	3
Creating Electronic Documents	14YTED	Materna	0+2 z	-	2	-
Introduction to UNIX	12YUNXAP	Kuchařík	-	1+1 z	-	2
General Chemistry 1, 2 (6)	15YCH12	Distler	2+1 z	2+1 z, zk	3	3
Basics of Algorithmization	18YZALG	Virius, Jarý	-	2+2 z, zk	-	4

(1) Examination in 01YMANZ can be taken provided the assessment in 01YMAN is obtained.
(2) Examination in 01YLALZ can be taken the assessment in 01YLAL is obtained.
(3) Enrollment in 02YELMA can be taken provided the assessment in 02YMECH is obtained.
(4) Enrollment in language courses follows the rules given separately.
(5) The indicated courses can be scheduled simultaneously.
(6) Enrollment in 15YCH2 is possible only after passing 15YCH1.

Bachelor´s Degree Programme

Mathematical Engineering

Specialization Mathematical Physics 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Mathematical Analysis A 3, 4	01YANA34	Štampach	4+4 z, zk	4+4 z, zk	9	9
Numerical Mathematics 1	01YNMA1	Oberhuber	4+0 zk	-	4	-
Waves, Optics and Atomic Physics	02YVOAF	Novotný P., Schmidt	4+2 z, zk	-	6	-
Differential Equations	01YDIFR	Beneš, Strachota	-	2+2 z, zk	-	4
Theoretical Physics 1 (1), 2 (2)	02YTEF12	Hrivnák, Novotný P.	2+2 z, zk	2+2 z, zk	4	4
Thermodynamics and Statistical Physics	02YTSFA	Jex, Novotný J.	-	2+2 z, zk	-	4
Language Courses (3)	04..	KHVJ	-	-	-	-
Social Sciences						
Presentation Course	04YAPI	Vadillo	0+2 z	-	2	-
Optional courses:						
Special Theory of Relativity	02YSTR	Břeň	-	2+0 zk	-	2
Introduction to Quantum Theory	02YUKT	Štefaňák	-	2+0 z	-	2
Introduction to Elementary Particle Physics	02YUFEC	Matas	2+0 z	-	2	-
Experimental Laboratory 1, 2	02YLCF12	Bielčík	0+2 z	0+2 z	2	2
Selected Topics in Modern Physics	12YVPMF	Pšikal	-	2+1 z	-	3
Physical Training 1, 2	TV-12	ČVUT	- z	- z	1	1

(1) Examination in 02YTEF1 can be taken only if 02YMECHZ in passed.
(2) Examination in 02YTEF2 can be taken only if 02YELMA and 02YTEF1 are passed.
(3) Enrollment in language courses follows the rules given separately.

Bachelor´s Degree Programme

Mathematical Engineering

Specialization Mathematical Physics 3rd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Quantum Mechanics 1, 2	02YKM12	Štefaňák	4+2 z, zk	4+2 z, zk	6	6
Functional Analysis 1	01YFANA1	Šťovíček	2+2 z, zk	-	5	-
Functional Analysis 2	01YFAN2	Šťovíček	-	2+2 z, zk	-	5
Equations of Mathematical Physics (1)	01YRMFB	Klika, Konopka	2+2 z, zk	-	5	-
Geometric Methods in Physics 1	02YGMF1	Šnobl	2+2 z, zk	-	4	-
Introduction to Particle Physics	02UCF	Hubáček	2+2 z, zk	-	4	-
General Relativity	02YGTR	Tomášik	2+2 z, zk	-	4	-
Functions of Complex Variable	01YFKO	Šťovíček	-	2+1 z, zk	-	3
Bachelor Seminar	01YBASE	Strachota	-	0+2 z	-	1
Bachelor Thesis 1, 2	02BPMI12	Šnobl	0+5 z	0+10 z	5	10
Language Courses (2)	04..	KHVJ	-	-	-	-
Optional courses:						
Differential Equations, Symmetries and Groups	02DRG	Šnobl	-	2+2 z	-	4
Simulations and Data Analysis Tools 1	02NSAD1	Hubáček	2+0 z	-	2	-
Algebra	01YALGE	Masáková	4+1 z, zk	-	6	-
Probability and Statistics	01YPRST	Hobza	3+1 z, zk	-	4	-
Topology	01YTOP	Burdík	2+0 zk	-	2	-
Physical Training 3, 4	TV-34	ČVUT	- z	- z	1	1

(1) Examination in 01YRMFB can be taken only if all courses in Calculus and Linear Algebra are passed.
(2) Enrollment in language courses follows the rules given separately.

Bachelor´s Degree Programme

Mathematical Engineering

Specialization Mathematical Informatics 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus 1	01YMAN	Strachota, Pelantová	4+4 z	-	4	-
Calculus 1, examination (1)	01YMANZ	Strachota, Pelantová	- zk	-	4	-
Linear Algebra 1	01YLAL	Ambrož, Dvořáková	2+2 z	-	2	-
Linear Algebra 1, examination (2)	01YLALZ	Ambrož, Dvořáková	- zk	-	2	-
Calculus 2	01YMAN2	Pelantová, Pošta	-	4+4 z, zk	-	8
Linear Algebra 2	01YLAL2	Dvořáková, Ambrož	-	2+2 z, zk	-	4
Discrete Mathematics 1, 2	01YDIM12	Masáková	2+0 z	2+0 z	2	2
Mechanics	02YMECH	Břeň, Yalcinkaya	4+2 z	-	4	-
Mechanics - Examination	02YMECHZ	Břeň, Yalcinkaya	- zk	-	2	-
Electricity and Magnetism (3)	02YELMA	Chadzitaskos, Yalcinkaya	-	4+2 z, zk	-	6
History of Physics 1	02YDEF1	Jex	2+0 z	-	2	-
Basics of Programming	18YZPRO	Virius, Klinkovský, Petříčková, Jarý	4 z	-	4	-
Basics of Algorithmization	18YZALG	Virius, Jarý	-	2+2 z, zk	-	4
Preparatory Week	00YPT	FJFI	1 week z	-	2	-
Language Courses (4)	04..	KHVJ	-	-	-	-
Optional courses:						
Essentials of High School Course 1	00YMAM1	Břeň	0+1 z	-	1	-
Essentials of High School Course 2	00YMAM2	Pošta	0+1 z	-	1	-
General Chemistry 1, 2 (5)	15YCH12	Distler	2+1 z	2+1 z, zk	3	3
Heat and Molecular Physics	02YTER	Petrásek	-	2+2 z, zk	-	4
History of Physics 2	02YDEF2	Jex, Myška	-	2+0 z	-	2
Introduction to UNIX	12YUNXAP	Kuchařík	-	1+1 z	-	2

(1) Examination in 01YMANZ can be taken provided the assessment in 01YMAN is obtained.
(2) Examination in 01YLALZ can be taken the assessment in 01YLAL is obtained.
(3) Enrollment in 02YELMA can be taken provided the assessment in 02YMECH is obtained.
(4) Enrollment in language courses follows the rules given separately.
(5) Enrollment in 15YCH2 is possible only after passing 15YCH1.

Bachelor´s Degree Programme

Mathematical Engineering

Specialization Mathematical Informatics 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Mathematical Analysis A 3, 4	01YANA34	Štampach	4+4 z, zk	4+4 z, zk	9	9
Numerical Mathematics 1	01YNMA1	Oberhuber	4+0 zk	-	4	-
Differential Equations	01YDIFR	Beneš, Strachota	-	2+2 z, zk	-	4
Discrete Mathematics 3	01YDIMA3	Dvořáková	2+0 zk	-	2	-
Linear Programming	01YLIP	Fučík, Bureš	2+1 z, zk	-	3	-
Waves, Optics and Atomic Physics	02YVOAF	Novotný P., Schmidt	4+2 z, zk	-	6	-
Programování v C++ 1, 2	18YPRC12	Virius, Jarý	2+2 z	2+2 kz	4	4
Algebra and Calculus in Applications	01YTA	Dvořáková	-	2+0 zk	-	2
Language Courses (1)	04..	KHVJ	-	-	-	-
Social Sciences						
Presentation Course	04YAPI	Vadillo	0+2 z	-	2	-
Optional courses:						
Neural Networks 1	18YNES1	Petříčková	-	2+2 kz	-	5
Theoretical Physics 1(2), 2 (3)	02YTEF12	Hrivnák, Novotný P.	2+2 z, zk	2+2 z, zk	4	4
Basic Electronics 1, 2	12YZEL12	Pavel	2+1 z, zk	2+1 z, zk	3	3
Introduction to Scientific Computing	12YUVP	Šiňor	-	1+1 z	-	2
Physical Training 1, 2	TV-12	ČVUT	- z	- z	1	1

(1)Enrollment in language courses follows the rules given separately.
(2)Examination in 02YTEF1 can be taken only if 02YMECHZ in passed.
(3)Examination in 02YTEF2 can be taken only if 02YELMA and 02YTEF1 are passed.

Bachelor´s Degree Programme

Mathematical Engineering

Specialization Mathematical Informatics 3rd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Functions of Complex Variable	01YFKO	Šťovíček	-	2+1 z, zk	-	3
Algebra	01YALGE	Masáková	4+1 z, zk	-	6	-
Programming in Java	18YPJ	Virius	2+2 z, zk	-	5	-
Probability and Statistics	01YPRST	Hobza	3+1 z, zk	-	4	-
Computer Graphics 1, 2	01YPGR12	Strachota	1+1 z, zk	1+1 z, zk	2	2
Theory of Codes	01YTKO	Pelantová	-	2+0 zk	-	2
Introduction to Operating Systems	01YZAOS	Čulík	-	2+0 z, zk	-	2
Numerical Mathematics 2	01YNMA2	Beneš, Oberhuber	-	2+1 z, zk	-	3
Bachelor Seminar	01YBASE	Strachota	-	0+2 z	-	1
Bachelor project 1, 2	01BPMI12	Strachota	0+5 z	0+10 z	5	10
Language Courses (1)	04..	KHVJ	-	-	-	-
Optional courses:						
Introduction to Machine Learning	01YUSU	Flusser, Franc	2+2z,zk	-	4	-
Windows Programming	01YPW	Čulík	2+0 z	-	2	-
Simple Compilers	01YJEPR	Čulík	-	2 z	-	2
Programming of Peripherals Devices	01YPERI	Čulík	2+0 z	-	2	-
Principles of Statistical Decision Making	01YPSR	Kůs	-	2+0 zk	-	2
Functional Analysis 1	01YFANA1	Šťovíček	2+2 z, zk	-	5	-
Functional analysis 2	01YFAN2	Šťovíček	-	2+2 z, zk	-	5
LaTeX - Publication Instrument	01YPSL	Ambrož	-	0+2 z	-	2
Computer Algebra	12YPOAL	Liska, Šiňor	1+1 kz	-	2	-
Development of internet applications	18YINTA	Majerová, Klinkovský	-	2+2 kz	-	4
History of Mathematics (2)	01YDEM	Dvořáková	-	0+2 z	-	1
Physical Training 3, 4	TV-34	ČVUT	- z	- z	1	1

(1) Enrollment in language courses follows the rules given separately.
(2) The course runs only once every 2 years.

Bachelor´s Degree Programme

Mathematical Engineering

Specialization Mathematical Modelling 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus 1	01YMAN	Strachota, Pelantová	4+4 z	-	4	-
Calculus 1, examination (1)	01YMANZ	Strachota, Pelantová	- zk	-	4	-
Linear Algebra 1	01YLAL	Ambrož, Dvořáková	2+2 z	-	2	-
Linear Algebra 1, examination (2)	01YLALZ	Ambrož, Dvořáková	- zk	-	2	-
Calculus 2	01YMAN2	Pelantová, Pošta	-	4+4 z, zk	-	8
Linear Algebra 2	01YLAL2	Dvořáková, Ambrož	-	2+2 z, zk	-	4
Mechanics	02YMECH	Břeň, Yalcinkaya	4+2 z	-	4	-
Mechanics, examination	02YMECHZ	Břeň, Yalcinkaya	- zk	-	2	-
Electricity and Magnetism (3)	02YELMA	Chadzitaskos, Yalcinkaya	-	4+2 z, zk	-	6
Heat and Molecular Physics	02YTER	Petrásek	-	2+2 z, zk	-	4
History of Physics 1	02YDEF1	Jex, Myška	2+0 z	-	2	-
Basics of Programming	18YZPRO	Virius, Klinkovský, Petříčková, Jarý	4 z	-	4	-
Basics of Algorithmization	18YZALG	Virius, Jarý	-	2+2 z, zk	-	4
Preparatory Week	00YPT	FJFI	1 week z	-	2	-
Language Courses (4)	04..	KHVJ	-	-	-	-
Optional courses:						
Essentials of High School Course 1	00YMAM1	Břeň	0+1 z	-	1	-
Essentials of High School Course 2	00YMAM2	Pošta	0+1 z	-	1	-
Discrete Mathematics 1, 2	01YDIM12	Masáková	2+0 z	2+0 z	2	2
History of Physics 2	02YDEF2	Jex, Myška	-	2+0 z	-	2
Creating Electronic Documents	14YTED	Materna	0+2 z	-	2	-
Introduction to UNIX	12YUNXAP	Kuchařík	-	1+1 z	-	2
General Chemistry 1, 2 (5)	15YCH12	Distler	2+1 z	2+1 z, zk	3	3

(1) Examination in 01YMANZ can be taken provided the assessment in 01YMAN is obtained.
(2) Examination in 01YLALZ can be taken provided the assessment in 01YLAL is obtained.
(3) Enrollment in 02YELMA can be taken provided the assessment in 02YMECH is obtained.
(4) Enrollment in language courses follows the rules given separately.
(5) Enrollment in 15YCH2 is possible only after passing 15YCH1.

Bachelor´s Degree Programme

Mathematical Engineering

Specialization Mathematical Modelling 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Mathematical Analysis A 3, 4	01YANA34	Štampach	4+4 z, zk	4+4 z, zk	9	9
Numerical Mathematics 1	01YNMA1	Oberhuber	4+0 zk	-	4	-
Differential Equations	01YDIFR	Beneš, Strachota	-	2+2 z, zk	-	4
Waves, Optics and Atomic Physics	02YVOAF	Novotný P., Schmidt	4+2 z, zk	-	6	-
Thermodynamics and Statistical Physics	02YTSFA	Jex, Novotný J.	-	2+2 z, zk	-	4
Theoretical Physics 1(1)	02YTEF1	Hrivnák, Novotný P.	2+2 z, zk	-	4	-
Linear Programming	01YLIP	Fučík, Bureš	2+1 z, zk	-	3	-
Introduction to Continuum Dynamics	01YDYKO	Fučík, Strachota	-	2+1 z, zk	-	3
Language Courses (2)	04..	KHVJ	-	-	-	-
Social Sciences						
Presentation Course	04YAPI	Vadillo	0+2 z	-	2	-
Optional courses:						
Introduction to Scientific Computing	12YUVP	Šiňor	-	1+1 z	-	2
Computer Algebra Systems	12YPAS	Šiňor	1+1 z	-	2	-
Programming in C++ 1, 2	18YPRC12	Jarý, Virius	2+2 z	2+2 kz	4	4
Introduction to quantum informatics	18YUQI	Wodecki	-	2+0 z	-	3
Physical Training 1, 2	TV-12	ČVUT	- z	- z	1	1

(1) Examination in 02YTEF1 can be taken only if 02YMECHZ in passed.
(2) Enrollment in language courses follows the rules given separately.

Bachelor´s Degree Programme

Mathematical Engineering

Specialization Mathematical Modelling 3rd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Algebra	01YALGE	Masáková	4+1 z, zk	-	6	-
Functional Analysis 1	01YFANA1	Šťovíček	2+2 z, zk	-	5	-
Functional Analysis 2	01YFAN2	Šťovíček	-	2+2 z, zk	-	5
Equations of Mathematical Physics (1)	01YRMFB	Klika, Konopka	2+2 z, zk	-	5	-
Measure and Probability	01YMIP	Hobza, Kůs	4+2 z, zk	-	6	-
Mathematical Statistics	01YMAS	Kůs	-	2+0 zk	-	3
Numerical Mathematics 2	01YNMA2	Beneš, Oberhuber	-	2+1 z, zk	-	3
Functions of Complex Variable	01YFKO	Šťovíček	-	2+1 z, zk	-	3
Geometric Theory of Ordinary Differential Equations	01YGTDR	Beneš	0+2 z	-	2	-
Bachelor Seminar	01YBASE	Strachota	-	0+2 z	-	1
Bachelor project 1, 2	01BPMI12	Strachota	0+5 z	0+10 z	5	10
Language Courses (2)	04..	KHVJ	-	-	-	-
Optional courses:						
Topology	01YTOP	Burdík	2+0 zk	-	2	-
Differential Equations, Symmetries and Groups	02DRG	Šnobl	-	2+2 z	-	4
Mathematical Models of Groundwater Flow	01YMMPV	Mikyška	-	2+0 kz	-	2
Markov processes	01YMAPR	Vybíral	-	2+2 z, zk	-	4
Simple Compilers	01YJEPR	Čulík	-	2 z	-	2
Principles of Statistical Decision Making	01YPSR	Kůs	-	2+0 zk	-	2
Practical training in programming	18YPROP	Klinkovský	0+2 kz	-	3	-
Introduction to Operating Systems	01YZAOS	Čulík	-	2+0 z, zk	-	2
Theory of Codes	01YTKO	Pelantová	-	2+0 zk	-	2
Programming in Java	18YPJ	Virius	2+2 z, zk	-	5	-
Scientific Programming in Python	12YPYTH	Váchal	-	0+2 z	-	2
LaTeX - Publication Instrument	01YPSL	Ambrož	-	0+2 z	-	2
History of Mathematics (3)	01YDEM	Dvořáková	-	0+2 z	-	1
Physical Training 3, 4	TV-34	ČVUT	- z	- z	1	1

(1) Examination in 01YRMFB can be taken only if all courses in Calculus and Linear Algebra are passed.
(2) Enrollment in language courses follows the rules given separately.
(3) The course runs only once every 2 years.

Bachelor´s Degree Programme

Quantum Technologies

1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus	01YMAN	Strachota, Pelantová	4+4 z	-	4	-
Calculus 1, examination	01YMANZ	Strachota, Pelantová	- zk	-	4	-
Linear Algebra 1	01YLAL	Ambrož, Dvořáková	2+2 z	-	2	-
Linear Algebra 1, examination	01YLALZ	Ambrož, Dvořáková	- zk	-	2	-
Mechanics	02YMECH	Břeň, Yalcinkaya	4+2 z	-	4	-
Mechanics, examination	02YMECHZ	Břeň, Yalcinkaya	- zk	-	2	-
History of Physics 1	02YDEF1	Jex, Myška	2+0 z	-	2	-
Basics of Programming	18YZPRO	Virius, Klinkovský, Petříčková,Jarý	4 z	-	4	-
Preparatory week	00YPT	FJFI	1 week z	-	2	-
Fundamentals of Physical Measurements 1, 2	02YZM12	Chaloupka, Škoda, Rojas	2+0 zk	0+4 kz	2	4
Calculus 2	01YMAN2	Pelantová, Pošta	-	4+4 z, zk	-	8
Linear Algebra 2	01YLAL2	Dvořáková, Ambrož	-	2+2 z, zk	-	4
Electricity and Magnetism	02YELMA	Chadzitaskos, Yalcinkaya	-	4+2 z, zk	-	6
Heat and Molecular Physics	02YTER	Petrásek	-	2+2 z, zk	-	4
Language Courses (1)	04.	KHVJ	-	-	-	-
Optional courses:						
Minimum in Mathematics 1	00YMAM1	Břeň	0+1 z	-	1	-
Minimum in Mathematics 2	00YMAM2	Pošta	0+1 z	-	1	-
History of Physics 2	02YDEF2	Jex, Myška	-	2+0 z	-	2
Physical Seminar 1	02YFYS1	Petrásek	0+2 z	-	2	-
Introduction to Solid State Physics	11YUFP	Kolenko	-	2+0 zk	-	3
Introduction to Photonics and Nanostructures	12YUFN	Kwiecien, Richter, Proška	-	2+1 kz	-	3
Introduction to UNIX	12YUNXAP	Kuchařík	-	1+1 z	-	2
Creation of Electronic Documents	14YTED	Materna	0+2 z	-	2	-
Introduction to Engineering	17YUING	Frýbort, Haušild, Mušálek	2+1 kz	-	3	-
General Chemistry 1, 2 (2)	15YCH12	Distler	2+1 z	2+1 z, zk	3	3
Programming in Python 1	18YPPY1	Klinkovský, Mojzeš	-	2 z	-	2

(1) Enrollment in language courses follows the rules given separately.
(2) Enrollment in 15YCH2 is possible only after passing 15YCH1.

Bachelor´s Degree Programme

Quantum Technologies

2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Calculus B 3, 4	01YANB34	Krbálek, Kolář	4+4 z, zk	2+4 z, zk	8	6
Numerical Methods 1	12YNME1	Váchal	-	2+2 z, zk	-	4
Waves, Optics and Atomic Physics	02YVOAF	Novotný P., Schmidt	4+2 z, zk	-	6	-
Introduction to Laser Technology	12YULAT	Jelínková, Šulc	2 kz	-	2	-
Theoretical Physics 1(1), 2 (2)	02YTEF12	Hrivnák, Novotný P.	2+2 z, zk	2+2 z, zk	4	4
Experimental Laboratory 1, 2	02YPRA12	Bielčík, Rojas	0+4 kz	0+4 kz	6	6
Thermodynamics and Statistical Physics	02YTSFA	Jex, Novotný J.	-	2+2 z, zk	-	4
Language Courses (3)	04	KHVJ	-	-	-	-
Social Sciences						
Presentation Course	04YAPI	Vadillo	0+2 z	-	2	-
Optional courses:						
Special Theory of Relativity	02YSTR	Břeň	-	2+0 zk	-	2
Introduction to Elementary Particle Physics	02YUFEC	Matas	2+0 z	-	2	-
Introduction to Quantum Theory	02YUKT	Štefaňák	-	2+0 z	-	2
Experimental Physics	02YEXF	Křížková-Gajdošová, Trzeciak	2+0 zk	-	2	-
Selected Topics in Modern Physics	12YVPMF	Pšikal	-	2+1 z	-	3
Introduction to Scientific Computing	12YUVP	Šiňor	-	1+1 z	-	2
Basic Electronics 1, 2	12YZEL12	Pavel	2+1 z, zk	2+1 z, zk	3	3
Programming in C++ 1, 2	18YPRC12	Jarý, Virius	2+2 z	2+2 kz	4	4
Programming in Python 2, 3	18YPPY23	Klinkovský, Pecinovský	2 z	2 z	2	2
Neural networks 1	18YNES1	Petříčková	-	2+2 kz	-	5
Seminar on Solid State Physics	11YSFIPL	Kalvoda	1+1 kz	-	2	-
Physical Training 1, 2	TV-12	ČVUT	- z	- z	1	1
Scientific and Technical Calculation	12YVTV	Procházka	-	1+1 z	-	2
Molecular Physics	12YMOF	Michl, Proška	-	2+0 zk	-	2

(1) Examination in 02YTEF1 can be taken only if 02YMECHZ is passed.
(2) Examination in 02YTEF2 can be taken only if 02YELMA and 02YTEF1 are passed
(3) Enrollment in language courses follows the rules given separately.

Bachelor´s Degree Programme

Quantum Technologies

3rd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Equations of Mathematical Physics (1)	01YRMFB	Klika, Konopka	2+2 z, zk	-	5	-
Probability and Statistics	01YPRST	Hobza	3+1 z, zk	-	4	-
Quantum Laboratory 1	11YKPRA1	Kalvoda, Šulc	0+4 kz	-	4	-
Quantum Mechanics 1, 2	02YKM12	Štefaňák	4+2 z, zk	4+2 z, zk	6	6
Fundamentals of Classical Optics and Electrodynamics	12YKOE	Kwiecien, Richter, Šiňor	-	4+0 zk	-	4
Quantum Laboratory 2	02YKPRA2	Čepila	-	0+4 kz	-	4
Bachelor Project 1, 2	02BPQT12	Hamrle, Štefaňák, Šulc	0+5 z	0+10 z	5	10
Language Courses (~~1~~2)	04...	KHVJ	-	-	-	-
Optional courses:						
Detectors and Detection Principles 1, 2	02YDPD12	Contreras, Rojas	2+0 zk	4+0 zk	2	4
Functions of Complex Variable	01YFKO	Šťovíček	-	2+1 z, zk	-	3
Vacuum Technology	12YVKT	Švejkar, Petráček	2+2 kz	-	4	-
Scientific Programming in Python	12YPYTH	Váchal	-	0+2 z	-	2
Scientific and Technical Computing	12YVTV	Procházka	-	1+1 z	-	2
Fundamentals of Solid State Physics	11YZFP	Kalvoda, Mihóková	2+0 zk	-	3	-
Basic Laser Technology Laboratory	12YZPLT	Blažej	-	0+4 kz	-	6
Fundamentals of Photonic Structures	12YZFS	Čtyroký, Richter	-	2+0 z, zk	-	2
Laser Systems	12YLAS	Kubeček	-	2+1 z, zk	-	3
Neural networks 2	18YNES2	Petříčková	-	2+2 kz	-	5
Physical Training 3, 4	TV-34	ČVUT	- z	- z	1	1

(1) Examination in 01YRMFB can be taken only if all courses in Calculus and Linear Algebra are passed.
(2) Enrollment in language courses follows the rules given separately.

Master´s Degree Programme

Nuclear Engineering

Specialization Applied Physics of Ionizing Radiation 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Quantum Physics	02YKFM	Jizba	2+1 z, zk	-	3	-
Nuclear Safety	17YJABE	Frýbortová, Sklenka	4+0 zk	-	5	-
Research Project 1, 2	16VUJI12	Trojek	0+6 z	0+8 kz	6	8
Advanced Experimental Neutron Physics	17YPENF	Huml	-	1+3 kz	-	4
Advanced Topics in Nuclear and Radiation Physics	16YPPJRF	Musílek, Urban	2+1 z, zk	-	3	-
Instrumentation for Radiation Measurements	16YMERV	Průša	2+2 z, zk	-	4	-
Practicum in Detection and Dosimetry of Ionizing Radiation	16YPDZNMS	Martinčík, Průša	0+4 kz	-	4	-
Accelerators in Medicine and Technology	16YUMT	Augsten	1+0 kz	-	1	-
Monte Carlo Method in Radiation Physics	16YMCRF	Klusoň, Urban	-	2+2 z, zk	-	4
Ionizing Radiation in the Environment	16YIZZP	Štěpán	-	2+1 z, zk	-	3
Integral Dosimetry Methods	16YIDOZ	Ambrožová, Musílek	-	2+0 zk	-	2
Methods of Analytical Measurement	16YAMMN	Pilařová, Průšová	-	2+0 kz	-	2
Excursion	16YEX	Thinová	-	1 week z	-	2
Optional courses:						
Radiation Effects in Matter	16YREL	Pilařová	2+0 zk	-	2	-
Monte Carlo Method	18YMEMC	Jarý, Virius	2+2 z, zk	-	4	-
Radiation Protection	16YRAO	Trojek	4+0 zk	-	4	-
Practicum in Dosimetry of Ionizing Radiation	16YPDIZ	Štěpán	-	0+4 kz	-	4
Digital Image Processing	01YDIZO	Flusser, Zitová	-	2+2 zk	-	4
Fundamentals of Clinical Dosimetry	16YZKLD	Čechák, Hanušová, Novotný J.	-	2+0 zk	-	2

Master´s Degree Programme

Nuclear Engineering

Specialization Applied Physics of Ionizing Radiation 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Metrology of Ionizing Radiation	16YMEIZ	Novotný P., Trojek	2+1 z, zk	-	4	-
Applications of Ionizing Radiation 1	16YAPIZ1	Čechák, Trojek	3+0 zk	-	3	-
Master Thesis 1, 2	16DPJI12	Trojek	0+10 z	0+20 z	10	20
Applications of Ionizing Radiation 2	17YAPIZ2	Miglierini, Štefánik	-	2+1 z, zk	-	3
Spectrometry in Dosimetry	16YSPD	Čechák, Novotný P.	2+0 zk	-	2	-
Mathematical Methods and Modelling	16YMMM	Klusoň, Urban	0+2 z	-	2	-
Medical Application of Ionizing Radiation	16YAIZM	Hanušová, Jelínek-Michaelidesová	2+1 z, zk	-	3	-
Microdosimetry	16YMDOZI	Jelínek-Michaelidesová, Pachnerová-Brabcová	2+0 kz	-	2	-
Overview of Elementary Particle Physics	16YPFE	Smolík	2+0 kz	-	2	-
Seminar 2	16YSEM2	Pilařová	-	0+2 z	-	2
Optional courses:						
Neutron Dosimetry	16YDNEU	Ploc	2+0 zk	-	2	-
Clinical Dosimetry	16YKLD2	Hanušová, Novotný J., Trojek	2+0 kz	-	2	-
Machine Learning 1	01YSU1	Flusser	2+1 zk	-	3	-
Dosimetry of Internal Radiation Sources	16YDZAR	Musílek	-	2+0 zk	-	2
Radiobiology	16YRBIO	Davídková	-	2+0 zk	-	2
Introduction to Physics of Scintillators and Phosphors	16YFSC	Nikl	-	2+0 zk	-	2
Design of Semiconductor Detectors of Ionizing Radiation	16YKPD	Kákona	-	0+3 z	-	3
Start-up Project	01YSUP	Rubeš	2+0 kz	-	2	-

Master´s Degree Programme

Physical Electronics

Specialization Photonics 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Electrodynamics 1, 2	12YELDY12	Čtyroký, Jirka, Kwiecien	2+0 z, zk	4+0 z, zk	3	5
Computational Physics 1	12YPF1	Klimo, Kuchařík	2+0 zk	-	2	-
Research Project 1, 2	12VUFL12	Šiňor	0+6 z	0+8 kz	6	8
Optical Physics	12YFOPT	Kwiecien	3+0 z, zk	-	3	-
Quantum Electronics	12YKVEN	Richter, Dvořák	3+1 z, zk	-	5	-
Statistical Optics	12YSOP	Richter	2+0 z, zk	-	2	-
Selected Chapters of Modern Optics	12YMODO	Kwiecien, Marešová	2+0 z	-	2	-
Nonlinear Optics	12YNOP	Richter	-	3+1 z, zk	-	4
Quantum Optics	12YKOP	Richter, Dvořák	-	3+1 z, zk	-	5
Computer Control of Experiment	12YPOEX	Čech, Vyhlídal	-	2+0 z	-	2
Optical Spectroscopy	12YOSP	Michl	-	2+0 kz	-	2
Optional courses:						
Measurements Methods in Electronics and Optics	12YMMEO	Pína	-	2+0 zk	-	2
Physics of Detection and Detectors of Optical Radiation	12YFDD	Pína	2+0 zk	-	2	-
Laser Plasma as Source of Radiation and Particles	12YLPZ	Nejdl	2+0 zk	-	2	-
Solid-state, Diode and Dye lasers	12YPDBL	Jelínková, Kubeček, Němec, Jelínek	-	2+0 z, zk	-	2
Nanochemistry	12YNCH	Proška	2+0 zk	-	2	-
Preparation of Semiconductor Nanostructures	12YPN	Hulicius	-	2+0 zk	-	2
Laser Physics	12YFLA	Šulc	-	4+0 z, zk	-	4
Atomic Physics	12YAF	Šiňor	4+0 z, zk	-	4	-
Molecular Nanosystems	11YMONA	Kratochvílová	2+0 zk	-	2	-
Computational Physics 2	12YPF2	Klimo, Kuchařík	-	1+1 z, zk	-	2
Quantum Information and Communication	02YQIC	Gábris, Štefaňák	3+1 z, zk	-	4	-
Open Quantum Systems	02YOKS	Novotný	-	2+0 z	-	2
Nano-Materials - Preparation and Properties	11YNAMA	Kratochvílová	-	2+0 zk	-	2

Master´s Degree Programme

Physical Electronics

Specialization Photonics 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Solid State Physics	11YFYPL	Aubrechtová, Kučeráková, Kalvoda	3+1 z, zk	-	4	-
Master Thesis Seminar 1, 2	12YDSFE12	Jelínková	0+2 z	0+2 z	2	2
Master Thesis 1, 2	12DPFE12	Jelínková	0+10 z	0+20 z	10	20
Nanophysics	12YNF	Šiňor Richter	1+1 zk	-	2	-
Fourier Optics and Optical Signal Processing	12YOZS	Kwiecien, Richter	3+0 z, zk	-	3	-
Advanced Optical Laboratory	12YPPRO	Jančárek	0+4 kz	-	6	-
Geometrical Optics	12YGOP	Dvořák	-	2+0 kz	-	2
Optional courses:						
Advanced Laser Spectroscopy (1)	12YPLS	Michl	2+0 zk	-	2	-
Gas and X-ray Lasers	12YRGL	Jančárek	-	2+0 kz	-	2
Advanced Laser Technology Laboratory	12YPPLT	Kubeček, Němec	0+4 kz	-	6	-
Integrated Optics	12YINTO	Čtyroký	2+0 z, zk	-	2	-
Optical Sensors	12YOSE	Homola	-	2+0 zk	-	2
X-ray Photonics	12YRFO	Pína	2 zk	-	2	-
Ultra-short Pulse Generation	12YUKP	Jelínek, Kubeček	2+0 zk	-	2	-
Fiber Lasers and Amplifiers	12YVLS	Peterka	2+0 zk	-	3	-
Computer Simulation of Condensed Matter	11YSIK	Kalvoda, Sedlák, Drahokoupil	2+2 z, zk	-	5	-
Physics of Surfaces and Interfaces	11YFPOR	Kalvoda, Skočdopole	2+0 zk	-	2	-
SEM and Methods of Microbeam Analysis	11YSEM	Kopeček	2+0 zk	-	2	-
Start-up Project	01YSUP	Rubeš	2+0 kz	-	2	-

Master´s Degree Programme

Plasma Physics and Thermonuclear Fusion

1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Plasma Theory 1, 2	02YTPLA12	Kulhánek	2+2 z, zk	3+1 z, zk	5	5
Plasma Diagnostics	02YDPLA	Řezáč	-	2+1 z, zk	-	3
Computational Physics 1	12YPFTF1	Klimo, Kuchařík	-	1+1 z, zk	-	2
Technology of Thermonuclear Facilities	02YTTJZ	Entler	-	3+0 zk	-	3
Inertial Fusion Physics	12YFIF	Klimo, Limpouch	3+1 z, zk	-	4	-
Physics of Tokamaks	02YFT	Jex I., Ficker, Mácha	3+1 z, zk	-	4	-
Atomic and Molecular Physics	02YAMF	Břeň	2+2 z, zk	-	4	-
Materials Science	14YNAMA	Čech, Haušild	2+1 kz	-	3	-
Materials Science for Reactors	14YNMR	Haušild	-	2+0 zk	-	2
Laboratory Work in Plasma Physics 1, 2	02YPRPLA12	Brotánková, Svoboda	0+3 z	0+3 kz	5	5
Research Project 1, 2	02VUTF12	Brotánková, Klimo	0+6 z	0+8 kz	6	8
Optional courses:						
Topics in Magnetic Confinement Fusion	02YPMCF	Ficker	-	0+2 kz	-	2
Superconductivity and Low Temperature	11YSUPR	Janů, Ledinský	4+0 zk	-	4	-
Low Temperature Plasmas and Discharges	12YNIPL	Nejdl, Nevrkla	4+0 z, zk	-	4	-
Differential Equations on Computer	12YDRP	Liska, Váchal	2+2 z, zk	-	5	-
Computer Control of Experiment	12YPOEX	Čech, Vyhlídal	-	2+0 z	-	2
Optical Spectroscopy	12YOSP	Michl	-	2+0 kz	-	2
Nuclear Technology Devices	16YZJT	Augsten, Čechák	2+0 zk	-	2	-
Winter (Summer) School of Plasma Physics and Fusion Physics 1, 2 (1)	02YZLSTF12	Svoboda	1 týden z	1 týden z	1	1
Computer Modelling of Plasma	02YPMPL	Plašil	-	2+1 z, zk	-	3
Experimental data analysis in plasma physics	02YEADP	Seidl, Tomeš	-	0+2 z	-	3

(1) The course is intended for students of this program only.

Master´s Degree Programme

Plasma Physics and Thermonuclear Fusion

2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Computational Physics 2	12YPFTF2	Klimo, Kuchařík	2+0 z, zk	-	2	-
Seminar FPTF 1, 2	02YSTFU12	Čeřovský	0+2 z	0+2 z	2	2
ITER and the Accompanying Programme	02YITERA	Ďuran	-	2+0 zk	-	2
Pinches	02YPINCE	Klír	2+0 zk	-	2	-
Thermonuclear Fusion and Society	02YTFS	Svoboda	-	2+0 z	-	2
Master Thesis 1, 2	02DPTF12	Ficker, Klimo	0+10 z	0+20 z	10	20
Optional courses:						
Mathematical Modelling of Non-linear Systems	01YMMNS	Beneš	1+1 zk	-	3	-
Laser Plasma as Source of Radiation and Particles	12YLPZ	Nejdl	2+0 zk	-	2	-
Computer Simulations in Physics of Many Particles 1, 2	12YSFMC12	Předota, Houdek	3+1 z, zk	2+0 zk	4	2
Neutron Dosimetry	16YDNEU	Ploc	2+0 zk	-	2	-
Introduction to Environment	16YZIVO	Čechák, Thinová	2+0 kz	-	2	-
Radiation Effects in Matter	16YREL	Pilařová	2+0 zk	-	2	-
Start-up Project	01YSUP	Rubeš	2+0 kz	-	2	-

Master´s Degree Programme

Solid State Engineering

1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Solid State Theory 1	11YTPL1	Hamrle, Kalvoda	4+0 zk	-	6	-
Physics of Metals	11YFKOV	Seiner	2+0 zk	-	2	-
Semiconductor Physics	11YPOLO	Potůček	4+0 zk	-	4	-
Seminar and Educational Trips 1	11YSAEX1	Drahokoupil, Kolenko	2+2 z	-	4	-
Research Project 1	11VUIP1	Kalvoda	0+6 z	-	6	-
Solid State Theory 2	11YTPL2	Hamrle, Kalvoda	-	2+0 zk	-	3
Seminar on Solid State Theory	11YSTPL	Sedlák, Seiner, Repček	-	0+2 kz	-	2
Physics of Dielectrics	11YFDEL	Aubrechtová, Bryknar	-	2+0 zk	-	2
Physics of Magnetic Materials	11YFMGL	Hamrle, Zajac	-	2+0 zk	-	2
Seminar and Educational Trips 2	11YSAEX2	Drahokoupil, Kolenko	-	2+2 z	-	4
Research Project 2	11VUIP2	Kalvoda	-	0+8 kz	-	8
Required optional courses (1)						
Practical Training in Solid State Structure Analysis	11YPSP	Čapek, Kučeráková	0+4 kz	-	6	-
Practical Training in Electronics	11YEPR	Jiroušek	0+4 kz	-	6	-
Laboratory Trainings in Solid State Physics	11YPFPL	Levinský	-	0+4 kz	-	6
Optional courses:						
Real Time Software	11YRTSW	Dráb, Jiroušek	-	2+0 z	-	2
Superconductivity and Low Temperature	11YSUPR	Janů, Ledinský	4+0 zk	-	4	-
Chemical Aspects of Solids	11YCHA	Knížek	2+0 zk	-	2	-
Metallic Oxides	11YKO	Hejtmánek	-	2+0 zk	-	2
Physics of Solid State Phase Transitions	11YFPPL	Hlinka	-	2+0 zk	-	2
Neutron Diffractometry	11YAND	Kučeráková, Vratislav	2+0 zk	-	2	-
Diffraction Methods of Structural Biology	11YDMSX	Dohnálek	-	2+1 z, zk	-	3
Physical Optics	12YFOPT	Kwiecien	3+0 z, zk	-	3	-
Quantum Optics	12YKOP	Richter, Dvořák	-	3+1 z, zk	-	5
Molecular Nanosystems	11YMONA	Kratochvílová	2+0 zk	-	2	-
Optical Spectroscopy of Inorganic Solids	11YOSAL	Potůček	-	2+0 zk	-	2
Selected Topics in Structure of Condensed Matter	11YVPSX	Drahokoupil	-	1+1 z, zk	-	2
Nano-Materials - Preparation and Properties	11YNAMA	Kratochvílová	-	2+0 zk	-	2

(1) At least one course must be enrolled.

Master´s Degree Programme

Solid State Engineering

2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Computer Simulation of Condensed Matter	11YSIK	Kalvoda, Sedlák, Drahokoupil	2+2 z, zk	-	5	-
Optical Properties of Solids	11YOPTX	Mihóková, Bryknar	2+0 zk	-	2	-
Physics of Surfaces and Interfaces	11YFPOR	Kalvoda, Skočdopole	2+0 zk	-	2	-
Intrinsic Dynamics of Materials	11YVDM	Seiner	2+0 zk	-	2	-
Seminar and Educational Trips 3	11YSAEX3	Drahokoupil, Kolenko	2+2 z	-	4	-
Master Thesis 1	11DPIP1	Kalvoda	0+10 z	-	10	-
Seminar and Educational Trips 4	11YSAEX4	Drahokoupil, Kolenko	-	2+2 z	-	4
Master Thesis 2	11DPIP2	Kalvoda	-	0+20 z	-	20
Optional courses:						
Theory and Construction of Photovoltaic Cells	11YPCPC	Pfleger	2+0 zk	-	2	-
Diffraction Analysis of Mechanical Stress	11YDAN	Ganev, Kraus	2+0 zk	-	2	-
Neutronography in Material Research	11YNMV	Kučeráková, Vratislav	-	2+0 zk	-	2
Smart Materials and Their Applications	11YSMAM	Potůček, Sedlák	-	2+0 zk	-	2
Principles and Applications of Optical Sensors	11YPAO	Aubrecht	-	2+0 zk	-	2
Magnetic Materials	11YMAM	Heczko	2+0 zk	-	2	-
Practical course in optical spectroscopy of solids	11YPOSPL	Aubrechtová, Potůček	0+4 kz	-	4	-
Laboratory in Macromolecular Crystallography 1, 2	11YPMK12	Koval	0+4 kz	0+4 kz	4	4
SEM and Methods of Microbeam Analysis	11YSEM	Kopeček	2+0 zk	-	2	-
Physics of Detection and Detectors of Optical Radiation	12YFDD	Pína	2+0 zk	-	2	-
Physics of Graphene Described by Dirac Equation	02YFG	Jakubský	-	2+0 z	-	2
Start-up Project	01YSUP	Rubeš	2+0 kz	-	2	-

Master´s Degree Programme

Nuclear and Particle Physics

1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Quantum Field Theory 1, 2	02YKTPA12	Jizba, Štefaňák, Zatloukal	4+2 z, zk	4+2 z, zk	8	8
Modern Detectors	02YMTD	Adam	2+0 zk	-	2	-
Statistical Data Analysis 1, 2	02YSZD12	Myška	2+2 z, zk	2+2 z, zk	4	4
Seminar 1, 2	02YSE12	Bielčík	0+3 z	0+3 z	3	3
Research Project 1, 2	02VUJC12	Bielčík	0+6 z	0+8 kz	6	8
Detector Systems and Data Acquisition	02YSDSD	Broz	-	2+0 zk	-	2
Required optional courses type A (1)						
Physics of Ultrarelativistic Nuclear Collisions (2)	02YFUJS	Křížíková Gajdošová	2+0 zk	-	2	-
Selected Topics on Relativistic Nucleus-Nucleus Collisions (2)	02VPJRS	Karpenko, Trzeciak	-	2+1 z, zk	-	3
Accelerators 1, 2 (3)	02YUC12	Krůs	2+0 zk	2+0 zk	2	2
General Theory of Relativity (4)	02YGTR	Tomášik	2+2 z, zk	-	4	-
Optional courses:						
Workshop 2	02YVS2	Bielčík	1 týden z	-	1	-
Special Practicum 1, 2	02YSPRA12	Čepila	0+4 kz	0+4 kz	6	6
Seminar on Quark-Gluon Plasma 3, 4	02YROZ34	Bielčík, Bielčíková, Tomášik	2+0 z	2+0 z	2	2
Physics of Atomic Nuclei	02YFAJ	Adam, Veselý	-	4+0 zk	-	4
Topics in Theory of Probability for Physicists	02YPRF	Šumbera	2+0 z	-	2	-
Astroparticle Physics 1, 2	02YACF12	Vícha	2+0 zk	2+0 zk	2	2
Introduction to Astrophysics	02AST	Del Grande	-	2+0 zk	-	3
Electromagnetic production of mesons	02YEPM	Skoupil	-	2+0 zk	-	3
Practical design of radiation detectors	02YPND	Švihra, Novotný R.	-	1+1 z	-	3
Monte Carlo Method	18YMEMC	Jarý, Virius	2+2 z, zk	-	4	-
Extreme States of Matter	02YEXSH	Bielčík, Šumbera	2+0 zk	-	2	-
Object Oriented Programming	18YOOP	Virius	0+2 z	-	2	-
Application of Data Science	01YADS	Franc	1+2 kz	-	4	-

(1) At least one of the groups E, I or T must be enrolled.
(2) Courses Experimental (E)
(3) Courses Instrumental (I)
(4) Courses Theoretical (T)

Master´s Degree Programme

Nuclear and Particle Physics

2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Fundamentals of Electroweak Theory	02YZELW	Bielčíková	3+2 z, zk	-	6	-
Seminar 3, 4	02YSE34	Bielčík	0+3 z	0+3 z	3	3
Master Thesis 1, 2	02DPJC12	Bielčík	0+10 z	0+20 z	10	20
Quantum Chromodynamics	02YZQCD	Bielčíková	-	3+2 z, zk	-	6
Optional courses:						
Workshop 3	02YVS3	Bielčík	1 týden z	-	1	-
Seminar on Quark-Gluon Plasma 5, 6	02YROZ56	Bielčík, Bielčíková, Tomášik	2+0 z	2+0 z	2	2
Materials in Experimental Nuclear Physics	02YMAT	Škoda	2+0 zk	-	2	-
Nuclear Spectroscopy	02YJSP	Wagner	-	2+2 z, zk	-	5
Physics Beyond Standard Model	02YBSM	Hubáček	2+0 z	-	2	-
Computer Control of Experiments	17YPRE	Kropík	2+1 z, zk	-	3	-
Matrix Lie Group Representations	02YREP	Motlochová	2+0 z	-	2	-
Applied Quantum Chromodynamics at High Energies	02YAQCD	Nemčík	-	2+0 zk	-	2
Particle Plasma Accelerators	02YLPA	Krůs	-	2+0 zk	-	2
Quantum Many-Body Problem in the Theory of Atomic Nuclei	02YKMP	Veselý	2+0 zk	-	2	-
Start-up Project	01YSUP	Rubeš	2+0 kz	-	2	-

Master´s Degree Programme
Nuclear Engineering
Specialization Nuclear Reactors 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Quantum Physics	02YKFM	Jizba	2+1 z, zk	-	3	-
Nuclear Safety	17YJABE	Frýbortová, Sklenka	4+0 zk	-	5	-
Research Project 1, 2	16VUJI12	Trojek	0+6 z	0+8 kz	6	8
Advanced Experimental Neutron Physics	17YPENF	Huml	-	1+3 kz	-	4
Nuclear Reactor Physics	17YFARE	Fejt, Frýbort, Frýbortová	2+2 z, zk	-	4	-
Experimental Reactor Physics	17YERF	Rataj	1+3 kz	-	4	-
Thermohydraulics of Nuclear Reactors	17YTHYR	Kobylka	-	3+1 z, zk	-	4
Reactor Kinetics and Dynamics	17YKID	Huml	-	2+2 z, zk	-	4
Core Physics and Fuel Management	17YPRF	Frýbortová, Sklenka	-	2+1 z, zk	-	3
Required optional courses gruppe 1 (5)						
Nuclear Research Installations	17YVYRE	Sklenka, Matoušková	2+2 zk	-	4	-
Stochastic Methods in Reactor Physics	17YSMRF	Huml	2+2 kz	-	4	-
Deterministic Methods in Reactor Physics (1)	17YDERF	Fejt, Frýbort	-	2+2 kz	-	4
Neutron Activation Analysis (2)	17YNAA	Štefánik	-	2+2 kz	-	4
Required optional courses gruppe 2 (6)						
Gamma-ray Spectroscopy	17YSPEK	Štefánik	2+2 kz	-	4	-
Materials Science	14YNAMA	Čech, Haušild	2+1 kz	-	3	-
Materials Science for Reactors (3)	14YNMR	Haušild	-	2+0 zk	-	2
Chemistry Programme of Nuclear Power Plants	15YPCJE	Drtinová	3+0 z, zk	-	3	-
Optional courses:						
Digital Safety Systems of Nuclear Reactors	17YCIBS	Kropík	2+0 z, zk	-	2	-
Economics of Nuclear Power Plants (4)	17YEK	Starý	2+0 zk	-	2	-
Team project	17YTYPR	Frýbort	2+2 kz	-	4	-

(1) To be enrolled only after passing 17YFARE.
(2) To be enrolled only after passing 17YSPEK.
(3) To be enrolled only after passing 14YNMA
(4) The course can be enrolled only if 17YZEH is not passed.
(5) At least two courses must be enrolled.
(6) At least one course must be enrolled.

Master´s Degree Programme

Nuclear Engineering

Specialization Nuclear Reactors 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Metrology of Ionizing Radiation	16YMEIZ	Novotný P., Trojek	2+1 z, zk	-	4	-
Applications of Ionizing Radiation 1	16YAPIZ1	Čechák, Trojek	3+0 zk	-	3	-
Master Thesis 1, 2	16DPJI12	Trojek	0+10 z	0+20 z	10	20
Applications of Ionizing Radiation 2	17YAPIZ2	Miglierini, Štefánik	-	2+1 z, zk	-	3
Thermomechanics of Nuclear Fuels	17YTERP	Ševeček	2+2 z, zk	-	4	-
Internship in Nuclear Power Plant	17YPAJE	Nývlt	1 týden z	-	2	-
New Nuclear Sources	17YNJZ	Bílý	3+0 zk	-	3	-
Required optional courses gruppe 1 (4)						
Safety Analyses of Nuclear Installations	17YBAJZ	Fejt, Frýbortová	2+2 kz	-	4	-
Thermohydraulic Design of Nuclear Reactors (1)	17YTHAR	Kobylka	2+2 zk	-	4	-
Thermomechanical Design of Nuclear Fuels (2)	17YTNAP	Ševeček	-	2+2 kz	-	4
Accidents in Nuclear Installations	17YHAV	Fejt, Nývlt, Rýdl	-	2+2 kz	-	4
Required optional courses gruppe 2 (5)						
Spent Nuclear Fuel and Radioactive Wastes	17YVRAO	Losa	3+1 zk	-	4	-
Critical Experiment (3)	17YKEX	Huml, Rataj	1+3 kz	-	4	-
Advanced Experimental Reactor Physics (3)	17YPERF	Huml, Rataj	-	1+3 kz	-	4
Optional courses:						
Simulation of NPP Operational States	17YSIPS	Kobylka	-	0+3 kz	-	3
Radiation Protection of Nuclear Facilities	17YROJ	Starý	-	2+0 zk	-	2
Start-up Project	01YSUP	Rubeš	2+0 kz	-	2	-

(1) To be enrolled after passing 17YTHYR.
(2) To be enrolled after passing 17YTERP.
(3) To be enrolled after passing 17YERF.
(4) At least two courses must be enrolled.
(5) At least one course must be enrolled.

Master´s Degree Programme

Physical Electronics

Specialization Laser Physics and Technology 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Electrodynamics 1, 2	12YELDY12	Čtyroký, Jirka, Kwiecien	2+0 z, zk	4+0 z, zk	3	5
Computational Physics 1	12YPF1	Klimo, Kuchařík	2+0 zk	-	2	-
Research Project 1, 2	12VUFL12	Šiňor	0+6 z	0+8 kz	6	8
Optical Physics	12YFOPT	Kwiecien	3+0 z, zk	-	3	-
Quantum Electronics	12YKVEN	Richter, Dvořák	3+1 z, zk	-	5	-
Open Resonators	12YOREZ	Kubeček, Frank	2+1 z, zk	-	4	-
Nonlinear Optics	12YNOP	Richter	-	3+1 z, zk	-	4
Laser Physics	12YFLA	Šulc	-	4+0 z, zk	-	4
Solid-state, Diode and Dye lasers	12YPDBL	Jelínková, Kubeček, Němec, Jelínek	-	2+0 z, zk	-	2
Computer Control of Experiment	12YPOEX	Čech, Vyhlídal	-	2+0 z	-	2
Optional courses:						
Statistical Optics	12YSOP	Richter	2+0 z, zk	-	2	-
Geometrical Optics	12YGOP	Dvořák	-	2+0 kz	-	2
Optical Spectroscopy	12YOSP	Michl	-	2+0 kz	-	2
Quantum Optics	12YKOP	Richter, Dvořák	-	3+1 z, zk	-	5
Physics of Detection and Detectors of Optical Radiation	12YFDD	Pína	2+0 zk	-	2	-
X-ray Photonics	12YRFO	Pína	2 zk	-	2	-
Laser Plasma as Source of Radiation and Particles	12YLPZ	Nejdl	2+0 zk	-	2	-
Electronics 3	12YEL3	Pavel	2+0 zk	-	2	-
Advanced Practicum in Electronics 1, 2 (1)	12YEP12	Pavel	0+2 kz	0+2 kz	3	3

(1) Enrollment on12YEP12 possible if 12YEL3 is enrolled or passed.

Master´s Degree Programme

Physical Electronics

Specialization Laser Physics and Technology 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Solid State Physics	11YFYPL	Aubrechtová, Kučeráková, Kalvoda	3+1 z, zk	-	4	-
Master Thesis Seminar 1, 2	12YDSFE12	Jelínková	0+2 z	0+2 z	2	2
Master Thesis 1, 2	12DPFE12	Jelínková	0+10 z	0+20 z	10	20
Ultra-short Pulse Generation	12YUKP	Jelínek, Kubeček	2+0 zk	-	2	-
Advanced Laser Technology Laboratory	12YPPLT	Kubeček, Němec	0+4 kz	-	6	-
Gas and X-ray Lasers	12YRGL	Jančárek	-	2+0 kz	-	2
Optional courses:						
Electronics for Lasers	12YELA	Pavel	2+0 zk	-	2	-
Advanced Laser Spectroscopy	12YPLS	Michl	2+0 zk	-	2	-
Fourier Optics and Optical Signal Processing	12YOZS	Kwiecien, Richter	3+0 z, zk	-	3	-
Laser in Medicine	12YPLM	Jelínková, Němec	-	4 kz	-	6
Advanced Optical Laboratory	12YPPRO	Jančárek	0+4 kz	-	6	-
Laser, Plasma and Bundle Technologies	12YLPST	Jančárek, Jelínková	-	2+2 zk	-	4
Fiber Lasers and Amplifiers	12YVLS	Peterka	2+0 zk	-	3	-
Measurements Methods in Electronics and Optics	12YMMEO	Pína	-	2+0 zk	-	2
Start-up Project	01YSUP	Rubeš	2+0 kz	-	2	-

Master´s Degree Programme

Mathematical Physics

1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Geometric Methods in Physics 2	02YGMF2	Šnobl, Vysoký	-	2+2 z, zk	-	5
Finite Groups and Representations	02YGR	Chadzitaskos	2+1 z, zk	-	3	-
Quantum Physics	02YKFA	Jex I., Jex M.	-	4+2 z, zk	-	6
Quantum Field Theory 1, 2	02YKTPA12	Jizba, Štefaňák, Zatloukal	4+2 z, zk	4+2 z, zk	8	8
Lie Algebras and Lie Groups	02YLAG	Šnobl	4+2 z, zk	-	7	-
Research Project 1, 2	02VUMF12	Šnobl, Štefaňák	0+6 z	0+8 kz	6	8
Winter School of Mathematical Physics (1)	02YZS	Hrivnák	1 týden z	-	1	-
Optional courses:						
Solvable Models of Mathematical Physics (2)	02YRMMF	Hlavatý	-	2+0 z	-	2
Introduction to Strings 1, 2 (2)	02YUST12	Vysoký	2+1 z	2+1 z	3	3
Quantum Optics 1, 2	02YKO12	Jex, Potoček	2+2 z, zk	2+2 z, zk	4	4
Open Quantum Systems	02YOKS	Novotný	-	2+0 z	-	2
Quantum Information and Communication	02YQIC	Gábris, Štefaňák	3+1 z, zk	-	4	-
Quantum Programming	02YQPRGA	Gábris, Yalcinkaya	-	1+1 z	-	3
Advanced Topics of Quantum Theory	02YPPKT	Exner	-	2+0 zk	-	2
Numerical relativity	02YNGR	Schmidt	-	2 zk	-	2
Functional Analysis 3	01YFAN3	Šťovíček	2+2 z, zk	-	5	-
Theory of Random Processes	01YNAH	Vybíral	3+0 zk	-	3	-
Variational Methods	01YVAM	Beneš	1+1 zk	-	3	-
Graph Theory	01YTG	Pelantová, Ambrož	4+0 zk	-	5	-

(1) For students of this field only.
(2) These courses alternate with each other. In the academic year 2024/2025 the course 02YUST12 takes place.

Master´s Degree Programme

Mathematical Physics

2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Algebraic Topology	02YALT	Vysoký	2+2 z, zk	-	4	-
Master Thesis 1, 2	02DPMF12	Šnobl, Štefaňák	0+10 z	0+20 z	10	20
Master Thesis Seminar	02YDSMF	Hrivnák	-	0+2 z	-	1
Selected Topics in Statistical Physics and Thermodynamics	02YVPSFA	Jex, Novotný	4+2 z, zk	-	7	-
Optional courses:						
Relativistic Physics 1, 2	02YREL12	Semerák	4+2 z, zk	4+2 z, zk	6	6
Quantum Information and Communication	02YQIC	Gábris, Štefaňák	3+1 z, zk	-	4	-
Integrability and beyond	02YINB	Šnobl, Marchesiello	-	2+0 z	-	2
Physics of Graphene Described by Dirac Equation	02YFG	Jakubský	-	2+0 z	-	2
Quantum chemistry	02YKCH	Jex M.	2+1 z, zk	-	3	-
Quantum Circle 1, 2	02YKVK12	Exner	0+2 z	0+2 z	2	2
Solvable Models of Mathematical Physics (1)	02YRMMF	Hlavatý	-	2+0 z	-	2
Introduction to Strings 1, 2 (1)	02YUST12	Vysoký	2+1 z	2+1 z	3	3
Coxeter Groups	02YCOX	Hrivnák	2+0 z	-	2	-
Seminar on Quantum Field Theory 1, 2	02YSKTPE12	Jizba	2+1 z	2+1 z	3	3
Numerical relativity	02YNGR	Schmidt	-	2 zk	-	2
Symmetry Groups of Quantum Systems	02YGSKS	Tolar	2+0 zk	-	2	-
Quantum Groups 1	01YKVGR1	Burdík	2+0 z	-	2	-
Mathematical Modelling of Non-linear Systems	01YMMNS	Beneš	1+1 zk	-	3	-
Geometrical Aspects of Spectral Theory	01YSPEC	Krejčiřík	-	2+0 zk	-	2
Asymptotical Methods	01YASY	Mikyška	2+1 z, zk	-	3	-

(1) These courses alternate according to regulations of the department. In the academic year 2024/2025 the course 02YUST12 takes place.

Master´s Degree Programme

Physical Electronics

Specialization Computational Physics 1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Electrodynamics 1, 2	12YELDY12	Čtyroký, Jirka, Kwiecien	2+0 z, zk	4+0 z, zk	3	5
Computational Physics 1	12YPF1	Klimo, Kuchařík	2+0 zk	-	2	-
Research Project 1, 2	12VUFL12	Šiňor	0+6 z	0+8 kz	6	8
Differential Equations on Computer	12YDRP	Liska, Váchal	2+2 z, zk	-	5	-
Parallel Algorithms and Architectures	01YPAA	Oberhuber	-	2+1 kz	-	4
Inertial Fusion Physics	12YFIF	Klimo, Limpouch	3+1 z, zk	-	4	-
Computational Physics 2	12YPF2	Klimo, Kuchařík	-	1+1 z, zk	-	2
Finite Element Method	01YMKP	Beneš	-	1+1 zk	-	3
Fundamentals of Laser-Plasma Physics	12YZFLP	Klimo, Pšikal	-	2+0 zk	-	2
Digital Image Processing	01YDIZO	Flusser, Zitová	-	2+2 zk	-	4
Optional courses:						
Object Oriented Programming	18YOOP	Virius	0+2 z	-	2	-
Computer Simulations in Physics of Many Particles 1, 2	12YSFMC12	Předota, Houdek	3+1 z, zk	2+0 zk	4	2
Quantum Electronics	12YKVEN	Richter, Dvořák	3+1 z, zk	-	5	-
Quantum Optics	12YKOP	Richter, Dvořák	-	3+1 z, zk	-	5
Laser Plasma as Source of Radiation and Particles	12YLPZ	Nejdl	2+0 zk	-	2	-
Variational Methods	01YVAM	Beneš	1+1 zk	-	3	-
Introduction to Mainframe	01YUMF	Oberhuber	1+1 z	-	2	-
Mathematical Methods in Fluid Dynamics	01YMMDY	Strachota	2+0 zk	-	2	-
Numerical Methods in Fluid Dynamics	01YNMDT	Strachota	-	2+0 zk	-	2
Graph Theory	01YTG	Pelantová, Ambrož	4+0 zk	-	5	-
Quantum Information and Communication	02YQIC	Gábris, Štefaňák	3+1 z, zk	-	4	-

Master´s Degree Programme

Physical Electronics

Specialization Computational Physics 2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Solid State Physics	11YFYPL	Aubrechtová, Kučeráková, Kalvoda	3+1 z, zk	-	4	-
Master Thesis Seminar 1, 2	12YDSFE12	Jelínková	0+2 z	0+2 z	2	2
Master Thesis 1, 2	12DPFE12	Jelínková	0+10 z	0+20 z	10	20
Atomic Physics	12YAF	Šiňor	4+0 z, zk	-	4	-
Robust Numerical Algorithms	12YRNA	Váchal	1+1 z	-	2	-
Optional courses:						
Monte Carlo Method	18YMEMC	Jarý, Virius	2+2 z, zk	-	4	-
Mathematical Modelling of Non-linear Systems	01YMMNS	Beneš	1+1 zk	-	3	-
X-ray Photonics	12YRFO	Pína	2 zk	-	2	-
Mathematical Logic	01YMAL	Cintula	2+1 z, zk	-	4	-
Laser Plasma as Source of Radiation and Particles	12YLPZ	Nejdl	2+0 zk	-	2	-
Machine Learning 1	01YSU1	Flusser	2+1 zk	-	3	-
Nonlinear Optics	12YNOP	Richter	-	3+1 z, zk	-	4
Start-up Project	01YSUP	Rubeš	2+0 kz	-	2	-

Master´s Degree Programme

Quantum Technologies

1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Quantum Information and Communication	02YQIC	Gábris, Štefaňák	3+1 z, zk	-	4	-
Quantum Optics 1, 2	02YKO12	Jex, Potoček	2+2 z, zk	2+2 z, zk	4	4
Quantum Field Theory 1, 2	02YKTPA12	Jizba, Štefaňák, Zatloukal	4+2 z, zk	4+2 z, zk	8	8
Quantum Generators of Optical Radiation 1	12YKGOZ1	Jelínek, Jelínková, Němec	2+0 zk	-	2	-
Quantum Generators of Optical Radiation 2	12YKGOZ2	Šulc	-	2+2 z, zk	-	4
Theory of Solid State 1, 2	11YTPLQ12	Hamrle, Seiner	2+2 z, zk	2+2 z, zk	4	4
Research Project 1, 2	02VUQT12	Hamrle, Štefaňák, Šulc	0+6 z	0+8 kz	6	8
Optional courses:						
Information Theory	01YTIN	Hobza	2+0 zk	-	2	-
Graph Theory	01YTG	Pelantová, Ambrož	4+0 zk	-	5	-
Quantum Programming	02YQPRGA	Gábris, Yalcinkaya	-	1+1 z	-	3
Open Quantum Systems	02YOKS	Novotný	-	2+0 z	-	2
Matrix Lie Group Representations	02YREP	Motlochová	2+0 z	-	2	-
Statistical Data Analysis 1, 2	02YSZD12	Myška	2+2 z, zk	2+2 z, zk	4	4
Accelerators 1, 2	02YUC12	Krůs	2+0 zk	2+0 zk	2	2
Advanced C++	18YPCP	Virius	-	2+2 z, zk	-	4
Object Oriented Programming	18YOOP	Virius	0+2 z	-	2	-
Monte Carlo Method	18YMEMC	Jarý, Virius	2+2 z, zk	-	4	-
Superconductivity and Low Temperature	11YSUPR	Janů, Ledinský	4+0 zk	-	4	-
Molecular Nanosystems	11YMONA	Kratochvílová	2+0 zk	-	2	-
Nano-Materials - Preparation and Properties	11YNAMA	Kratochvílová	-	2+0 zk	-	2
Statistical Optics	12YSOP	Richter	2+0 z, zk	-	2	-
Nonlinear Optics	12YNOP	Richter	-	3+1 z, zk	-	4

Master´s Degree Programme

Quantum Technologies

2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Quantum Field Theory 3	02YKTPA3	Jizba, Zatloukal	4+2 z, zk	-	8	-
Master Thesis 1, 2	02DPQT12	Hamrle, Štefaňák, Šulc	0+10 z	0+20 z	10	20
Optional courses:						
Selected Topics in Statistical Physics and Thermodynamics	02YVPSFA	Jex, Novotný	4+2 z, zk	-	7	-
Seminar on Quantum Field Theory 1, 2	02YSKTPE12	Jizba	2+1 z	2+1 z	3	3
Quantum Circle 1, 2	02YKVK12	Exner	0+2 z	0+2 z	2	2
Quantum Chemistry	02YKCH	Jex M.	2+1 z, zk	-	3	-
Physics of Graphene Described by Dirac Equation	02YFG	Jakubský	-	2+0 z	-	2
Physics of Detection and Detectors of Optical Radiation	12YFDD	Pína	2+0 zk	-	2	-
Open Resonators	12YOREZ	Kubeček, Frank	2+1 z, zk	-	4	-
X-ray Photonics	12YRFO	Pína	2 zk	-	2	-
Ultra-short Pulse Generation	12YUKP	Jelínek, Kubeček	2+0 zk	-	2	-
Selected Chapters of Modern Optics	12YMODO	Kwiecien, Marešová	2+0 z	-	2	-
Nanophysics	12YNF	Šiňor, Richter	1+1 zk	-	2	-
Nonlinear Optics	12YNOP	Richter	-	3+1 z, zk	-	4
Quantum Chromodynamics	02YZQCD	Bielčíková	-	3+2 z, zk	-	6
Fundamentals of Electroweak Theory	02YZELW	Bielčíková	3+2 z, zk	-	6	-
Computer Simulation of Condensed Matter	11YSIK	Kalvoda, Sedlák, Drahokoupil	2+2 z, zk	-	5	-
Physics of Surfaces and Interfaces	11YFPOR	Kalvoda, Skočdopole	2+0 zk	-	2	-
Optical Properties of Solids	11YOPTX	Mihóková, Bryknar	2+0 zk	-	2	-
Start-up Project	01YSUP	Rubeš	2+0 kz	-	2	-

Master´s Degree Programme

Decommissioning of Nuclear Facilities

1st year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Nuclear Facilities Decommissioning	16YVJZ	Thinová, Trojek	3+1 z, zk	-	4	-
Contamination and Methods of Decontamination 1, 2	15YKMD12	Čubová, Semelová	2+0 zk	3+0 zk	2	3
Data Processing - Prognoses and Risk Assessment	16YRISK	Pilařová, Štěpán	3+2 z, zk	-	5	-
Equipment of Nuclear Power Plants	17YZAJE	Kobylka	3+0 zk	-	3	-
Chemistry of Problematic Radionuclides	15YCHPR	Němec	2+0 zk	-	2	-
Structures and Properties of Materials	14YSAVM	Lauschmann	2+1 zk	-	3	-
Research Project 1, 2	17VUV12	Kobylka	0+6 z	0+8 kz	6	8
Radioactive Waste and Spent Nuclear Fuel Management 1	15YNRO1	Čubová, Losa	-	3+0 zk	-	3
Laboratory Exercises 1	15YLAC1	Čubová, Němec	-	0+5 kz	-	4
Monte Carlo Method in Radiation Physics	16YMCRF	Klusoň, Urban	-	2+2 z, zk	-	4
Fuel Cycle of Nuclear Facilities	17YPCJZ	Losa, Sklenka, Starý	-	2+0 zk	-	2
Chemistry Programme of Nuclear Power Plants	15YPCJE	Drtinová	3+0 z, zk	-	3	-
Excursion 4	16YEXK4	Thinová	-	1 week z	-	2
Optional courses:						
Instrumentation for Radiation Measurements	16YMER	Průša	2+0 zk	-	2	-
Modelling and Simulation of Radionuclide Migration in the Environment	15YMSZP	Vopálka, Vetešník	2+1 z, zk	-	3	-
New Nuclear Sources	17YNJZ	Bílý	3+0 zk	-	3	-
Monte Carlo Method	18YMEMC	Virius, Gašpar	2+2 z, zk	-	4	-
Separation Methods in Nuclear Chemistry 1	15YSMJ1	Němec	3+0 zk	-	3	-
Separation Methods in Nuclear Chemistry 2	15YSMJ2	Němec	-	2+0 zk	-	2
Nuclear Research Installations	17YVYRE	Sklenka, Matoušková	2+2 zk	-	4	-
Methods of Analytical Measurement	16YAMMN	Pilařová, Průšová	-	2+0 kz	-	2
Radiation Chemistry	15YARCHA	Čuba	2+0 zk	-	2	-
Materials Science for Reactors	14YNMR	Haušild	-	2+0 zk	-	2
Determination of Radionuclides in Environment	15YSRZP	Němec	-	2+0 zk	-	2

Master´s Degree Programme

Decommissioning of Nuclear Facilities

2nd year

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Methods of Monitoring and Metrology	16YMEMO	Možnar, Novotný P.	2+1 z, zk	-	3	-
Radioactive Waste and Spent Nuclear Fuel Management 2	15YNRO2	Čubová, Losa	3+0 zk	-	3	-
Economics of Nuclear Facilities	17YEK	Starý	2+0 zk	-	2	-
Safety Analyses	17YBAL	Frýbort, Rataj	2+0 zk	-	2	-
Laboratory Exercises 2	17YLAC2	Rataj, Štefánik	0+4 kz	-	4	-
Legislation	16YLEG	Martinčík, Trojek	2+0 zk	-	2	-
Internship	15YPAX	Čuba	1 týden z	-	2	-
Master Thesis 1, 2	15DPV12	Němec	0+10 z	0+20 z	10	20
Expert Seminar	16YSEMO	Pilařová	-	0+3 kz	-	3
Communication with Public	16YKVR	Fojtíková	-	0+2 z	-	2
Optional courses:						
Spectrometry in Dosimetry	16YSPD	Čechák, Novotný P.	2+0 zk	-	2	-
Mathematical Methods and Modelling	16YMMM	Klusoň, Urban	0+2 z	-	2	-
Neutron Dosimetry	16YDNEU	Ploc	2+0 zk	-	2	-
Radiation Effects in Matter	16YREL	Pilařová	2+0 zk	-	2	-
Aplication of Radionuclides 1	15YNUK1	Mizera	2+0 zk	-	3	-
Aplication of Radionuclides 2	15YNUK2	Mizera	-	2+0 zk	-	3
Dosimetry of Internal Radiation Sources	16YDZAR	Musílek	-	2+0 zk	-	2
Application of Radiation Methods	15YAPRM	Múčka, Prouzová, Bárta	-	2+0 zk	-	2
Start-up Project	01YSUP	Rubeš	2+0 kz	-	2	-
Waste Management in Decommissioning Projects (1)	15YWMD	Němec, Čubová	2+2	-	6	-
Planning and Implementation of Decommissioning Projects (1)	15YPID	Němec, Čubová	4+0	-	6	-
Decommissioning Technologies (1)	16YDETE	Trojek, Kořistka	2+2	-	6	-
Installation Charactherization (1)	17YCHAIN	Rataj, Frýbortová	2+2	-	6	-
Policy, Strategy and Licencing Process for Decommissioning (1)	17YPOSTLIP	Sklenka, Martinčík	4+0	-	6	-

(1) Enrolment in these courses is subject to completion of the previous courses in the ERASMUS Mundus "Decommissioning and Environmental Remediation Courses" programme.