Course descriptions

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COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-145/00	Asteroids

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 2.

Educational level: II.

Prerequisites: FMFI.KAFZM/2-FAA-116/15 - Interplanetary Matter (1)

Course requirements:

Learning outcomes:

Class syllabus:
The location of stable orbits in the Solar System, resonances, families, cumulative distribution, unstable orbits. Meteorites, theories of Solar System origin. The methods (and techniques) of explorations – photometry, polarimetry, radiometry, spectroscopy, spectrophotometry, radar. The composition, albedo, taxonomic types, comparison with comets and meteorites. Close encounters, collision probability, mass determination. Near-Earth objects, the frequency of falls on Earth (craters, bolides).

Recommended literature:
W. F. Bottke Jr. Et al., 2002, Asteroids III

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 9

A	B	C	D	E	FX
77,78	0,0	0,0	11,11	11,11	0,0

Lecturers: Mgr. Adrián Galád, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-152/14	Astrobiology

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 9

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: RNDr. Tomáš Paulech, PhD.

Last change: 09.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-205/00	Astronomical Instruments

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Instruments and techniques for the optical region: basic types of telescopes, optical aberrations, telescope mountings and control systems, atmospheric observational effects, active and adaptive optics, ground and space based telescopes. Detectors for optical, near infrared and ultraviolet regions: the eye, photovoltaic cells, photomultipliers, image intensifiers, CCD, increasing of signal to noise ratio. Instruments for spectroscopy and polarimetry. Instruments and techniques for astronomical image processing: digitization, standard astronomical graphical formats, basic algorithms and image transforms in astronomy. Instruments for radioastronomy: detectors, receivers, radiotelescopes, radars. Instruments for solar physics: solar telescopes, narrow band filters, spectroheliograph, coronograph.

Recommended literature:
Frederick R. Chromey: To Measure the Sky. Cambridge University press 2010
Richard Berry, James Burnell: The Handbook of Astronomical Image Processing. Willmann-Bell Inc., 2005

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 28

A	B	C	D	E	FX
50,0	32,14	17,86	0,0	0,0	0,0

Lecturers: Ing. Pavol Zigo, PhD.

Last change: 09.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAFZM/2-FAA-955/15	**Course title:** Astrophysics
Number of credits: 2	
Educational level: II.	
State exam syllabus:	
Last change: 09.05.2016	
Approved by: prof. Ing. Pavel Mach, CSc.	

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAFZM/2-FAA-956/15	**Course title:** Celestial Mechanics
Number of credits: 2	
Educational level: II.	
State exam syllabus:	
Last change: 09.05.2016	
Approved by: prof. Ing. Pavel Mach, CSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-105/00	Celestial Mechanics (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 3 / 2 **per level/semester:** 42 / 28
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Two-body problem. General integrals of motion. Conservation laws. Relationship between integral constants and orbital parameters. Kepler's laws. Gauss's constant, astronomical unit, masses of planets. Energy integral and limits of velocities. Elliptical, parabolic and hyperbolic motion. Solution of Kepler's equation. Orbit in space. Types of orbits in the Solar system. Ephemeris calculation. Fundamentals of orbit determination. N-body problem. General integrals. Relative coordinates, concept of preturbations, disturbing function.

Recommended literature:
Andrle, P.: Základy nebeské mechaniky, Praha, 1971
Brouwer, D., Clemence, G.: Methods of Celestial Mechanics, London 1961.
Danby, J. M. A.: Fundamentals of Celestial Mechanics, Richmond, 1992
Archie E. Roy: Orbital motion, Bristol : Institute of Physics Publishing, 2005
Murray, C.D., Dermott, S.F.: Solar System Dynamics, Cambridge University Press, 1999

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 38

A	B	C	D	E	FX
84,21	5,26	10,53	0,0	0,0	0,0

Lecturers: doc. RNDr. Leonard Kornoš, PhD.

Last change: 07.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-106/00	Celestial Mechanics (2)

Educational activities:
Type of activities: course
Number of hours:
per week: 3 **per level/semester:** 42
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
General integrals of the n-body motion. Disturbing function. Perturbed orbits. Small impulses and the change of orbitsal elements. Lagrange's planetary equations, 1-st order solution. Numerical integration of equations of motion. Restricted three-body problem. Jacobi integral. Lagrangian equilibrium points, stable and unstable solution. Tisserand invariant. Gravitational spheres.
Numerical solution of n-body problem, Cowell and Encke type.
Gravitational potential of an extended body. Spherically-symmetric gravitational field. Perturbations in satellite motion.

Recommended literature:
Andrle, P.: Základy nebeské mechaniky, Praha, 1971,
Danby, J. M. A.: Fundamentals of Celestial Mechanics, Richmond, 1992.
Murray, C.D., Dermott, S.F.: Solar System Dynamics, Cambridge Univ. Press, 1999.
Brouwer, D., Clemence, G.: Methods of Celestial Mechanics, London, 1961.
Archie E. Roy: Orbital motion, Bristol : Institute of Physics Publishing, 2005.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 33

A	B	C	D	E	FX
75,76	15,15	6,06	0,0	3,03	0,0

Lecturers: doc. RNDr. Leonard Kornoš, PhD.

Last change: 07.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-150/11	Comets

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 2.

Educational level: II.

Prerequisites: FMFI.KAFZM/2-FAA-116/15 - Interplanetary Matter (1)

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:
Comets II, eds. M.C. Festou, H.U. Keller, and H.A. Weaver, The University of Arizona Press, 2004.
Výber prehľadových a aktuálnych článkov, zborníky z konferencií

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 13

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: RNDr. Štefan Gajdoš, PhD.

Last change: 19.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-156/15	Computational Methods in Liquid Dynamics

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 1 **per level/semester:** 28 / 14
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 4.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAFZM/2-FMK-108/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 0

A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Martin Gera, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-149/15	Computers in Astronomy (1)

Educational activities:
Type of activities: course
Number of hours:
per week: 3 **per level/semester:** 42
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 7

A	B	C	D	E	FX
85,71	0,0	0,0	0,0	14,29	0,0

Lecturers: Mgr. Jozef Világi, PhD.

Last change: 28.04.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-249/11	Computers in Astronomy (2)

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Batch processing of observation data, FITS data format, IRAF software package - introduction

Recommended literature:
Montenbruck,O., Pfleger, T.: Astronomy on the personal computer, Springer 2000
Jones, B., Aitken, P.: Sams Teach Yourself C++ in 21 Days, Sams publishing 2003
A Beginner's Guide to using IRAF, Jeannette Barnes, NOAO Arizona, 1993
P. L. Shopbell, M. C. Britton, & R. Ebert (San Francisco: ASP), Flexible Image Transport System (FITS), 1999, NOST 100-2.0

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 3

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Jozef Világi, PhD.

Last change: 28.04.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-111/15	Cosmic Electrodynamics (1)

Educational activities:
Type of activities: course
Number of hours:
per week: 3 **per level/semester:** 42
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
Continuous Assessment (20%): presentation
Final Examination (80%): written test and oral exam
Approximate scale of final grades: A 91%, B 81%, C 71%, D 61%, E 51%
Scale of assessment (preliminary/final): 20/80

Learning outcomes:
Understanding the basics of astrophysical plasma.

Class syllabus:
Plasma in the universe, General properties of plasma, Motion of charged particle in electromagnetic fields (uniform, nonuniform, static, time-varying), Drifts, Magnetic mirror effect, Adiabatic invariants, Boltzmann equation and its moments, Macroscopic transport equations.

Recommended literature:
Bittencourt, J. A. (2004) Fundamentals of plasma physics, Springer, New York, 3rd edition, 679 pp.
Inan, U. a Golkowski M. (2011) Principles of Plasma Physics for Engineers and Scientists, Cambridge University Press, 286 pp.

Languages necessary to complete the course:
slovak, english

Notes:

Past grade distribution
Total number of evaluated students: 15

A	B	C	D	E	FX
46,67	26,67	0,0	6,67	20,0	0,0

Lecturers: RNDr. Roman Nagy, PhD.

Last change: 21.04.2017

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-112/15	Cosmic Electrodynamics (2)

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 2.

Educational level: II.

Prerequisites: FMFI.KAFZM/2-FAA-111/15 - Cosmic Electrodynamics (1)

Course requirements:
Continuous Assessment (100%): presentation, home assignments and test
Approximate scale of final grades: A 91%, B 81%, C 71%, D 61%, E 51%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Understanding the basics of magnetohydrodynamic and plasma waves.

Class syllabus:
An introduction to magnetohydrodynamics (MHD equations, Ohm's law), Waves in plasmas, Aflvén and magnetosonic waves, Waves in cold and hot plasmas.

Recommended literature:
Bittencourt, J. A. (2004) Fundamentals of plasma physics, Springer, New York, 3rd edition, 679 pp.
Inan, U. a Golkowski M. (2011) Principles of Plasma Physics for Engineers and Scientists, Cambridge University Press, 286 pp.

Languages necessary to complete the course:
slovak, english

Notes:

Past grade distribution
Total number of evaluated students: 4

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: RNDr. Roman Nagy, PhD.

Last change: 21.04.2017

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTFDF/2-FTF-213/00	Cosmology

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
- dynamics of the Universe
- physical processes in the early Universe
- anisotropies of the cosmic background radiation and the origin of galaxies

Recommended literature:
V. Balek: Kozmológia (prednáška pre 5. roč. ftf), sophia.dtp.fmph.uniba.sk/~balek
J. García-Bellido: Astrophysics and Cosmology, hep-ph/0004188

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 29

A	B	C	D	E	FX
58,62	24,14	10,34	3,45	3,45	0,0

Lecturers: doc. RNDr. Vladimír Balek, CSc.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAFZM/2-FAA-991/15	**Course title:** Diploma Thesis
Number of credits: 5	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. Ing. Pavel Mach, CSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-910/00	Diploma Thesis (1)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Individual task of student, consultations with the diploma thesis supervisor

Recommended literature:
According to orientation of the diploma thesis

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 30

A	B	C	D	E	FX
93,33	0,0	3,33	3,33	0,0	0,0

Lecturers: prof. RNDr. Vladimír Porubčan, DrSc., doc. RNDr. Leonard Kornoš, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-911/00	Diploma Thesis (2)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
Form of the course: on-site learning

Number of credits: 15

Recommended semester: 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Individual task of student, consultations with the diploma thesis supervisor

Recommended literature:
According to orientation of the diploma thesis

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 29

A	B	C	D	E	FX
86,21	0,0	10,34	0,0	3,45	0,0

Lecturers: prof. RNDr. Vladimír Porubčan, DrSc., doc. RNDr. Leonard Kornoš, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-233/13	English Conversation Course (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 3.

Educational level: I., II.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
The content of the course is general English.
The language level is B2/C1 (Upper-Intermediate/Lower Advanced).

Recommended literature:
Selection of materials from Inside Out Upper-Intermediate, Cutting Edge Upper-Intermediate, New English File Upper-Intermediate, British and American newspapers and journals
Recordings: authentic and semi-authentic (source: BBC, CNN, coursebook recordings)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 135

A	B	C	D	E	FX
58,52	18,52	9,63	2,22	1,48	9,63

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-234/13	English Conversation Course (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2., 4.

Educational level: I., II.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
The course is a follow-up to the Conversation Course in English (1). The content of the course is general English.
The language level is B2/C1 (Upper-Intermediate/Lower Advanced).

Recommended literature:
Selection of materials from Inside Out Upper-Intermediate, Cutting Edge Upper-Intermediate, New English File Upper-Intermediate, British and American newspapers and journals
Recordings: authentic and semi-authentic (source: BBC, CNN, coursebook recordings)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 62

A	B	C	D	E	FX
67,74	19,35	4,84	0,0	0,0	8,06

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-151/17	Exoplanets

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 3

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: RNDr. Mária Hajduková, PhD.

Last change: 15.12.2017

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-135/15	Field Practice

Educational activities:
Type of activities: practice
Number of hours:
per week: **per level/semester:** 40s
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 12

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: RNDr. Štefan Gajdoš, PhD., doc. RNDr. Leonard Kornoš, PhD., Mgr. Jozef Világi, PhD., Mgr. Adrián Galád, PhD.

Last change: 03.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-141/00	French Language (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
French language is taught at two levels: beginner and intermediate. Students opt for one of them depending on whether they wish to obtain the fundamentals of the language or wish to maintain and/or improve previous knowledge of French.

Recommended literature:
Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 374

A	B	C	D	E	FX
39,84	22,19	21,66	10,16	2,14	4,01

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-142/00	French Language (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject continues the program of French language (1) and provides courses of essential and intermediate French language.

Recommended literature:
Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2
Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983
Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 237

A	B	C	D	E	FX
34,18	27,85	21,52	11,39	2,53	2,53

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-241/00	French Language (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject provides a course of intermediate French language, covering not only general, but also technical language.

Recommended literature:
Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2
Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983
Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 93

A	B	C	D	E	FX
33,33	30,11	23,66	7,53	1,08	4,3

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-242/00	French Language (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject provides a course of intermediate French covering not only general, but also technical French language.

Recommended literature:
Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2
Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983
Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008
Zarha Lahmidi: Sciences-techniques.com, ISBN 209-0331186-0, CLE international, 2005

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 63

A	B	C	D	E	FX
31,75	38,1	20,63	3,17	1,59	4,76

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAFZM/2-FAA-959/15	**Course title:** Galactic and Extra-Galactic Astronomy
Number of credits: 2	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. Ing. Pavel Mach, CSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-125/00	Galactic and Extra-Galactic Astronomy (1)

Educational activities:
Type of activities: course
Number of hours:
per week: 5 **per level/semester:** 70
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Spherical astronomy – galactic coordinates and proper motions in galactic coordinates; Solar motion, Local standard of rest; theory of galactic rotation; Oort's equations and constants; rotation curve, dark matter; spiral structure of the Galaxy; stellar dynamics; regular and irregular forces in stellar systems; basic equation of stellar dynamics; charakteristics of trajectories of stars; perturbations: epicyclic motion in galactic plane and cyclic motion in a plane normal to the galactic plane.

Recommended literature:
Binney J., Merrifield M.: 1998, Galactic Astronomy, Princeton University Press, Princeton
Scheffler H., Elsasser H.: 1988, Physics of the Galaxy and Interstellar Matter, Springer-Verlag, Berlin
Binney J., Tremaine S.: 2008, Galactic Dynamics, Princeton University Press, Princeton
Kulikovskij P. G.: 1985, Zvezdnaja astronomija, Nauka, Moskva
Mihalas D., Binney J.: 1981, Galactic Astronomy, W. H. Freeman and Company, San Francisco
Mihalas D., McRae Routly P.: 1968, Galactic Astronomy, W. H. Freeman and Company, San Francisco
Sparke L. S., Gallagher J. S.: 2007, Galaxies in the Universe: An Introduction. Cambridge University Press, Cambridge

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 35

A	B	C	D	E	FX
71,43	20,0	2,86	2,86	2,86	0,0

Lecturers: doc. RNDr. Jozef Klačka, PhD.

Last change: 02.06.2015
Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-225/00	Galactic and Extra-Galactic Astronomy (2)

Educational activities:
Type of activities: course
Number of hours:
per week: 5 **per level/semester:** 70
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Apparent distribution of stars, differential and integral function of brightness, luminosity function, models of our Galaxy and theirs comparison with number of stars; interstellar absorption; classification of galaxies, structure of galaxies, integral properties of galaxies; methods of determining galactic masses and distances; radial galactic velocities, redshift and Hubble's law; space distribution of galaxies, local group of galaxies, clusters of galaxies; active galaxies, galactic nuclears, quasars.

Recommended literature:
Jones M. H., Lambourne R. J. A.: 2004, An Introduction to Galaxies and Cosmology, Cambridge University Press, Cambridge
Combes F.: 2002, Galaxies and Cosmology, Springer-Verlag, Berlin
Binney J., Merrifield M.: 1998, Galactic Astronomy, Princeton University Press, Princeton
Zeilik M., Gaustad J.: 1990, Astronomy, John Wiley and Sons, Inc., New York
Gorbackij V. G.: 1986, Vvedenije v fiziku galaktik I skoplenij galaktik, Nauka, Moskva
Kulikovskij P. G.: 1985, Zvezdnaja astronomija, Nauka, Moskva
Schneider P.: 2006, Extragalactic Astronomy and Cosmology, Springer-Verlag, Berlin

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 29

A	B	C	D	E	FX
75,86	10,34	10,34	0,0	3,45	0,0

Lecturers: doc. RNDr. Jozef Klačka, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTFDF/2-FTF-117/00	General Relativity

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 3 / 2 **per level/semester:** 42 / 28
Form of the course: on-site learning

Number of credits: 7

Recommended semester: 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
- Curved spacetime, derivation of Einstein equations and their geometrical meaning
- Exact solutions of the equations: expanding Universe and cosmological models, spherically symmetric stars and black holes
- Linearized gravitation, gravitational waves
- Consequences of the positivity of energy: enlargement of black hole horizons, existence of sigularities in spacetime

Recommended literature:
Ch. W. Misner, K. S. Thorne, J. A. Wheeler: Gravitation, W. H. Freeman and Comp., San Francisco (1973)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 35

A	B	C	D	E	FX
34,29	31,43	25,71	5,71	2,86	0,0

Lecturers: doc. RNDr. Vladimír Balek, CSc.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-151/00	German Language (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
German language is taught at three levels: beginner, intermediate and advanced. Students opt for one of them depending on whether they need to learn the fundamentals or maintain and/or improve their previous knowledge.

Recommended literature:
Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 648

A	B	C	D	E	FX
31,94	29,17	21,3	10,03	2,93	4,63

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-152/00	German Language (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The course continues the program of German language (1). German language is taught at three levels: beginner, intermediate, advanced.

Recommended literature:
Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 408

A	B	C	D	E	FX
29,17	22,06	23,77	14,95	3,68	6,37

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-251/00	German Language (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject continues the program of German language (2). It provides a course of intermediate and advanced German language.

Recommended literature:
Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.
Aus moderner Technik und Naturwissenschaft, 1999, Max Hueber Verlag, D-85737, ISBN 3-19-001629-1

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 148

A	B	C	D	E	FX
38,51	27,03	22,3	6,76	2,7	2,7

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-252/00	German Language (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject continues the program of German language (3). It provides a course of intermediate and advanced German language.

Recommended literature:
Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.
Vilma Václavíková: Nemčina pre študentov MFF UK, Vysokoškolský učebný text pre potrebu študentov KJP, č. 9793/1982 C VIII/2, 1983

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 78

A	B	C	D	E	FX
35,9	28,21	14,1	12,82	3,85	5,13

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAFZM/2-FAA-957/15	**Course title:** Interplanetary Matter
Number of credits: 2	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. Ing. Pavel Mach, CSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAFZM/2-FAA-116/15	**Course title:** Interplanetary Matter (1)
Educational activities: **Type of activities:** lecture **Number of hours:** **per week:** 3 **per level/semester:** 42 **Form of the course:** on-site learning	
Number of credits: 4	
Recommended semester: 1.	
Educational level: II.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus:	
Recommended literature:	
Languages necessary to complete the course:	
Notes:	

Past grade distribution
Total number of evaluated students: 15

A	B	C	D	E	FX
46,67	26,67	13,33	13,33	0,0	0,0

Lecturers: RNDr. Štefan Gajdoš, PhD.
Last change: 27.05.2016
Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-117/15	Interplanetary Matter (2)

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 15

A	B	C	D	E	FX
93,33	6,67	0,0	0,0	0,0	0,0

Lecturers: prof. RNDr. Vladimír Porubčan, DrSc., doc. RNDr. Juraj Tóth, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-130/00	Laboratory Practice (1)

Educational activities:
Type of activities: laboratory practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Preparing of an observational programs for astrometry and photometry. CCD astrometry and photometry of asteroids and comets. Methods of meteor observations. Basic of TV meteors data processing.

Recommended literature:
Asteroids II, 1989, eds. R. P. Binzel, T. Gehrels, M. S. Matthews
MaxIm DL User Guide – manuál k CCD kamere
P. Martinez, A. Klotz: A practical Guide to CCD Astronomy, Cambridge, 1998

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 31

A	B	C	D	E	FX
96,77	0,0	3,23	0,0	0,0	0,0

Lecturers: doc. RNDr. Leonard Kornoš, PhD., RNDr. Štefan Gajdoš, PhD., Mgr. Adrián Galád, PhD.

Last change: 03.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-230/00	Laboratory Practice (2)

Educational activities:
Type of activities: laboratory practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Processing of video records of H-alpha observation of active events (solar flares). Brief analysis of radio bursts.

Recommended literature:
Stix M.: 2002, The Sun - an introduction, Springer Verlag
Buzek A., Durrant C.J.: 1977, Ilustrovaný slovník termínov slnečnej a slnečno-zemskej fyziky. SÚ Hurbanovo (preklad)
Kleczek, J.:1987, Exercises in Astronomy, Riedel Publ. Comp., Dordrecht, Holland
Minnaert, M.G. J.: 1979, Praktická astronómia, SÚ Hurbanovo (preklad)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 29

A	B	C	D	E	FX
89,66	0,0	3,45	3,45	3,45	0,0

Lecturers: Mgr. Jozef Világi, PhD., Ing. Pavol Zigo, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/2-MXX-110/00	Physical Education and Sport (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Practicing of the students´ game skills in collective sports: basketball, volleyball, football, floorball and hockey. Mastering of the basic technique of a particular sport discipline in other sports. In paddling, basic training on still and slightly flowing water. Development of coordination skills, improvement of articular mobility and cardiovascular system.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1329

A	B	C	D	E	FX
99,1	0,6	0,0	0,0	0,0	0,3

Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/2-MXX-120/00	Physical Education and Sport (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Practicing of offensive and defensive game combinations and playing with modified rules in collective sports such as basketball, volleyball, football, floorball, hockey. Command of elements of higher difficulty in locomotion skills (swimming - crawl stroke, breast stroke, butterfly stroke, trampoline jumping and aerobics – practicing of areobics compositions, bodybuilding – development of the main muscle groups, paddling on running water. Testing of the level of physical fitness and coordination skills.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1223

A	B	C	D	E	FX
99,84	0,08	0,0	0,0	0,0	0,08

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Branislav Nedbálek, PaedDr. Mikuláš Ortutay, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Júlia Raábová, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/2-MXX-210/00	Physical Education and Sport (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
To improve offensive and defensive game combinations in collective sports. Practicing of tactical and technical elements in individual sports. Compensatory exercises to correct wrong body posture. Stretching. Competition rules in sport disciplines.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 992

A	B	C	D	E	FX
99,4	0,4	0,0	0,0	0,0	0,2

Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/2-MXX-220/00	Physical Education and Sport (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Sport training for Faculty Championships in a selected sport with modified rules. Selection of sport-talented students into teams of the Faculty Sport League, University League of Bratislava Faculties, and participation in sport events of the Faculty and University.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 868

A	B	C	D	E	FX
99,31	0,46	0,0	0,0	0,12	0,12

Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Branislav Nedbálek

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-248/15	Planetary Cosmogony

Educational activities:
Type of activities: course
Number of hours:
per week: 3 **per level/semester:** 42
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 13

A	B	C	D	E	FX
92,31	0,0	0,0	0,0	7,69	0,0

Lecturers: doc. RNDr. Juraj Tóth, PhD.

Last change: 07.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-144/00	Population of Meteoroids

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 3.

Educational level: II.

Prerequisites: FMFI.KAFZM/2-FAA-117/15 - Interplanetary Matter (2)

Course requirements:

Learning outcomes:

Class syllabus:
Definitionof meteoroid, division. Flight through the atmosphere, basic equations of meteor physics. Methods of observations. Masses, densities, velocities, radiants, orbits, methods of determination, databases. Meteor spectra, composition of meteoroids. Activity of shower and sporadic population. Diurnal and annual variation in rates of sporadic metors, radiants, sources. Nongravitational effects. Selection effects. Micrometeorites. Flux of meteoric matter on the Earth. Zodiacal light. Spatial structure of meteor population and relation to other components of interplanetary matter.

Recommended literature:
Murrad E., Williams I.P.: 2002, Meteors in the Earth's Atmosphere. Cambridge, London
McKinley D.W.R.: 1961, Meteor science and engineering. McGraw-Hill Comp., New York, London

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 18

A	B	C	D	E	FX
83,33	11,11	5,56	0,0	0,0	0,0

Lecturers: prof. RNDr. Vladimír Porubčan, DrSc.

Last change: 09.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-245/00	Radiative Transfer in Stellar Atmospheres

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 4.

Educational level: II.

Prerequisites: FMFI.KAFZM/2-FAA-101/00 - Theoretical Astrophysics (1)

Course requirements:

Learning outcomes:

Class syllabus:
Radiative field, transfer equation, equation of statistic equilibrium, absorption coefficient in spectral line, two-levels atom, solution of transfer equation, redistribution of radiation, multi-levels non-LTE problem, model atmosphere, radiative transfer in moving environment, theoretic problems of solar spectroscopy.

Recommended literature:
Mihalas, Dimitri: 1978, Stellar Atmospheres, W. H. Freeman & comp., San Francisco

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 13

A	B	C	D	E	FX
84,62	15,38	0,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Petr Heinzel, DrSc.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-161/00	Russian Language (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject provides a course in Russian language for beginners.

Recommended literature:
The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 642

A	B	C	D	E	FX
60,9	16,2	9,66	4,83	1,71	6,7

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-162/00	Russian Language (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject continues the program of Russian language (1) and provides a course of Russian for beginners.

Recommended literature:
The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 389

A	B	C	D	E	FX
65,81	16,2	9,0	3,34	1,03	4,63

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-261/00	Russian Language (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The course "Russian for Intermediate Students" is a follow-up to "Russian for Beginners". The subject of the course is general Russian in the range appropriate to the given level.

Recommended literature:
The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 191

A	B	C	D	E	FX
70,68	17,28	8,38	2,62	0,0	1,05

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-262/00	Russian Language (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The course "Russian for Intermediate Students" is a follow-up to "Russian for Beginners". The subject of the course is general Russian in the range appropriate to the given level.

Recommended literature:
The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 130

A	B	C	D	E	FX
73,85	13,85	7,69	3,08	0,77	0,77

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-240/00	Selected Problems in Astrophysics

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Exoplanets, basic terms, planets of the Solar system, detection methods of exoplanets, properties, clasification, interiors, atmospheres of exoplanets, formation and evolution.
Brown dwarfs, observed properties, spectral clasification, formation and evolution, interiors and atmospheres.

Recommended literature:
Cassen et al. 2006, Extrasolar planets
Perryman 2011, The Exoplanet Handbook
Seager 2010, Exoplanets
Selected papers from journals

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 17

A	B	C	D	E	FX
82,35	17,65	0,0	0,0	0,0	0,0

Lecturers: RNDr. Ján Budaj, CSc.

Last change: 28.04.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-141/00	Selected Topics in History of Astronomy

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Origin of astronomy; Astronomy of ancient cultures; Astronomy of Greek philosofers: Aristarchos, Hipparchos; Almagest; Ptolemaios and the geocentric conception of the world; Astronomy in the middle ages; Copernicus and the heliocentric system; Gaileo Galilei; Kepler; Newton and developments of the celestial mechanics

Recommended literature:
Horský, Z., Plavec, M.: Poznávání vesmíru, Orbis, Praha 1962
Grygar, J., Horský, Z., Mayer, P.: Vesmír, Praha 1983
Pereľ: Vývin predstáv o vesmíre, Osveta, Bratislava 1969

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 23

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Juraj Tóth, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-120/00	Seminar on Astronomy and Astrophysics (1)

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Own scientific work of students. Publication of partial results from diploma thesis. Actual astronomical news and discoveries presented at IAU meetings, relating chiefly to the research fields investigated in Slovakia: interplanetry matter, solar physics, stellar astronomy.

Recommended literature:
Proceedings from the IAU symposia and conferences
Astronomical journals

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 33

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Leonard Kornoš, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-121/00	Seminar on Astronomy and Astrophysics (2)

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Own scientific work of students. Publication of partial results from diploma thesis. Actual astronomical news and discoveries presented at IAU meetings, relating chiefly to the research fields investigated in Slovakia: interplanetry matter, solar physics, stellar astronomy.

Recommended literature:
Proceedings from the IAU symposia and conferences
Astronomical journals

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 31

A	B	C	D	E	FX
93,55	0,0	6,45	0,0	0,0	0,0

Lecturers: doc. RNDr. Leonard Kornoš, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-220/00	Seminar on Astronomy and Astrophysics (3)

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Own scientific work of students. Publication of partial results from diploma thesis. Actual astronomical news and discoveries presented at IAU meetings, relating chiefly to the research fields investigated in Slovakia: interplanetry matter, solar physics, stellar astronomy.

Recommended literature:
Proceedings from the IAU symposia and conferences
Astronomical journals

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 28

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Leonard Kornoš, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-221/00	Seminar on Astronomy and Astrophysics (4)

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Own scientific work of students. Publication of partial results from diploma thesis. Actual astronomical news and discoveries presented at IAU meetings, relating chiefly to the research fields investigated in Slovakia: interplanetry matter, solar physics, stellar astronomy.

Recommended literature:
Proceedings from the IAU symposia and conferences
Astronomical journals

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 30

A	B	C	D	E	FX
93,33	3,33	0,0	3,33	0,0	0,0

Lecturers: doc. RNDr. Leonard Kornoš, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-243/00	Solar Corona

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 4.

Educational level: II.

Prerequisites: FMFI.KAFZM/2-FAA-101/00 - Theoretical Astrophysics (1)

Course requirements:

Learning outcomes:

Class syllabus:
Basic solar data. Equipments for solar corona observation, obsevation data. Interpretation of corona observation in optical region. EUV corona. Activity cycle in solar corona. Features in solar corona, prominences, cororonal transients (CME), coronal holes. Corona in radio and RTG spectral region.

Recommended literature:
Physics of the Solar Corona: An Introduction with Problems and Solutions / Aschwanden, M.J. : Springer Praxis Books, 2006

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 4

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Jaroslav Dudík, PhD.

Last change: 27.04.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-201/15	Solar Physics

Educational activities:
Type of activities: course
Number of hours:
per week: 3 **per level/semester:** 42
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 14

A	B	C	D	E	FX
92,86	7,14	0,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Jaroslav Dudík, PhD.

Last change: 27.04.2016

Approved by: prof. Ing. Pavel Mach, CSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAFZM/2-FAA-958/15	**Course title:** Solar Physics
Number of credits: 2	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. Ing. Pavel Mach, CSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-147/00	Spectroscopy in Astronomy

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Spectral analysis. Fourier transforms. Spectrographs, diffraction gratings, interferometers, interference filters, detectors, spectrum calibration. Instrumental profile. Measurement of instrumental profile and correction for instrumental profile. Noise and noise filters. Scattered light, correction for scattered light. Determination of stellar rotation and stellar turbulence from spectral line profiles. Spectroscopic diagnostics of optical thin plasma.

Recommended literature:
Gray, David F.: 1976, The Observation and Analysis of Stellar Photospheres, John Wiley and sons, New York-London-Sydney-Toronto
scientific paper and proceedings

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 10

A	B	C	D	E	FX
70,0	10,0	20,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Jaroslav Dudík, PhD.

Last change: 27.04.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-115/15	Sports in Nature (1)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 171

A	B	C	D	E	FX
99,42	0,0	0,58	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický

Last change: 25.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-115/15	Sports in Nature (1)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 171

A	B	C	D	E	FX
99,42	0,0	0,58	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický

Last change: 25.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-215/15	Sports in Nature (2)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 94

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický

Last change: 25.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-215/15	Sports in Nature (2)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 94

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický

Last change: 25.05.2016

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-101/00	Theoretical Astrophysics (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 3 / 2 **per level/semester:** 42 / 28
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
Continuous Assessment (20%): home assignments
Final Examination (80%): written test and oral exam
Approximate scale of final grades: A 91%, B 81%, C 71%, D 61%, E 51%
Scale of assessment (preliminary/final): 20/80

Learning outcomes:
Understanding the basics of radiation transfer in stellar atmospheres.

Class syllabus:
Introduction (definitions), Absorption and emission coefficient, Transfer equation, Radiative equilibrium, Grey atmosphere, Continuum absorption coefficient, Model atmosphere (hydrostatic equilibrium, temperature distribution, …), Line absorption coefficient, Behaviour of spectral lines, Chemical analysis, Stellar rotation, Turbulence in stellar atmospheres.

Recommended literature:
LeBlanc, F. (2010) An Introduction to Stellar Astrophysics, Wiley, 352 pp.
Gray, D. F. (1992) The Observation and Analysis of Stellar Photospheres, Cambridge University Press, 452 pp.
Mihalas, D. (1978) Stellar Atmospheres, W. H. Freeman, 632 pp.

Languages necessary to complete the course:
slovak, english

Notes:

Past grade distribution
Total number of evaluated students: 35

A	B	C	D	E	FX
51,43	20,0	11,43	8,57	5,71	2,86

Lecturers: RNDr. Roman Nagy, PhD.

Last change: 21.04.2017

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-102/00	Theoretical Astrophysics (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 3 / 2 **per level/semester:** 42 / 28
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:
Continuous Assessment (20%): home assignments
Final Examination (80%): written test and oral exam
Approximate scale of final grades: A 91%, B 81%, C 71%, D 61%, E 51%
Scale of assessment (preliminary/final): 20/80

Learning outcomes:
Understanding the basics of the theory of stellar structure and evolution.

Class syllabus:
Introduction, The equations of stellar evolution, Properties of matter and energy transport, Nuclear reactions, Equilibrium stellar configurations, The stability of stars, The pre-main-sequence phase, Stellar evolution on the main sequence, Evolution away from main-sequence, Final stages of stellar evolution.

Recommended literature:
Prialnik, D. (2009) An Introduction to the Theory of Stellar Structure and Evolution, Cambridge University Press, 2nd edition, 328 pp.
LeBlanc, F. (2010) An Introduction to Stellar Astrophysics, Wiley, 352 pp.

Languages necessary to complete the course:
slovak, english

Notes:

Past grade distribution
Total number of evaluated students: 33

A	B	C	D	E	FX
60,61	9,09	15,15	9,09	3,03	3,03

Lecturers: RNDr. Roman Nagy, PhD.

Last change: 21.04.2017

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FBF-141/11	Theoretical Fundamentals of Molecular Spectroscopy

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 5

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: prof. Ing. Pavel Mach, CSc., prof. RNDr. Ján Urban, DrSc.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FAA-241/00	Variable Stars

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Definition of variability of stars, intrinsic variables, regular and irregular variables, rotation, convection, magnetic field, pulsation, stellar wind, asteroseismology, variability of stars across HRD

Recommended literature:
Zdeňek Miklášek: Proměnné hvězdy – Skripta. Prírodovedecká fakulta Masarykovy univerzity v Brne, Brno 2002

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 14

A	B	C	D	E	FX
71,43	28,57	0,0	0,0	0,0	0,0

Lecturers: RNDr. Theodor Pribulla, CSc.

Last change: 02.06.2015

Approved by: prof. Ing. Pavel Mach, CSc.