



Czech Technical University in Prague

**Curricula
2018-2019**

**Faculty of Nuclear Sciences
and Physical Engineering**

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 2018 – 2019

Beginning of academic year Oct 1 2018
End of academic year Sep 22 2019

Enrollment

Sep 3 – 5 2018 1st year of bachelor's programme
Sep 11 – 13, 18 – 20, 25 - 27 2018 higher years
Sep 24 – 27 2018 preparatory week for new bachelor students

Winter semester

Oct 9 2018 Commencement Ceremony for new students
Oct 1 2018 – Jan 4 2019 scheduled classes (13 weeks)
Dec 24 2018 – Jan 1 2019 winter holidays
Jan 7 2019 – Feb 17 2019 examination period

until Nov 30 2018 applications for February final examinations
until Jan 7 2019 theses submission for February final examinations
until Jan 22 2019 closure of results for February final examinations
Feb 4 – Feb 15 2019 February final examinations

Summer semester

Feb 5 – 14 2019 enrollment to summer semester
Feb 18 – May 17 2019 scheduled classes (13 weeks)
May 20 – Jun 30 2019 examination period
Jul 1 – Sep 1 2019 summer holidays
Sep 2 – Sep 22 2019 extended examination period

until Mar 31 2019 applications for June final examinations
until May 6 2019 theses submission for June final examinations
until May 23 2019 closure of results for June final examinations
until May 31 2019 applications for September final examinations
until Jul 8 2019 theses submission for September final examinations
until Aug 14 2019 closure of results for September final examinations

Jun 3 – 14 2019 June final examinations
Sep 2 – Sep 13 2019 September final examinations

Oct 23 2018 and Jun 27 2019 Graduation Days
May 15 2019 Rector's Day

LIST OF DEPARTMENTS

department	abbreviation	code
Department of Mathematics	KM	01
Department of Physics	KF	02
Department of Languages	KJ	04
Department of Solid State Engineering	KIPL	11
Department of Physical Electronics	KFE	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

DEGREE PROGRAM STRUCTURE

FIELDS OF STUDY AND GRADUATE PROFILES

BACHELOR'S DEGREE PROGRAM

APPLICATION OF NATURAL SCIENCES

The program is taught in Czech only

degree	code	abbreviation	time extent
Mathematical Engineering	3901R021	MI	3
Mathematical Informatics	3901R058	MINF	3
Computational Physics	3901R065	IF	3
Applications of Software Engineering	3901R056	ASI	3
Applied Informatics	3901R057	APIN	3
Nuclear Engineering	3901R016	JI	3
Dosimetry and Applications of Ionising Radiation	3901R060	DAIZ	3
Experimental Nuclear and Particle Physics	3901R061	EJCF	3
Radiological Technology	3901R033	RT	3
Solid State Engineering	3901R066	IPL	3
Diagnostics of Materials	3901R059	DM	3
Physics and Technology of Thermonuclear Fusion	3901R062	FTTF	3
Physical Electronics	3901R063	FE	3
Laser and Instrument Technology	3901R067	LPT	3
Physical Technology	3901R064	FYT	3
Nuclear Chemistry	3901R072	JCH	3

MASTER'S DEGREE PROGRAM
APPLICATION OF NATURAL SCIENCES

The program is taught in Czech and English

degree	code	abbreviation	time extent
Mathematical Engineering	3901T021	MI	2
Mathematical Physics	3901T069	MF	2
Applied Mathematical Stochastic Methods	3901T068	AMSM	2
Mathematical Informatics	3901T058	MINF	2
Computational Physics	3901T065	IF	2
Applications of Software Engineering	3901T056	ASI	2
Nuclear Engineering	3901T016	JI	2
Dosimetry and Applications of Ionising Radiation	3901T060	DAIZ	2
Experimental Nuclear and Particle Physics	3901T061	EJCF	2
Radiological Physics	3901T034	RF	2
Solid State Engineering	3901T066	IPL	2
Diagnostics of Materials	3901T059	DM	2
Physics and Technology of Thermonuclear Fusion	3901T062	FTTF	2
Laser Technology and Electronics	3901T070	LTE	2
Optics and Nanostructures	3901T071	ON	2
Nuclear Chemistry	3901T072	JCH	2

MASTER'S DEGREE PROGRAM

Master's Degree Program

Mathematical Engineering

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Variational Methods	01VAM	Beneš	2 zk	-	3	-
Functional Analysis 3	01FA3	Havlíček	2+1 z, zk	-	3	-
Introduction to Graph Theory	01ZTG	Ambrož	4+0 zk	-	4	-
Advanced Methods of Numerical Linear Algebra	01PNLA	Mikyška	2+0 zk	-	3	-
Matrix Theory	01TEMA	Pelantová	2+0 z	-	3	-
Theory of Random Processes	01NAH	Hobza	3+0 zk	-	3	-
Asymptotical Methods	01ASY	Mikyška	-	2+1 z, zk	-	3
Finite Element Method	01MKP	Beneš	-	2 zk	-	3
Research Project 1, 2	01VUMM12	Hobza	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Dynamic Decision Making 1	01DRO1	Guy, Kárný	-	2+0 zk	-	2
Modern Theory of Partial Differential Equations	01PDR	Tušek	-	2+0 zk	-	2
Monte Carlo Method	18MMC	Virus	2+2 z	-	4	-
Image Processing and Pattern Recognition 1	01ROZ1	Flusser, Zitová	-	2+2 zk	-	4
Diagnostic Signal Analysis and Processing	01ZASIG	Převorovský	-	3+0 zk	-	3
Quantum Physics	01KF	Havlíček	-	4+2 z, zk	-	6
Differential Equations on Computer	12DRP	Liska	2+2 z, zk	-	5	-
Neural Networks and their Application	01NEUR1	Hakl, Holeňa	-	2+0 zk	-	2
Logic for Mathematicians	01LOM	Cintula	-	2+0 zk	-	2
Information Theory	01TIN	Hobza	2+0 zk	-	2	-
Regression Data Analysis	01REAN	Franc, Víšek	2+2 z, zk	-	4	-
Probabilistic Models of Artificial Intelligence	01UMIN	Vejnarová	2+0 kz	-	2	-
Complexity Theory	01TSLO	Majerech	3+0 zk	-	3	-
Parallel Algorithms and Architectures	01PAA	Oberhuber	-	3 kz	-	4
Advanced algorithmization	01PALG	Oberhuber	2 kz	-	2	-
Applications of Statistical Methods	01ASM	Hobza	-	2+0 kz	-	2
Mathematical Methods in Fluid Dynamics 1, 2 ⁽¹⁾	01MMDT12	Fořt, Neustupa	2+0 z	2+0 zk	2	2
Number Theory	01TC	Masáková, Pelantová	-	4+0 zk	-	4
Aperiodic Structures 1, 2	01APST12	Masáková	2+0 z	2+0 z	2	2
Differential Calculus on Manifolds	01DPV	Tušek	-	2+0 zk	-	2
Mathematical Methods in Biology and Medicine	01MBI	Klika	2+1 kz	-	3	-
Gemoetrical Aspects of Spectral Theory	02SPEC	Krejčířik	-	2+0 zk	-	2
Database System Decomposition	18DATS	Kukal	-	2+2 kz	-	4
Financial and Insurance Mathematics	01FIMA	Hora	2+0 zk	-	2	-
Lie Algebras and Lie Groups	02LIAG	Šnobl	-	3+2 z, zk	-	6
Object Oriented Programming	18OOP	Virus	0+2 z	-	2	-
Student Scientific Conference	01SVK	Mikyška	-	5 dní z	-	1

(1) The contents is linked to an optional subject within the final state examination.

Master's Degree Program

Mathematical Engineering

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Nonlinear Programming	01NELI	Burdík	3+0 zk	-	4	-
Mathematical Modelling of Non-linear Systems	01MMNS	Beneš	2 zk	-	3	-
Diploma Seminar	01DSEMI	Ambrož	-	0+2 z	-	3
Master Thesis 1, 2	01DPMM12	Ambrož	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Methods for Sparse Matrices	01MRM	Mikyška	2+0 zk	-	2	-
Numerical Software	01NUSO	Fürst	2+0 z	-	3	-
Dynamic Decision Making 2	01DRO2	Guy, Kárný	2+0 zk	-	2	-
Mathematical Logic	01MAL	Cintula	2+1 z, zk	-	4	-
Theoretical Bases of Neural Networks	01NEUR2	Hakl, Holeňa	2+0 zk	-	3	-
Probabilistic Learning Models	01PMU	Hakl	2+0 zk	-	2	-
Stochastic Methods	01STOM	Franc	2+0 kz	-	2	-
Image Processing and Pattern Recognition 2	01ROZP2	Flusser	2+1 zk	-	4	-
Method of Finite Volumes	01MKO	Beneš	1+1 kz	-	2	-
Special Functions and Transformations in Image Analysis	01SFTO	Flusser	-	2+0 zk	-	2

Master's Degree Program

Mathematical Physics

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Quantum Field Theory 1	02KTP1	Hořejší	4+2 z, zk	-	9	-
Groups and Representations	02GR	Chadzitaskos	2+1 z, zk	-	3	-
Quantum Physics	01KF	Havlíček	-	4+2 z, zk	-	6
Geometric Methods in Physics 2	02GMF2	Tolar	-	2+2 z, zk	-	5
Lie Algebras and Lie Groups	02LIAG	Šnobl	-	3+2 z, zk	-	6
Winter School of Mathematical Physics ⁽¹⁾	02ZS	Tolar	1 týden z	-	1	-
Research Project 1, 2	02VUMF12	Hlavatý, Tolar	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Quantum Field Theory 2	02KTP2	Hořejší	-	4+2 z, zk	-	6
Quantum Information and Communication	02KIK	Jex	2+0 z	-	2	-
Functional Analysis 3	01FA3	Havlíček	2+1 z, zk	-	3	-
Asymptotical Methods	01ASY	Mikyška	-	2+1 z, zk	-	3
Theory of Random Processes	01NAH	Hobza	3+0 zk	-	3	-
Variational Methods	01VAM	Beneš	2 zk	-	3	-
Advanced Topics of Quantum Theory	02PPKT	Exner	-	2+0 zk	-	2
Relativistic Physics 1	02REL1	Bičák, Semerák	4+2 z, zk	-	6	-
Relativistic Physics 2	02REL2	Bičák, Semerák	-	4+2 z, zk	-	6
Introduction to Graph Theory	01ZTG	Ambrož	4+0 zk	-	4	-
Quantum Circle 1, 2	02KVK12	Exner	0+2 z	0+2 z	2	2
Solvable Models of Mathematical Physics ⁽²⁾	02RMMF	Hlavatý	-	2+0 z	-	2
Introduction to Strings 1, 2 ⁽²⁾	02UST12	Hlavatý	2+1 z	2+1 z	3	3
Open Quantum Systems	02OKS	Novotný	-	2+0 z	-	2

(1) The course is devoted for the students of this field only.

(2) These courses are alternatively open according to the announcement of the department.

Master's Degree Program

Mathematical Physics

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Cohomological Methods in Theoretical Physics	02KOHOM	Tolar	2 zk	-	5	-
Selected Topics in Statistical Physics and Thermodynamics	02VPSF	Jex	2+2 z, zk	-	7	-
Master Thesis 1, 2	02DPMF12	Hlavatý, Tolar	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Relativistic Physics 1	02REL1	Bičák, Semerák	4+2 z, zk	-	6	-
Relativistic Physics 2	02REL2	Bičák, Semerák	-	4+2 z, zk	-	6
Quantum Information and Communication	02KIK	Jex	2+0 z	-	2	-
Quantum Groups 1	01KVGR1	Burdík	2+0 z	-	2	-
Mathematical Modelling of Non-linear Systems	01MMNS	Beneš	2 zk	-	3	-
Quantum Circle 1, 2	02KVK12	Exner	0+2 z	0+2 z	2	2
Introduction to Graph Theory	01ZTG	Ambrož	4+0 zk	-	4	-
Solvable Models of Mathematical Physics ⁽¹⁾	02RMMF	Hlavatý	-	2+0 z	-	2
Introduction to Strings 1, 2 ⁽¹⁾	02UST12	Hlavatý	2+1 z	2+1 z	3	3
Gemoetrical Aspects of Spectral Theory	02SPEC	Krejčířik	-	2+0 zk	-	2
Coxeter Groups	02COX	Hrivnák	2+0 z	-	2	-

(1) These courses are alternatively open according to the announcement of the department.

Master's Degree Program

Applied Mathematical Stochastic Methods

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Information Theory	01TIN	Hobza	2+0 zk	-	2	-
Dynamic Decision Making 1	01DRO1	Guy, Kárný	-	2+0 zk	-	2
Mathematical Models of Traffic Systems	01MMDS	Krbálek	-	2+2 z, zk	-	4
Theory of Random Processes	01NAH	Hobza	3+0 zk	-	3	-
Generalized Linear Models and Applications	01ZLIM	Hobza, Víšek	-	2+1 zk	-	3
Monte Carlo Method	18MMC	Vírius	2+2 z	-	4	-
Selected Topics in Functional Analysis	01VPF	Šťoviček	2+2 z, zk	-	4	-
System Reliability and Clinical Experiments	01SKE	Kůs	-	2+0 kz	-	3
Bayesian Principles in Statistics	01BAPS	Kůs	3+0 zk	-	3	-
Modelling of Extreme Events	01MEX	Krbálek, Kůs	-	2+0 zk	-	2
Regression Data Analysis	01REAN	Franc, Víšek	2+2 z, zk	-	4	-
Image Processing and Pattern Recognition 1	01ROZ1	Flusser, Zitová	-	2+2 zk	-	4
Research Project 1, 2	01VUAM12	Hobza	0+6 z	0+8 kz	6	8
<i>Alternative compulsory courses ⁽¹⁾</i>						
Neural Networks and their Application ⁽²⁾	01NEUR1	Hakl, Holeňa	-	2+0 zk	-	2
Game Theory	01TEH	Kroupa	-	2+0 zk	-	2
Hierarchical Bayesian Models	01HBM	Šmídl	-	2+0 kz	-	2
Diagnostic Signal Analysis and Processing ⁽³⁾	01ZASIG	Převorovský	-	3+0 zk	-	3
<i>Optional courses:</i>						
Social Systems and Their Simulation ⁽³⁾	01SSI	Hrabák, Krbálek	2+1 kz	-	4	-
Modern Theory of Partial Differential Equations	01PDR	Tušek	-	2+0 zk	-	2
Introduction to Graph Theory	01ZTG	Ambrož	4+0 zk	-	4	-
Advanced algorithmization	01PALG	Oberhuber	2 kz	-	2	-
Database System Decomposition	18DATS	Kukal	-	2+2 kz	-	4
Mathematical Methods in Biology and Medicine	01MBI	Klika	2+1 kz	-	3	-
Probabilistic Models of Artificial Intelligence	01UMIN	Vejnarová	2+0 kz	-	2	-
Matlab Applications	18AMTL	Kukal	-	2+2 kz	-	4
Applied Econometrics and Time Series Theory	18AEK	Sekničková	2+2 z, zk	-	4	-
Student Scientific Conference	01SVK	Mikyška	-	5 dní z	-	1

(1) Students obligatorily choose at least one course from this group.

(2) 01NEUR12 replaces 01NSAP.

(3) The contents is linked to an optional subject within the final state examination.

Master's Degree Program

Applied Mathematical Stochastic Methods

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Random Matrix Theory	01TNM	Krbálek	2+0 zk	-	2	-
Design of Experiments	01NEX	Franc, Hobza	2+1 kz	-	4	-
Heuristic Algorithms	18HEUR	Kukal	-	2+2 kz	-	4
Image Processing and Pattern Recognition 2	01ROZP2	Flusser	2+1 zk	-	4	-
Diploma Seminar	01DSEMI	Ambrož	-	0+2 z	-	3
Master Thesis 1, 2	01DPAM12	Ambrož	0+10 z	0+20 z	10	20

<i>Alternative compulsory courses ⁽¹⁾</i>						
Dynamic Decision Making 2	01DRO2	Guy, Kárný	2+0 zk	-	2	-
Financial and Insurance Mathematics	01FIMA	Hora	2+0 zk	-	2	-
Theoretical Bases of Neural Networks ^(2,3)	01NEUR2	Hakl, Holeňa	2+0 zk	-	3	-
<i>Optional courses:</i>						
Mathematical Logic	01MAL	Cintula	2+1 z, zk	-	4	-
Management, Communication and Innovation	01MKI	Rubeš	0+1 z	-	1	-
SQL Applications	18SQL	Kukal	0+2 z	-	2	-
Mathematical Modelling of Non-linear Systems	01MMNS	Beneš	2 zk	-	3	-

(1) Students obligatorily choose at least one course from this group.

(2) Course has 01NEUR1 as prerequisite.

(3) 01NEUR12 replaces 01NSAP.

Master's Degree Program

Mathematical Informatics

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Languages, Automata and Computability	01JAVY	Ambrož, Pelantová	-	3+1 z, zk	-	5
Mathematical Logic	01MAL	Cintula	2+1 z, zk	-	4	-
Information Theory	01TIN	Hobza	2+0 zk	-	2	-
Parallel Algorithms and Architectures	01PAA	Oberhuber	-	3 kz	-	4
Image Processing and Pattern Recognition 1	01ROZ1	Flusser, Zitová	-	2+2 zk	-	4
Complexity Theory	01TSLO	Majerech	3+0 zk	-	3	-
Number Theory	01TC	Masáková, Pelantová	-	4+0 zk	-	4
Matrix Theory	01TEMA	Pelantová	2+0 z	-	3	-
Introduction to Graph Theory	01ZTG	Ambrož	4+0 zk	-	4	-
Neural Networks and their Application	01NEUR1	Hakl, Holeňa	-	2+0 zk	-	2
Object Oriented Programming	18OOP	Virus	0+2 z	-	2	-
Research Project 1, 2	01VUSI12	Hobza	0+6 z	0+8 kz	6	8
Optional courses:						
Game Theory	01TEH	Kroupa	-	2+0 zk	-	2
Logic in Computer Science	01LOI	Noguera	-	2+0 zk	-	2
Logic for Mathematicians	01LOM	Cintula	-	2+0 zk	-	2
Advanced algorithmization	01PALG	Oberhuber	2 kz	-	2	-
Introduction to Computer Security 2	01ZPB2	Vokáč	1+1 z	-	2	-
Introduction to Mainframe ⁽¹⁾	01UMF	Oberhuber	2 z	-	2	-
Modern Trends in Corporate Information Technologies ⁽²⁾	01SMF	Oberhuber	-	2 z	-	2
Mainframe Assembler Programming ⁽²⁾	01PMF	Oberhuber	-	2 z	-	2
Software Testing and Verification ⁽⁴⁾	01TVS	Mařík	2+2 z, zk	-	6	-
Diagnostic Signal Analysis and Processing	01ZASIG	Převorovský	-	3+0 zk	-	3
Monte Carlo Method	18MMC	Virus	2+2 z	-	4	-
Regression Data Analysis	01REAN	Franc, Víšek	2+2 z, zk	-	4	-
Probabilistic Models of Artificial Intelligence	01UMIN	Vejnarová	2+0 kz	-	2	-
Applications of Statistical Methods	01ASM	Hobza	-	2+0 kz	-	2
Advanced Methods of Numerical Linear Algebra	01PNLA	Mikyška	2+0 zk	-	3	-
SQL Applications	18SQL	Kukal	0+2 z	-	2	-
Database System Decomposition	18DATS	Kukal	-	2+2 kz	-	4
Aperiodic Structures 1, 2	01APST12	Masáková	2+0 z	2+0 z	2	2
Financial and Insurance Mathematics	01FIMA	Hora	2+0 zk	-	2	-
Assistive Technology	01ASTE	Seifert	0+1 z	-	2	-
Student Scientific Conference	01SVK	Mikyška	-	5 dní z	-	1

(1) Taught in cooperation with Computer Associates, ČR.

(2) Taught in cooperation with IBM, ČR.

(3) Another optional courses can be A4M33AU Automated Decision, A4M33BIA Biologically Inspired Algorithms, A4B33FLP Functional and Logical Programming, A4M33SAD Machine Learning and Data Analysis, A3B33KUI Cybernetics and Artificial Intelligence, A4M33MAS Multi-Agent Systems taught at the FEL ČVUT v Praze.

(4) Taught at the FEL ČVUT v Praze.

Master's Degree Program

Mathematical Informatics

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Algebraic Structures in Theoretical Informatics	01ALTI	Pošta, Svobodová	1+1 zk	-	3	-
Image Processing and Pattern Recognition 2	01ROZP2	Flusser	2+1 zk	-	4	-
Theoretical Bases of Neural Networks	01NEUR2	Hakl, Holeňa	2+0 zk	-	3	-
Diploma Seminar	01DSEMI	Ambrož	-	0+2 z	-	3
Master Thesis 1, 2	01DPSI12	Ambrož	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Methods for Sparse Matrices	01MRM	Mikyška	2+0 zk	-	2	-
Numerical Software	01NUSO	Fürst	2+0 z	-	3	-
Nonlinear Programming	01NELI	Burdík	3+0 zk	-	4	-
Probabilistic Learning Models	01PMU	Hakl	2+0 zk	-	2	-
Stochastic Methods	01STOM	Franc	2+0 kz	-	2	-
Special Functions and Transformations in Image Analysis	01SFTO	Flusser	-	2+0 zk	-	2
Mathematical Modelling of Non-linear Systems	01MMNS	Beneš	2 zk	-	3	-

Master's Degree Program

Computational Physics

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Concepts of Information Physics 1, 2	12KOF12	Kuchařík, Liska	2+0 z	2+0 zk	3	3
Differential Equations on Computer	12DRP	Liska	2+2 z, zk	-	5	-
Advanced Numerical Methods	01PNM	Beneš	-	2+0 kz	-	2
Electrodynamics 1	12ELDY1	Čtyroký	2+0 z, zk	-	3	-
Basics of Artificial Intelligence	12ZUMI	Kléma, Štěpánková	-	2+2 z, zk	-	5
Image Processing and Pattern Recognition 1	01ROZ1	Flusser, Zitová	-	2+2 zk	-	4
Research Project 1, 2	12VUIF12	Liska	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Electrodynamics 2	12ELDY2	Čtyroký	-	4+0 z, zk	-	5
Variational Methods	01VAM	Beneš	2 zk	-	3	-
Finite Element Method	01MKP	Beneš	-	2 zk	-	3
Solid State Physics	11FYPL	Jelínek, Zajac	4+0 z, zk	-	4	-
Physics of High Energy Density	12FVHE	Drška	2+0 zk	-	2	-
Object Oriented Programming	18OOP	Virus	0+2 z	-	2	-
Computer Simulations in Physics of Many Particles 1, 2	12SFMC12	Kotrla, Předota	3+1 z, zk	2+0 zk	2	2
Parallel Algorithms and Architectures	01PAA	Oberhuber	-	3 kz	-	4
Inertial Fusion Physics	12FIF	Klimo, Limpouch	3+1 z, zk	-	4	-
Fundamentals of Laser-Plasma Physics	12ZFLP	Klimo, Pšikal	2+0 zk	-	2	-
Quantum Electronics	12KVEN	Richter	3+1 z, zk	-	5	-
Quantum Optics ⁽¹⁾	12KVO	Richter	-	3+1 z, zk	-	4
Inertial Confinement Fusion	12PICF	Klír, Limpouch	-	2+0 kz	-	2

(1) Examination in 12KVO can be performed after examination in 12KVEN only.

Master's Degree Program

Computational Physics

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Atomic Physics	12AF	Šiňor	4+0 z, zk	-	4	-
Robust Numerical Algorithms	12RNA	Váchal	-	1+1 z	-	2
Diploma Seminar 1, 2	12DSEIF12	Limpouch	0+2 z	0+2 z	2	3
Master Thesis 1, 2	12DPIF12	Limpouch	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Physics and Human Cognition	12FLP	Langer	-	2+0 z	-	2
Introduction to Management	12UM	Malát	2+0 zk	-	2	-
Monte Carlo Method	18MMC	Virus	2+2 z	-	4	-
Mathematical Modelling of Non-linear Systems	01MMNS	Beneš	2 zk	-	3	-
Astrophysics	12ASF	Kulhánek	-	2+2 zk	-	4
X-ray Photonics	12RFO	Pína	2 zk	-	2	-
Theoretical Bases of Neural Networks	01NEUR2	Hakl, Holeňa	2+0 zk	-	3	-
Mathematical Logic	01MAL	Cintula	2+1 z, zk	-	4	-
Laser Plasma as Source of Radiation and Particles	12LPZ	Nejdl	2+0 zk	-	2	-

Master's Degree Program

Applications of Software Engineering

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Probability and Applied Statistics	18AST	Fabian	1+1 z, zk	-	3	-
Models and Methods for Economic Decisions	18MEK	Fiala	2+2 z, zk	-	5	-
Monte Carlo Method	18MMC	Virus	2+2 z	-	4	-
Object Oriented Programming	18OOP	Virus	0+2 z	-	2	-
Soft Computing	18SOFC	Kukal	2+2 kz	-	4	-
Applied Econometrics and Time Series Theory	18AEK	Sekničková	2+2 z, zk	-	4	-
Software Engineering	18SWI	Merunka	2+2 kz	-	4	-
Modeling in UML	18MURL	Merunka	-	2+2 z, zk	-	4
Project Management of Economic Systems	18REK	Fiala	-	2+2 z, zk	-	4
Advanced Numerical Methods	01PNM	Beneš	-	2+0 kz	-	2
Fulltext Systems	18FULS	Liška	-	2+2 kz	-	4
Research Project 1, 2	18VUSE12	Kukal	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Advanced C++	18PCP	Virus	-	2+2 z, zk	-	4
Programming for the .NET Framework	18NET	Virus	1+1 z, zk	-	2	-
Advanced Methods of Numerical Linear Algebra	01PNLA	Mikyška	2+0 zk	-	3	-
Matlab Applications	18AMTL	Kukal	-	2+2 kz	-	4
Database System Decomposition	18DATS	Kukal	-	2+2 kz	-	4
Resolution of Physical Issues	18RFP	Novotný	-	1+2 kz	-	3
Parallel Algorithms and Architectures	01PAA	Oberhuber	-	3 kz	-	4
Languages, Automata and Computability	01JAVY	Ambrož, Pelantová	-	3+1 z, zk	-	5
Bussiness Intelligence	18BI	Kukal	1+1 kz	-	2	-
Introduction to Advanced Algorithms 1	18UIA1	Jarý	1+1 z	-	2	-
Advanced Algorithms 2	18UIA2	Jarý	-	1+1 z	-	2
Introduction to Mainframe ⁽¹⁾	01UMF	Oberhuber	2 z	-	2	-
Mainframe Assembler Programming ⁽¹⁾	01PMF	Oberhuber	-	2 z	-	2
Modern Trends in Corporate Information Technologies ⁽¹⁾	01SMF	Oberhuber	-	2 z	-	2
Development of Domain Specific Languages	18DSJ	Smolka, Virus	1+1 kz	-	2	-
Introduction to Computer Simulations	18ZPS	Hornák, Kukal	-	2+2 z	-	4
Theory of Financial Markets	18TFT	Tran	2+2 kz	-	4	-
Financial Markets Data Processing	18ZDFT	Tran	-	2+2 kz	-	4

(1) Taught in cooperation with Computer Associates, ČR.

Master's Degree Program

Applications of Software Engineering

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Modeling of Production Systems in Economy	18MOPR	Sekničková	2+2 z, zk	-	5	-
Statistical Pattern Recognition and Decision Making Methods	18SROZ	Kukal	2+0 zk	-	3	-
Variational Methods B	01VAMB	Beneš	2 kz	-	2	-
Heuristic Algorithms	18HEUR	Kukal	-	2+2 kz	-	4
Background of Information Theory	18ZTI	Fabian	-	2+0 kz	-	2
Diploma Seminar 1, 2	18SDI12	Virus	0+2 z	0+2 z	2	3
Master thesis 1, 2	18DPSE12	Kukal	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
SQL Applications	18SQL	Kukal	0+2 z	-	2	-
Introduction to Graph Theory	01ZTG	Ambrož	4+0 zk	-	4	-
Complexity Theory	01TSLO	Majerech	3+0 zk	-	3	-
Financial and Insurance Mathematics	01FIMA	Hora	2+0 zk	-	2	-
Nonlinear Programming	01NELI	Burdík	3+0 zk	-	4	-
Probabilistic Learning Models	01PMU	Hakl	2+0 zk	-	2	-
Dynamic Decision Making 1	01DRO1	Guy, Kárný	-	2+0 zk	-	2
Introduction to Management	12UM	Malát	2+0 zk	-	2	-
Theory of Random Processes	01NAH	Hobza	3+0 zk	-	3	-
Methods for Sparse Matrices	01MRM	Mikyška	2+0 zk	-	2	-
Data Warehouse Systems, big data processing	18DWH	Barbierik, Liška	-	2+2 zk	-	4
Number Theory	01TC	Masáková, Pelantová	-	4+0 zk	-	4
Image Processing and Pattern Recognition 1	01ROZ1	Flusser, Zitová	-	2+2 zk	-	4
Industrial Software Development	18PVS	Virus	1+1 z	-	2	-
Modelling and Control of Continuous Systems	18MRSS	Kukal	2+2 kz	-	4	-
Control of Discrete Systems	18RDS	Kukal	-	2+2 kz	-	4

Master's Degree Program

Nuclear Engineering

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Nuclear Reactor Physics	17FAR	Frýbort, Heraltová, Sklenka	2+2 z, zk	-	5	-
Core Physics and Fuel Management	17PRF	Sklenka	-	2+0 z, zk	-	3
Reactor Dynamics	17DYR	Heřmanský, Huml	-	2+2 z, zk	-	4
Reactor Thermomechanics	17TERR	Bílý, Heřmanský	2+2 z, zk	-	4	-
Experimental Reactor Physics	17ERF	Rataj, Sklenka	-	4 kz	-	4
Nuclear Fuel Cycle	17JPC	Sklenka, Starý	-	2+0 kz	-	2
Thermohydraulic Design of Nuclear Devices 4	17THNJ4	Kobylka	3+0 z, zk	-	4	-
Machines and Equipment of Nuclear Power Plants	17SAZ	Kobylka	2+1 z, zk	-	3	-
Short-Term Internship Abroad ⁽¹⁾	17EXZ	Frýbort	-	1 týden z	-	2
Research Project 1, 2	17VUJR12	Frýbort	0+6 z	0+8 kz	6	8
Optional courses:						
Computer Control of Experiments	17PRE	Kropík	2+1 z, zk	-	3	-
Stochastic Methods in Reactor Physics	17SMRF	Huml	2+2 kz	-	4	-
Deterministic Methods in Reactor Physics	17DERF	Frýbort	-	2+2 kz	-	4
Digital Safety Systems of Nuclear Reactors	17CIBS	Kropík	2+0 z, zk	-	2	-
Energy Sector and Energy Sources ⁽²⁾	17EEZ	Tichý, Kobylka	-	2+1 z, zk	-	3
Selected Parts of Legislation ⁽³⁾	17VPL	Bílková, Fuchsová	-	2+0 z	-	2
Economic Evaluation of Nuclear Power Plants ⁽⁴⁾	17EHJE	Starý	2+0 zk	-	2	-
Informatics for Modern Physicists ⁽⁵⁾	17IMF	Havlůj	0+3 kz	-	3	-
Materials Science for Reactors	14NMR	Haušild	-	2+0 zk	-	2

(1) For students of this field only.

(2) To be subscribed if not graded in 17EZE.

(3) To be subscribed if not graded in 17ALE.

(4) To be subscribed if not graded in 17ZEH.

(5) Course is open for at least 3 students – it is necessary to enroll in at least 3 days prior the semester.

Master's Degree Program

Nuclear Engineering

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Spent Nuclear Fuel and Radioactive Waste ⁽¹⁾	17VPO	Konopásková	-	2 zk	-	2
Operator Course at VR-1 Reactor ⁽²⁾	17OPK	Rataj, Kropík	4 z, zk	-	4	-
Nuclear Safety	17JBEZ	Heřmanský, Kříž	4+0 zk	-	4	-
Electrical Equipment of Nuclear Power Plants	17ELZ	Bouček, Kropík	2+1 z, zk	-	3	-
Pre-diploma Practice at the Nuclear Powerplant ⁽³⁾	17PRAXD	Kropík	1 týden z	-	1	-
Pre-diploma Seminar	17DSEM	Kropík	-	0+2 z	-	2
Master Thesis 1, 2	17DPJR12	Kropík	0+10 z	0+20 z	10	20
Optional courses:						
Reliability of Nuclear Power Plants ⁽⁴⁾	17SPJE	Dušek, Matějka	2+0 zk	-	2	-
New Nuclear Sources	17NJZ	Bílý	3+0 zk	-	3	-
Exploration of Research Reactors ⁽⁵⁾	17VYRR	Sklenka	-	2+0 zk	-	2
Critical Experiment ⁽⁶⁾	17KE	Huml, Rataj	0+2 kz	-	2	-
Laboratory Training in Power Supply ⁽⁴⁾	17LAPE	Kobylka	0+3 z	-	3	-
Selected Topics in Power Supply ⁽⁴⁾	17VYPE	Kobylka	-	3+0 z	-	2
Simulation of NPP Operational States	17SIPS	Kobylka	-	0+3 kz	-	3
Thermomechanics of Nuclear Fuel	17TMP	Kobylka, Valach	-	2+1 z, zk	-	3
Radiation Protection of Nuclear Facilities	17ROJ	Starý	-	2+0 zk	-	2
Advanced Methods in Spent Fuel Reprocessing and Salt Reactor Technologies ⁽⁴⁾	17PPSR	Uhlíř	-	2+1 zk	-	3

(1) To be subscribed if not graded in 17RAO.

(2) To be subscribed if graded in 17DYR a 17 ERF and not graded in 17OPKB.

(3) For students of this field only..

(4) Open provided enough students are enrolled.

(5) To be subscribed if not graded in 17VYR.

(6) To be subscribed if graded in 17ERF.

Master's Degree Program

Dosimetry and Applications of Ionising Radiation

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Monte Carlo Method	18MMC	Virus	2+2 z	-	4	-
Nuclear Technology Devices	16ZJT	Čechák	2+0 zk	-	2	-
Practicum in Detection and Dosimetry of Ionizing Radiation	16PDZ	Průša	0+4 kz	-	5	-
Radiation Protection	16RAO	Vrba T.	4+0 zk	-	4	-
Instrumentation for Radiation Measurements	16MER	Průša	2+0 zk	-	2	-
Introduction to Environment	16ZIVO	Čechák, Thinová	2+0 kz	-	2	-
Principles of Ionizing Radiation Application	16UAZ	Musílek	2+0 zk	-	2	-
Integral Dosimetry Methods	16IDOZ	Ambrožová, Musílek	-	2+0 zk	-	2
Applications of Ionizing Radiation in Science and Industry	16APLV	Čechák	-	4+0 zk	-	5
Monte Carlo Method in Radiation Physics	16MCRF	Klusoň, Urban	-	2+2 z, zk	-	4
Methods of Analytical Measurement	16AMM	Bártová	-	2+0 zk	-	2
Dosimetry and Radioactivity of the Environment	16DRZP	Čechák, Thinová	-	2+0 zk	-	2
Excursion	16EX	Thinová	-	1 týden z	-	3
Seminar	16SEMA	Johnová	-	0+2 z	-	2
Research Project 1, 2	16VUDZ12	Trojek	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Radiation Effects in Matter	16REL	Pilařová	2+0 zk	-	2	-
Treatment of Experimental Data	16ZED	Pilařová	2+0 zk	-	2	-
Practicum in Measurement Methods for Ionizing Radiation ⁽¹⁾	16PMM	Průša	0+2 z	-	2	-
Experimental Methods of Nuclear Physics	02EMJF	Vrba V.	2+0 zk	-	3	-
Practicum in Dosimetry of Ionizing Radiation	16PDIZ	Thinová	-	0+4 kz	-	4

(1) To be subscribed only if graded in 16MER.

Master's Degree Program

Dosimetry and Applications of Ionising Radiation

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Medical Application of Ionizing Radiation	16AIZM	Novák	2+1 z, zk	-	3	-
Metrology of Ionizing Radiation	16MEIZ	Čechák, Dryák	2+1 z, zk	-	4	-
Spectrometry in Dosimetry	16SPDO	Čechák, Dryák	2+0 zk	-	3	-
Mathematical Methods and Modelling	16MMM	Klusoň, Urban	0+2 z	-	2	-
Microdosimetry	16MDOZ	Davídková	2+0 zk	-	2	-
Physics and Technic of the Nonionizing Radiation	16FNEI	Klusoň, Thinová	2+0 zk	-	2	-
Introduction to Particle Physics	16UCF	Smolík	2+0 zk	-	2	-
Seminar 1, 2	16SEM12	Johnová	0+2 z	0+2 z	2	2
Master Thesis 1, 2	16DPDZ12	Trojek	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Neutron Dosimetry	16DNEU	Ploc	2+0 zk	-	2	-
Clinical Dosimetry	16KLD	Hanušová, Novotný	-	2+0 zk	-	2
Dosimetry of Internal Radiation Sources	16DZAR	Musílek	-	2+0 zk	-	2
Radiobiology	16RBIO	Davídková	-	2+0 zk	-	2
Practicum in Dosimetry of Ionizing Radiation	16PDIZ	Thinová	-	0+4 kz	-	4
Experimental Methods of Nuclear Physics	02EMJF	Vrba V.	2+0 zk	-	3	-
Radionuclides in the Environment	16RZP	Matolín, Thinová	-	2+0 zk	-	2
Introduction into Physics of Scintillators and Phosphors	16FSC	Nikl	-	2+0 zk	-	2
Design of Semiconductor Detectors of Ionizing Radiation	16KPD	Kákona	-	0+3 z	-	3

Master's Degree Program

Experimental Nuclear and Particle Physics

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Quantum Field Theory 1, 2	02QFT12	Adam, Tolar	4+2 z, zk	3+1 z, zk	7	5
Experimental Methods of Nuclear Physics	02EMJF	Vrba V.	2+0 zk	-	3	-
Experimental Methods of Subnuclear Physics	02EMSF	Adamová, Petráček	-	2+0 zk	-	2
Project Practicum 1, 2	02PPRA12	Čepila	0+2 z	0+4 kz	2	4
Physics of Atomic Nuclei	02FAJ	Adam, Petráček, Veselý	-	4+0 zk	-	4
Neutron Physics	02NF	Šaroun, Vacík	-	2+2 z, zk	-	4
Excursion	02EXK	Petráček	-	1 týden z	-	1
Research Project 1, 2	02VUEF12	Petráček	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Workshop on Experimental Nuclear Physics 2 ⁽¹⁾	02EJFS2	Petráček	5 dní z	-	1	-
Physics of Ultra-Relativistic Nuclear Collisions	02RFTI	Contreras	2+1 z, zk	-	3	-
Nuclear Technology Devices	16ZJT	Čechák	2+0 zk	-	2	-
Groups and Representations	02GR	Chadzitaskos	2+1 z, zk	-	3	-
Numerical Calculations in Quantum Mechanics 1, 2	02NVKM12	Čepila	0+3 z	0+3 z	3	3
Extreme States of Matter	02ESH	Šumbera	-	2+0 z	-	2
Seminar on Quark-Gluon Plasma 3, 4	02RQGP34	Bielčík, Bielčíková, Tomášik	2+0 z	2+0 z	1	1
Statistical Data Processing	02SSD	Rusňáková, Myška	2+2 z, zk	-	4	-
Statistical Data Analysis 2	02SSD2	Rusňáková, Myška	-	2+2 z, zk	-	4
Particle Accelerators	02UC	Doležal	2+0 zk	-	2	-
Particle accelerators 2	02UC2	Krůs	-	2+0 zk	-	2
Materials in Experimental Nuclear Physics	02MAT	Škoda	2+0 zk	-	2	-
Space Radiation	02KZ	Nosek	-	2+0 zk	-	2
Lie Algebras and Lie Groups	02LIAG	Šnobl	-	3+2 z, zk	-	6
Programmable Logic Arrays	17PLP	Kropík	-	2+0 zk	-	2
Nuclear Astrophysics	02JAS	Nosek	2+0 zk	-	2	-
Path Integral	02DRI	Jizba	2+1 z, zk	-	3	-
Monte Carlo Method	18MMC	Virus	2+2 z	-	4	-

(1) For students of this field only.

Master's Degree Program

Experimental Nuclear and Particle Physics

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Fundamentals of Electroweak Theory	02ZESI	Bielčíková, Tomášik	2+2 z, zk	-	4	-
Quantum Chromodynamics	02ZQCD	Bielčíková, Nemčík, Tomášik	-	3+2 z, zk	-	6
Nuclear Spectroscopy	02JSP	Wagner	-	2+2 z, zk	-	5
Seminar 1, 2	02SEMI12	Petráček	0+2 z	0+2 z	2	3
Master Thesis 1, 2	02DPEF12	Petráček	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Workshop on Experimental Nuclear Physics 3 ⁽¹⁾	02EJFS3	Petráček	5 dní z	-	1	-
Seminar on Quark-Gluon Plasma 5, 6	02RQGP56	Bielčík, Bielčíková, Tomášik	2+0 z	2+0 z	1	1
Computer Control of Experiments	17PRE	Kropík	2+1 z, zk	-	3	-
Experimental Tests of the Standard Model	02ETSM	Leitner	2+0 zk	-	2	-
Functional Integral 1, 2	02FCI12	Jizba	2+0 z	2+0 z	2	2
Applied Quantum Chromodynamics at High Energies	02AQCD	Nemčík	-	2+0 zk	-	2

(1) For students of this field only.

Master's Degree Program

Radiological Physics

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
Compulsory courses:						
Integral Dosimetry Methods	16IDOZ	Ambrožová, Musílek	-	2+0 zk	-	2
Monte Carlo Method in Radiation Physics	16MCRF	Klusoň, Urban	-	2+2 z, zk	-	4
Image Processing and Pattern Recognition I	01ROZ1	Flusser, Zitová	-	2+2 zk	-	4
Introduction to Quality Management in Health Care	16USRJ	Pešek	1+1 z	-	2	-
Biochemistry and Pharmacology	16BAF	Eigner Henke, Kovář	2+0 zk	-	2	-
Radiation Protection	16RAO	Vrba T.	4+0 zk	-	4	-
Medical Informatics	16INZ	Klusoň, Urban	1+1 kz	-	2	-
Basics of First Aid	16ZPP	Málek	0+2 z	-	2	-
Radiobiology	16RBIO	Davídková	-	2+0 zk	-	2
Radiological Physics - Diagnostic Radiology	16RFRD	Novák	2+1 z, zk	-	3	-
X-Ray Diagnostics - Clinical Training	16RDKP	Čechák, Súkupová	2 týd z	-	4	-
Radiological Physics - Nuclear Medicine	16RFNM	Trnka	2+1 z, zk	-	3	-
Nuclear Medicine - Clinical Training	16NMKP	Čechák, Mihalová	-	2 týdny z	-	4
Radiological Physics - Radiotherapy 1	16RFRT1	Koniarová	-	2+1 z, zk	-	3
Radiotherapy - Clinical Training 1	16RTKP1	Čechák, Koniarová	-	1 týden z	-	2
Pathology, Anatomy, and Physiology in Imaging Techniques 1	16PAFZ1	Válek	-	2+0 zk	-	2
General Anatomy and Human Physiology 1, 2 ⁽¹⁾	16OAF12	Doubková, Vaculín	2+2 z, zk	2+2 z, zk	4	4
Selected Topics in Dosimetry	16VYPD	Čechák	2+0 zk	-	2	-
Excursion	16EX	Thinová	-	1 týden z	-	3
Research Project 1, 2	16VURF12	Trojek	0+6 z	0+8 kz	6	8
Optional courses:						
Principles of Ionizing Radiation Application	16UAZ	Musílek	2+0 zk	-	2	-
Methods of Analytical Measurement	16AMM	Bártová	-	2+0 zk	-	2
Instrumentation for Radiation Measurements	16MER	Průša	2+0 zk	-	2	-
Applications of Ionizing Radiation in Science and Industry	16APLV	Čechák	-	4+0 zk	-	5
Treatment of Experimental Data	16ZED	Pilařová	2+0 zk	-	2	-

(1) Can be subscribed in not graded in 16ZBAF12 in the bachelor's studies.

Master's Degree Program

Radiological Physics

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Radiological Physics - Radiotherapy 2	16RFRT2	Koniarová	2+1 z, zk	-	3	-
Pathology, Anatomy, and Physiology in Imaging Techniques 2	16PAFZ2	Válek	2+0 zk	-	2	-
Clinical Dosimetry	16KLD	Hanušová, Novotný	-	2+0 zk	-	2
Radiotherapy - Clinical Training 2	16RTKP2	Čechák, Koniarová	1 týden z	-	2	-
Practicum in Detection and Dosimetry of Ionizing Radiation	16PDZ	Průša	0+4 kz	-	5	-
Technical and Health-Care Regulations	16TZP	Závoda	-	2+0 z	-	2
Ethics in Health Care	16EZ	Strobachová	1+0 z	-	1	-
Hygiene a Epidemiology	16HE	Lajčíková	1+0 z	-	1	-
Seminar 1, 2	16SEM12	Johnová	0+2 z	0+2 z	2	2
Master Thesis 1, 2	16DPRF12	Trojek	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Image Processing and Pattern Recognition 2	01ROZP2	Flusser	2+1 zk	-	4	-
Spectrometry in Dosimetry	16SPDO	Čechák, Dryák	2+0 zk	-	3	-
Dosimetry of Internal Radiation Sources	16DZAR	Musílek	-	2+0 zk	-	2
Microdosimetry	16MDOZ	Davídková	2+0 zk	-	2	-
Metrology of Ionizing Radiation	16MEIZ	Čechák, Dryák	2+1 z, zk	-	4	-
Physics and Technic of the Nonionizing Radiation	16FNEI	Klusoň, Thinová	2+0 zk	-	2	-
Radiation Effects in Matter	16REL	Pilařová	2+0 zk	-	2	-
Neutron Dosimetry	16DNEU	Ploc	2+0 zk	-	2	-
Monte Carlo Method	18MMC	Virus	2+2 z	-	4	-
Hadron Therapy	16HADR	Vrba T.	-	2+0 zk	-	2

Master's Degree Program

Solid State Engineering

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Semiconductor Physics 1	11POL1	Potůček	4+0 zk	-	6	-
Physics of Magnetic Materials	11MAGN	Zajac	-	2+0 zk	-	3
Physics of Metals	11KOV	Lejček	2+0 zk	-	3	-
Physics of Dielectrics	11DIEL	Bryknar	-	2+0 zk	-	3
Diploma Seminar 1, 2	11SMX12	Vratislav, Kučeráková	0+2 z	0+2 z	3	3
Solid State Theory 1	11TPL1	Mihóková, Zajac	4+0 zk	-	6	-
Solid State Theory 2	11TPL2	Sedlák, Seiner, Zajac	-	2+0 zk	-	3
Research Project 1, 2	11VUIP12	Vratislav	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Real Time Software	11RTSW	Jiroušek	-	2+0 z	-	3
Practical Exercises from Solid State Structure Analysis	11PSPL	Ganev, Kolařík, Vratislav	0+4 kz	-	4	-
Semiconductor Physics 2	11POL2	Aubrecht	-	2+0 zk	-	2
Practical Training of Semiconductors	11PPOL	Aubrecht, Dragounová	-	0+4 kz	-	4
Superconductivity and Low Temperature	11SUPR	Janů, Ledinský	4+0 zk	-	4	-
Construction of Semiconductor Devices	11KPS	Sopko	-	2+0 zk	-	2
Technology of Microwave and Optoelectronic Devices	11TVOS	Sopko	-	2+0 zk	-	2
Chemical Aspects of Solids	11CHA	Knížek	2+0 zk	-	2	-
Practical Training in Electronics	11EP	Jiroušek	0+4 kz	-	4	-
Metallic Oxides	11KO	Hejtmánek	-	2+0 zk	-	2
Physics of Solid State Phase Transitions	11FPPL	Hlinka	-	2+0 zk	-	2
Applied Neutron Diffractometry	11AND	Kučeráková, Vratislav	2+0 zk	-	2	-
Diffraction Methods of Structural Biology	11DMSB	Dohnálek	-	3 z, zk	-	3
Quantum Computation	11KVAP	Andrey	-	2+0 zk	-	2
Molecular Nanosystems	11MONA	Kratochvílová	2+0 zk	-	2	-
Optical Spectroscopy of Inorganic Solids	11OSAL	Potůček	-	2+0 zk	-	2
Seminar in Solid State Theory	11STPL	Sedlák, Seiner	-	0+2 kz	-	2
Selected Topics in Structure of Condensed Matter	11VPS	Drahokoupil	-	1+1 zk	-	2
Nano-Materials - Preparation and Properties	11NAMA	Kratochvílová	-	2+0 zk	-	2

Master's Degree Program

Solid State Engineering

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Optical Properties of Solids	11OPT	Bryknar	2+0 zk	-	3	-
Modern Experimental Methods	11MEM1	Drahokoupil, Vratislav	5+0 z	-	5	-
Surface Physics 1, 2	11FYPO12	Kalvoda	2+0 zk	2+0 zk	2	2
Computer Simulation of Condensed Matter	11SIKL	Kalvoda, Sedlák	2+2 z, zk	-	4	-
Diploma Seminar 3, 4	11SMX34	Vratislav, Kučeráková	0+2 z	0+2 z	3	3
Master Thesis 1, 2	11DPIP12	Vratislav	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Special Semiconductor Materials and Devices	11SMAT	Sopko	2+0 zk	-	2	-
Semiconductor Detectors	11DETE	Sopko	-	2+0 zk	-	2
Theory and Construction of Photovoltaic Cells	11PCPC	Pfleger	2+0 zk	-	2	-
Neutronography in Material Research	11NMV	Vratislav	-	2+0 zk	-	2
Diffraction Analysis of Mechanical Stress	11DAN	Ganev, Kraus	2+0 zk	-	2	-
Smart Materials and Their Applications	11SMAM	Potůček, Sedlák	2+0 zk	-	2	-
Principles and Applications of Optical Sensors with Practical Trainings	11PAO	Aubrecht	2+0 zk	-	2	-
Intrinsic Dynamics of Materials	11VDM	Seiner	2+0 zk	-	3	-
Magnetic Materials	11MAM	Heczko	2+0 zk	-	2	-
Laboratory in Macromolecular Crystallography 1, 2	11PMK12	Kolenko	0+4 kz	0+4 kz	4	4
SEM and Methods of Microbeam Analysis	11SEM	Kopeček	2+0 zk	-	2	-

Master's Degree Program

Diagnostics of Materials

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Dynamics of Continuum	14DYKO	Horáček	2+0 z, zk	-	3	-
Fracture Mechanics 1, 2	14LME12	Kunz	2+0 z, zk	2+0 z, zk	3	3
Analysis of Experimental Data 1, 2	14AED12	Kopřiva	2 z, zk	2 z, zk	3	3
Experimental Methods 1, 2	14EXM12	Jaroš, Kovářik, Nedbal, Siegl	4 kz	4 kz	4	4
Physical Metallurgy 1, 2	14FYM12	Karlík, Haušild	4 z, zk	2+0 z, zk	6	3
Plasticity 1	14PLAS1	Oliva	-	2+0 z, zk	-	3
Fatigue of Materials	14UNMA	Lauschmann	-	2+0 kz	-	3
Research Project 1, 2	14VUSM12	Kopřiva	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Elasticity 2	14EME2	Materna, Oliva	4 z, zk	-	6	-
Computational Mechanics	14PME	Okrouhlík	-	3 kz	-	4
Variational Methods B	01VAMB	Beneš	2 kz	-	2	-

Master's Degree Program

Diagnostics of Materials

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Non-Metallic Materials	14NEKO	Haušild, Karlík	2+0 z, zk	-	3	-
Plasticity 2	14PLAS2	Oliva	2+0 z, zk	-	4	-
Theory of Reliability	14TSPO	Kopřiva	2+0 z, zk	-	3	-
Practicum in Finite Elements Methods	14PMKP	Materna	0+2 kz	-	3	-
Nondestructive Diagnostics	14NEDI	Převorovský	2 z	-	3	-
Intrinsic Dynamics of Materials	11VDM	Seiner	2+0 zk	-	3	-
Pre-diploma Practice	14PRAXE	Oliva	2 týdny z	-	4	-
Master Thesis 1, 2	14DPSM12	Oliva	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Wave Phenomena in Solids	14VLN	Červ	2+0 z	-	3	-
Seminar	14SEM	Siegl	-	0+4 z	-	8
Fractography and Failure Analysis	14FAP	Siegl	-	2+0 z	-	3

Master's Degree Program

Laser Technology and Electronics

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Electrodynamics 1, 2	12ELDY12	Čtyroký	2+0 z, zk	4+0 z, zk	3	5
Optical Physics 1	12FOPT1	Richter, Škereň	3+0 z, zk	-	3	-
Nonlinear Optics ⁽¹⁾	12NLOP	Richter	-	3+1 z, zk	-	5
Quantum Electronics	12KVEN	Richter	3+1 z, zk	-	5	-
Solid State Physics	11FYPL	Jelínek, Zajac	4+0 z, zk	-	4	-
Laser Physics	12FLA	Šulc	-	4 z, zk	-	4
Open Resonators	12ORE	Kubeček	2+1 z, zk	-	3	-
Solid-state, Diode and Dye lasers	12PDBL	Jelínková, Kubeček	-	2+0 z, zk	-	2
Measurements Methods in Electronics and Optics	12MMEO	Pína	-	2+0 zk	-	2
Electronics 3	12EL3	Pavel	2+0 zk	-	2	-
Electronics Practicum 1, 2	12EP12	Pavel	0+2 kz	0+2 kz	3	3
Research Project 1, 2	12VULT12	Jelínková	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Statistical Optics	12SOP	Richter	2+0 z, zk	-	2	-
Optical Physics 2	12FOPT2	Richter, Škereň	-	2+0 z, zk	-	2
Geometrical Optics	12GEOP	Dvořák, Procházka	-	3+1 z, zk	-	4
Optical Spectroscopy	12OPS	Michl	-	2+0 zk	-	2
Quantum Optics ⁽²⁾	12KVO	Richter	-	3+1 z, zk	-	4
Physics of Detection and Detectors of Optical Radiation	12FDD	Pína	2+0 zk	-	2	-
X-ray Photonics	12RFO	Pína	2 zk	-	2	-
Differential Equations on Computer	12DRP	Liska	2+2 z, zk	-	5	-
Fundamentals of Laser-Plasma Physics	12ZFLP	Klimo, Pšikal	2+0 zk	-	2	-

(1) Grading in 12NLOP possible after grading in 12FOPT1.

(2) Grading in 12KVO possible after grading in 02KVEN.

Master's Degree Program

Laser Technology and Electronics

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Fiber Lasers and Amplifiers	12VLA	Kubeček, Peterka	3 zk	-	3	-
Ultra-short Pulse Generation	12UKP	Kubeček	2+0 zk	-	2	-
Advanced Laser Technique Laboratory	12PPLT	Kubeček, Němec	0+4 kz	-	6	-
Optical Sensors	12OSE	Homola	-	2+0 zk	-	2
Gas and X-ray Lasers	12RTGL	Jančárek, Jelínková	-	2+0 z, zk	-	2
Laser, Plasma and Beam Technologies	12LPST	Jančárek, Jelínková, Král	-	2+2 zk	-	4
Diploma Seminar 1, 2	12DSELT12	Jelínková	0+2 z	0+2 z	2	3
Master Thesis 1, 2	12DPLT12	Jelínková	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Electronics for Lasers	12ELA	Pavel	2+0 zk	-	2	-
Computer Control of Experiments	12POEX	Čech	-	2+0 z	-	2
Advanced Laser Spectroscopy (1)	12PLS	Michl	2+0 zk	-	2	-
Fourier Optics and Optical Signal Processing	12OZS	Richter	3+0 z, zk	-	3	-
Selected Chapters of Modern Optics	12MODO	Kwiecien	2+0 z	-	2	-
Laser in Medicine Practice	12PLM	Jelínková, Němec	-	4 kz	-	6
Advanced Optical Laboratory (2)	12PPRO	Jančárek	0+4 kz	-	6	-

(1) Grading in 12PLS possible after grading in 12OPS.

(2) Subscription of 12PPOP possible after grading in 12FOPT1 and 12FOPT2.

Master's Degree Program

Optics and Nanostructures

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Electrodynamics 1, 2	12ELDY12	Čtyroký	2+0 z, zk	4+0 z, zk	3	5
Solid State Physics	11FYPL	Jelínek, Zajac	4+0 z, zk	-	4	-
Optical Physics 1, 2	12FOPT12	Richter, Škereň	3+0 z, zk	2+0 z, zk	3	2
Quantum Electronics	12KVEN	Richter	3+1 z, zk	-	5	-
Nonlinear Optics ⁽¹⁾	12NLOP	Richter	-	3+1 z, zk	-	5
Statistical Optics	12SOP	Richter	2+0 z, zk	-	2	-
Optical Spectroscopy	12OPS	Michl	-	2+0 zk	-	2
Nanoscopy and Nanocharacterization	12NAN	Fejfar	2+0 zk	-	2	-
Surfaces and Boundaries	11POR	Kalvoda	-	2+0 zk	-	2
Research Project 1, 2	12VUOF12	Richter	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Geometrical Optics	12GEOP	Dvořák, Procházka	-	3+1 z, zk	-	4
Quantum Optics ⁽²⁾	12KVO	Richter	-	3+1 z, zk	-	4
Measurements Methods in Electronics and Optics	12MMEO	Pína	-	2+0 zk	-	2
Physics of Detection and Detectors of Optical Radiation	12FDD	Pína	2+0 zk	-	2	-
Solid-state, Diode and Dye lasers	12PDBL	Jelínková, Kubeček	-	2+0 z, zk	-	2
Electronics 3	12EL3	Pavel	2+0 zk	-	2	-
Electronics Practicum 1, 2	12EP12	Pavel	0+2 kz	0+2 kz	3	3
Fiber Lasers and Amplifiers	12VLA	Kubeček, Peterka	3 zk	-	3	-
Nanochemistry	12NCH	Proška	2+0 zk	-	2	-
Optical Semiconductors Properties	12OVP	Oswald	2+0 zk	-	2	-
Preparation of Semiconductor Nanostructures	12PN	Hulicius	-	2+0 zk	-	2
Selected Nanostructures Chapters	12VKNS	Hulicius	-	2 kz	-	2

(1) Grading in 12NLOP possible after grading in 12FOPT1.

(2) Grading in 12KVO possible after grading in 12KVEN.

Master's Degree Program

Optics and Nanostructures

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Integrated Optics	12INTO	Čtyrský	2+0 z, zk	-	2	-
Fourier Optics and Optical Signal Processing	12OZS	Richter	3+0 z, zk	-	3	-
X-ray Photonics	12RFO	Pína	2 zk	-	2	-
Nanophysics	12NF	Richter, Šiňor	2+0 zk	-	2	-
Optical Sensors	12OSE	Homola	-	2+0 zk	-	2
Advanced Optical Laboratory ⁽²⁾	12PPRO	Jančárek	0+4 kz	-	6	-
Diploma Seminar 1, 2	12DSEOF12	Jelínková	0+2 z	0+2 z	2	3
Master Thesis 1, 2	12DPOF12	Richter	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Selected Chapters of Modern Optics	12MODO	Kwiecien	2+0 z	-	2	-
Excursions to Optical Workplaces	12EOP	Havel	0+4 z	-	4	-
Advanced Laser Spectroscopy ⁽¹⁾	12PLS	Michl	2+0 zk	-	2	-
Computer Control of Experiments	12POEX	Čech	-	2+0 z	-	2
Laser, Plasma and Beam Technologies	12LPST	Jančárek, Jelínková, Král	-	2+2 zk	-	4
Gas and X-ray Lasers	12RTGL	Jančárek, Jelínková	-	2+0 z, zk	-	2
Advanced Laser Technique Laboratory	12PPLT	Kubeček, Němec	0+4 kz	-	6	-
Nanoelectronics	12NAE	Voves	2+0 zk	-	2	-
Spontaneously-grown Structures of Selected Nanomaterials	12SRS	Bouda	2+0 kz	-	2	-
Physics and Human Cognition	12FLP	Langer	-	2+0 z	-	2
Introduction to Management	12UM	Malát	2+0 zk	-	2	-

(1) Grading in 12PLS possible after grading in 12OPS.

(2) Grading in 12PPOP possible after grading in 12FOPT1 and 12FOPT2.

Master's Degree Program

Physics and Technology of Thermonuclear Fusion

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Plasma Theory 1, 2	02TPLA12	Kulhánek	2+2 z, zk	3+1 z, zk	5	5
Plasma Diagnostics	02DPLA	Kubeš	-	2+1 z, zk	-	3
Computer Modelling of Plasma	02PMPL	Plašil	-	2+1 z, zk	-	3
Technology of Thermonuclear Facilities	02TTJZ	Đuran, Entler	-	3+0 zk	-	3
Inertial Fusion Physics	12FIF	Klimo, Limpouch	3+1 z, zk	-	4	-
Physics of Tokamaks	02FT	Mlynář	3+1 z, zk	-	4	-
Atomic and Molecular Physics	02AMF	Břeň	2+2 z, zk	-	4	-
Materials Science for Reactors	14NMR	Haušild	-	2+0 zk	-	2
Laboratory Work in Plasma Physics 1, 2	02PRPL12	Svoboda	0+2 z	0+2 kz	2	2
Research Project 1, 2	02VUTF12	Svoboda	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Topics in Magnetic Confinement Fusion	02PMCF	Mlynář	-	0+2 kz	-	2
Inertial Confinement Fusion	12PICF	Klír, Limpouch	-	2+0 kz	-	2
Superconductivity and Low Temperature	11SUPR	Janů, Ledinský	4+0 zk	-	4	-
Low Temperature Plasmas and Discharges	12NIPL	Král	4+0 z, zk	-	4	-
Differential Equations on Computer	12DRP	Liska	2+2 z, zk	-	5	-
Computer Control of Experiments	12POEX	Čech	-	2+0 z	-	2
Neutron Physics	02NF	Šaroun, Vacík	-	2+2 z, zk	-	4
Optical Spectroscopy	12OPS	Michl	-	2+0 zk	-	2
Nuclear Technology Devices	16ZJT	Čechák	2+0 zk	-	2	-
Winter (Summer) School of Plasma Physics and Fusion Physics 1, 2 ⁽¹⁾	02ZLSTF12	Svoboda	1 týden z	1 týden z	1	1

(1) For students of this field only.

Master's Degree Program

Physics and Technology of Thermonuclear Fusion

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Seminar 1, 2	02STF12	Limpouch, Mlynář	0+2 z	0+2 z	2	3
ITER and the Accompanying Programme ⁽¹⁾	02ITER	Mlynář	2+0 zk	-	3	-
Pinches ⁽¹⁾	02PINC	Kubeš	2+0 zk	-	3	-
Physics and Human Cognition	12FLP	Langer	-	2+0 z	-	2
Master Thesis 1, 2	02DPTF12	Svoboda	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Mathematical Modelling of Non-linear Systems ⁽¹⁾	01MMNS	Beneš	2 zk	-	3	-
History, Social and Economical Aspects of Fusion	02HSEF	Řípa	1+0 kz	-	2	-
Computer Simulations in Physics of Many Particles 1, 2	12SFMC12	Kotrla, Předota	3+1 z, zk	2+0 zk	2	2
Neutron Dosimetry	16DNEU	Ploc	2+0 zk	-	2	-
Introduction to Environment	16ZIVO	Čechák, Thinová	2+0 kz	-	2	-
Introduction to Management	12UM	Malát	2+0 zk	-	2	-
Radiation Effects in Matter	16REL	Pilařová	2+0 zk	-	2	-
Astrophysics	12ASF	Kulhánek	-	2+2 zk	-	4

(1) At least one must be selected.

Master's Degree Program

Nuclear Chemistry

Year 1

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Separation Methods in Nuclear Chemistry 1	15SMJ1	Němec	3+0 zk	-	3	-
Radiation Chemistry	15RACH	Motl	-	3+0 zk	-	4
Radioanalytical Methods	15RAM	John	-	3+0 zk	-	3
Trace Radiochemistry	15STP	Filipská, John	3+0 zk	-	3	-
Physical Chemistry 3	15FCHN3	Čuba	1+1 z, zk	-	2	-
Physical Chemistry 4	15FCHN4	Bárta, Múčka, Silber	-	3+2 z, zk	-	5
Practical Exercises in Separation Methods ⁽¹⁾	15SEPM	Němec, Čubová, Špendlíková	-	0+3 kz	-	3
Practical Exercises in Radiation Chemistry ⁽²⁾	15PRACH	Bárta, Čuba	-	0+3 kz	-	3
Practical Exercises in Nuclear Chemistry	15PJCH	Čubová, Němec	0+4 kz	-	4	-
Environment Chemistry and Radioecology	15RAEK	Filipská, Vopálka	2+0 zk	-	2	-
Internship	15PRAKN	Čuba	-	2 týdny z	-	4
Excursion 2	15EXK2	Zavadilová, Drtinová	-	5 dnů z	-	1
Research Project 1, 2	15VUCH12	Čuba	0+6 z	0+8 kz	6	8
<i>Optional courses:</i>						
Physical Chemistry 5	15FCH5	Silber	2+0 zk	-	2	-
Statistical Methods with Applications	01SME	Hobza	-	2+0 kz	-	2
Introduction to Photochemistry and Photobiology	15UFCB	Čubová, Juha	2+0 zk	-	2	-
Practical Exercises in Radioanalytical Methods ⁽³⁾	15PRAM	Němec, Čubová, Špendlíková	-	0+4 kz	-	4
The Chemistry of Operation of Nuclear Power Plants ⁽⁴⁾	15CHJE	Drtinová, Silber	2+0 zk	-	2	-
Isotop Syntheses	15ISY	Kozempel, Vlk	-	2+0 zk	-	2
Application of Radiation Methods ⁽⁴⁾	15APRM	Múčka	-	2+0 zk	-	2
Protection of Environment ⁽⁵⁾	15ZOCH	Filipská	2+0 zk	-	2	-
Radiation Methods in Biology and Medicine ⁽⁶⁾	15RMBM	Čuba	2+0 z	-	2	-
Chemistry of the Pharmaceuticals ⁽⁶⁾	15CHL1	Smrček	-	2+0 zk	-	3
Radiopharmaceuticals 1 ⁽⁶⁾	15RDFM	Lebeda	2+0 zk	-	2	-
Practical Exercises in Radiation Methods in Biology and Medicine ^(6,7)	15PRMB	Kozempel, Vlk	-	0+4 kz	-	4
Practical Exercises in Microbiology ⁽⁶⁾	15LMB	Demnerová	0+6 kz	-	4	-
Structure Analysis 1 ⁽⁶⁾	15STA	Kozempel, Vlk	-	2+1 z, zk	-	3
Structure Analysis 2 ⁽⁶⁾	15STA2	Kozempel, Vlk	2+0 zk	-	2	-
Toxicology ^(5,6)	15TOX	Kozempel, Vlk	2+0 zk	-	2	-

(1) Subscription of 15SEPM requires grading in 15SMJ1.

(2) Subscription of 15PRACH requires simultaneous subscription of 15RACH.

(3) Subscription of 15PRAM requires grading in 15RAM.

(4) Subscription of these courses recommended when the master thesis is related to the applied nuclear chemistry.

(5) Subscription of these courses recommended when the master thesis is related to the environmental chemistry and radioecology.

(6) Subscription of these courses recommended when the master thesis is related to the nuclear chemistry in biology and medicine.

(7) Subscription of 15PRMB requires grading in 15RMBM.

Master's Degree Program

Nuclear Chemistry

Year 2

Course	code	lecturer	win. sem.	sum. sem.	cr	cr
<i>Compulsory courses:</i>						
Radionuclide Production	15PRN	Lebeda	2+0 zk	-	2	-
Seminar 1, 2	15SEM12	Čubová	0+4 z	0+4 z	4	4
Master Thesis 1, 2 ⁽¹⁾	15DPCH12	Čuba	0+10 z	0+20 z	10	20
<i>Optional courses:</i>						
Chemistry of Radioactive Elements	15CHRP	John	2+0 zk	-	2	-
Separation Methods in Nuclear Chemistry 2 ⁽²⁾	15SMJ2	Němec	-	2+0 zk	-	2
Application of Radionuclides 1 ⁽³⁾	15NUK1	Mizera	2+0 zk	-	3	-
Application of Radionuclides 2 ⁽³⁾	15NUK2	Mizera	-	2+0 zk	-	3
Technology of Fuel Cycles of Nuclear Power Stations ⁽³⁾	15TPC	Čubová, Štamberg	2+0 zk	-	2	-
Waste Management and Treatment ^(3,4)	15TZO	Kubal	2+0 zk	-	2	-
Decommissioning of Nuclear Facilities ^(3,4)	15VJZ	Čubová	-	2+0 zk	-	2
Hydrochemistry ⁽⁴⁾	15HCHE	Sýkora	2+0 zk	-	2	-
Waste Analysis ⁽⁴⁾	15AODP	Janků	2+0 zk	-	2	-
Modelling and Simulation of Radionuclide Migration in Environment ⁽⁴⁾	15MSZP	Vetešník, Vopálka	2+1 z, zk	-	3	-
Hydrology and Pedology ⁽⁴⁾	15HYPE	Pokorná	2+0 zk	-	2	-
Determination of Radionuclides in Environment ⁽⁴⁾	15SRZP	Němec	-	2+0 zk	-	2
Glykoconjugates and Immunochemistry ⁽⁵⁾	15GIMCH	Pompach	-	2+0 zk	-	3
Radiobiology ⁽⁵⁾	16RBIO	Davidková	-	2+0 zk	-	2
General Pharmacology ⁽⁵⁾	15OFKL	Kršiak	2+0 zk	-	2	-
Biochemistry and Pharmacology ⁽⁵⁾	16BAF	Eigner Henke, Kovář	2+0 zk	-	2	-
Radiation Protection ⁽⁵⁾	16RAO	Vrba T.	4+0 zk	-	4	-
Radiopharmaceuticals 2 ⁽⁵⁾	15RFM2	Kozempel, Moša, Vlk	2+0 zk	-	2	-
Radiopharmaceuticals Technology ⁽⁵⁾	15TRF	Kozempel, Vlk	-	2+0 zk	-	2
Structure and Function of Bio-Molecules ⁽⁵⁾	11SFBM	Kolenko	2+1 z, zk	-	3	-
Astrochemistry ^(3,4)	15ASCH	Ferus	-	2+0 zk	-	2
Theoretical Basics of Radiation Chemistry ^(3,5)	15TZRCH	Juha	2+0 zk	-	2	-

(1) Initiation of diploma project requires grading in 15VUCH2.

(2) Grading in 15SMJ2 requires grading in 15SMJ1.

(3) Subscription of these courses recommended when the master thesis is related to the applied nuclear chemistry.

(4) Subscription of these courses recommended when the master thesis is related to the environmental chemistry and radioecology.

(5) Subscription of these courses recommended when the master thesis is related to the nuclear chemistry in biology and medicine.

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