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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-FMK-242/00	Aeronautical Meteorology

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: 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The bases of aeronautical meteorology. The considerable meteorological phenomena in aviation. Air navigation. Services for air transport. Aircraft traffic. Organized meteorological services to aviation on an international standard. Meteorological observations and systems to information distribution on airports. Information on considerable weather. Quality control and records data. Meteorological office activity.

Recommended literature:
Compendium of Meteorology. Vol.II, Part 2-Aeronautical Meteorology, WMO-No.364.
Holton, J.R.: An Introduction to Dynamic Meteorology. Academic Press, London, 1992, 511p.
Predpis L3-Letecká meteorologická služba, Ministerstvo DPT SR, 2001

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 8

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

Lecturers: Mgr. Zuzana Surová, Ing. Sandra Krollová, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAFZM/2-FMK-233/15	**Course title:** Air Pollution Modelling
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: 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: 0

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

Lecturers: RNDr. Martin Kremler, PhD.
Last change: 02.06.2015
Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-212/15	Application Software in Meteorology

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:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 2

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

Lecturers: doc. RNDr. Martin Gera, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-135/15	Applied Climatology

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:

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. RNDr. Milan Lapin, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-112/00	Atmospheric Boundary Layer Physics

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: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Surface and boundary atmospheric layers, equation of the vertical substance transport in the atmosphere, turbulent diffusion equation, vertical profiles of basic meteorological elements under state of equilibrium and any stratification, methods for radiation and energy balance components estimation, similarity theory by Monin and Obukhov.

Recommended literature:
Tomlain, J., Damborská, I.: Fyzika hraničnej vrstvy atmosféry, Univerzita Komenského, Bratislava 1999, 130 s.
Chrgjan, A., Ch.: Fizika atmosféry 1 a 2, Gidrometeoizdat, Leningrad, 1978, 490 s.
Hrvoľ, J., Tomlain, J.: Žiarenie v atmosfére, Univerzita Komenského, Bratislava, 1997, 134 s.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 30

A	B	C	D	E	FX
70,0	3,33	20,0	3,33	3,33	0,0

Lecturers: RNDr. Ingrid Damborská, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-234/00	Atmospheric Chemistry

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: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Chemical and photochemical reactions in the atmosphere. Calculation of photodissociation coefficient. Radicals. Homogenous and heterogeneous reactions. Oxidation capacity of the atmosphere. Tropospheric chemistry. Chemistry in clouds. Stratospheric chemistry. Mathematical model of the boundary layer chemistry. Mathematical model of the clouds chemistry. Mathematical model of the stratospheric chemistry.

Recommended literature:
Warneck, P., 1988: Chemistry of the natural atmosphere. Academic Press, San Diego, 758 p.
Závodský, D. – Ďurec, F. – Medveď, M., 2001: Atmospheric chemistry and air pollution modelling. UMB Banská Bystrica, 128 p.
Scientific journals – selected articles.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 4

A	B	C	D	E	FX
75,0	25,0	0,0	0,0	0,0	0,0

Lecturers: RNDr. Martin Kremler, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAFZM/2-FMK-249/00	**Course title:** Atmospheric Convection
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: 4.	
Educational level: II.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus: Introduction: Convection and convection dynamics. Scales of convection. Synoptic setting. Methods of research and early warning. Physical parameters, instability indices and their application in diagnostics and forecasting of convective phenomena. Vorticity, helicity and their use by explaining kinematics and dynamics of severe storms. Hails – methods of detection and research. Convective systems, structure and types of convective cells. Downburst. Gust front. Tornado. Atmospheric electricity. Lightning detection and its practical use in monitoring and forecasting the thunderstorm activity.	
Recommended literature: Blustein, H.B.: Synoptic-Dynamic Meteorology in Midlatitudes, Vol I, II. Oxford Univ. Press, 1992, 431 pp. Cotton, W.R., Anthes, R.A., Storm and Cloud Dynamics, Academic Press, 1989, 881 pp. Doswell III.C. Microburst – a handbook for visual identification, NOAA/NSSL Norman OK (Report). Fujita, T.T.: The downburst, The University of Chicago, 1985, 121 pp. Green, S.I., Fluid Vortices, Kluwer Academic Publishers, 1995 Mac Gorman, D.K., Rust, D.: Electrical Nature of Storms, Oxford Univ. Press, 1998. Rakov, V.A., Uman, M.A.: Lightning, Physics and Effects, Cambridge University Press, 2003, 687 pp. Articles from INTERNET and from journals about recent research in convection (Monthly Weather Review, Journal of Atmospheric Sciences).	
Languages necessary to complete the course:	
Notes:	

Past grade distribution Total number of evaluated students: 17					
A	B	C	D	E	FX
52,94	5,88	17,65	11,76	5,88	5,88
Lecturers: doc. RNDr. Martin Gera, PhD.					
Last change: 02.06.2015					
Approved by: prof. RNDr. Ján Urban, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-244/00	Atmospheric Ozone

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: 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Tropospheric and stratospheric ozone. Natural variability of atmospheric ozone. Ozone monitoring (programs GAW and EMEP). Tropospheric ozone changes. Photochemical smog. Stratospheric ozone depletion. Ozone holes. Danger of stratospheric ozone decline and tropospheric ozone increase. Vienna convention on ozone layer protection. Convention on long-range transboundary air pollution in Europe.

Recommended literature:
Závodský, D. (ed.): Atmospheric chemistry and air pollution modelling. Leonardo da Vinci Programme. UMB Banská Bystrica, 2001, 128 p.
Scientific assessment of ozone depletion - 1998. WMO Ozone Report, Ženeva, 1998.
Scientific assessment of ozone depletion - 2002. WMO Ozone Report, Ženeva, 2002.
Selected scientific articles.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1

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

Lecturers: RNDr. Martin Kremler, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FBF-202/00	Bioenergetics

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:
1. Introduction into bioenergetics. The first and second law of thermodynamics and biological systems. Gibbs free energy, energy coupling in chemical reactions. 2. Entropy of open thermodynamical systems. 3. Entropy and information. Sense of biological ordering. 4. Krebs cycle and glycolysis. Quantitative bioenergetics, common redox groups in biology. 5. Photosynthesis. 6. Kinetics of enzyme catalysis, Michaelis-Menten equation. Enzyme inhibition and activation (use in medicine). 7. Physics of enzyme catalysis. 8. Substrate phosphorylation. 9. Membrane phosphorylation - chemical hypothesis. Mitchell´s (chemiosmotic) hypothesis, Coupling of ATP-producing and ATP-consuming processes. Conformational hypothesis of the membrane phosphorylation. 11. Transformation energy in a cell as a relaxation procress. 12. Current view on the mechanisms of transformation energy in a cell.

Recommended literature:
T. Hianik, Transfer and conversion of the energy in living systems. Textbook, Comenius University 1984 (in Slovak)
V.P. Skulačev, Exciting ways of bioenergetics, Smena, Bratislava 1985 (in Slovak)
L.A. Blumenfeld. A.N. Tikhonov, Biophysical Theromodynamics of Intracellular Processes. Springer-Verlag, 1994.
D. Harris, Bioenergetics at a Glance, Blackwell, 1995.
D. Nicholls, S. Ferguson, Bioenergetics 2, Academic Press, 1992.
S. Papa, F. Guerrieri, J. Tager (Eds.), Frontiers of Cellular Bioenergetics, Kluwer, 1999.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 38

A	B	C	D	E	FX
86,84	5,26	5,26	0,0	2,63	0,0

Lecturers: doc. RNDr. Iveta Waczulíková, PhD.
Last change: 02.06.2015
Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FJF-238/00	Biological Effects of Ionizing Radiation

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:
The temporal course of radiation effects. Cellular and subcellular radiobiology. Theories and models for cell survival. Radiation effects of particles with high linear energy transfer (LET, Bragg peak, dependence RBE on LET, direct and indirect action, fractionation of exposure). Late effects of radiation on tissue (stochastic and nonstochastic effects). Radiation biology of normal and neoplastic tissue systems.

Recommended literature:
Alpen E.L.: Radiation Biophysics, Academic Press, San Diego, 1998
Nias A.H.W.: An introduction to radiobiology, Wiley, Chichester, 2000
Alberts B., Bray D., Lewis J., Raff M., Roberts K., Watson J.D.: Molecular Biology of the Cell, Garland Publ., NY 1994

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 10

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

Lecturers: RNDr. Radoslav Böhm, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-238/00	Climate Changes and Variability

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: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Climate changes, climatic variability, climatic cycles, and the "climate change" in the all Earth's history and in the next centuries.
Instrumental and the other observations as the base for the climate changes, variations and variability research. Climatic changes from the Pre-Cambrium up to the year 1000. Climatic changes and variability in the last millennium and in the 20th century. Climate change scenarios for the 21st century (natural and anthropogenically induced climatic changes due to the green-house effect increase). Climate change and change in the ozone concentration. Thermal and other atmospheric pollution, green-house gases and aerosols emission. Climate change and climatic variation forecasts, climate change scenarios (limatic scenarios by the IPCC)

Recommended literature:
Chrgian, A.Ch.: Fizika atmosfery, Tom 1, 2. Gidrometeoizdat, Leningrad 1978, 247 and 319 pp.
Netopil, R. et al.: Fyzická geografie 1. SPN, Praha, 1984, 273 pp.
Frakes, L.A.: Climates Throughout Geologic Time. Elsevier Sci. Publ. Comp., Amsterdam, 1979, 310 pp.
Monin, A.C., Šiškov, A.J.: Istorija klimata. Gidrometeoizdat, Leningrad, 1979, 408 pp. 5.
Peixoto, J.P., Oort, A.H.: Physics of Climate. AIP Press, Springer, New York 1992, 520 pp.;
Lapin, M., Tomlain, J.: Všeobecná a regionálna klimatológia. Vyd. UK Bratislava, Bratislava 2001, 184 pp.;
Pedlosky, J.: Ocean Circulation Theory. Springer, Berlin 1998, 455 pp.;
Dobrovolski, S.G.: Stochastic Climate Theory. Springer, Berlin 2000, 282 pp.
Climate Change 2001: The Scientific Basis. J. T. Houghton, et al. (Eds.). Cambridge Univ. Press, UK, 2001, 944 pp.
The newest information from the INTERNET and journals.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 10

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

Lecturers: prof. RNDr. Milan Lapin, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-110/00	Climate of Central Europe and Slovakia

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:
Central European climate sub-system, climate forming factors and processes and their interactions. Climatic patterns for selected climatic elements. Climate and its peculiarities in the individual Central European regions. Dynamic climatology. Climatic classifications for Central Europe. Climate and mesoclimate of the atmospheric boundary layer and aeroclimatology. Climatic normals and characteristics of selected Central European cities and in Slovakia at changing climate forming conditions.

Recommended literature:
Lebedeva, A.N., Jegorova, A.Ju.: Klimaty zapadnoj Jevropy. Gidrometeoizdat, Leningrad 1983, 445 pp.
Klimatické pomery na Slovensku. Zborník prác SHMÚ, Vol. 33/I and 33/II, Alfa, Bratislava 1991 and 1990, 239 s. a 34,65 AH.
Okolowicz, W.: General Climatology Polish Sci.Pub., Warszawa 1976, 422 pp.
Netopil, R. et al.: Fyzická geografie 1.SPN Praha 1984, 272 pp.
Podnebí Československa – Souborná studie (Š. Petrovič, ed.), HMÚ Praha, Severografia, Turnov 1969, 357 pp.
Lapin, M., Tomlain, J.: Všeobecná a regionálna klimatológia, Vyd. UK Bratislava, Bratislava 2001, 184 pp.
Klimatické a fenologické pomery jednotlivých krajov Slovenska, HMÚ Praha and SHMÚ Bratislava.
Atlas krajiny Slovenskej republiky (L. Miklós ed.) MŽP SR Bratislava a AŽP Banská Bystrica 2002, 344 pp.
Climatic normals by the WMO for 1961-1990. WMO, Geneva 1992 (on CD).

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 36

A	B	C	D	E	FX
44,44	41,67	2,78	8,33	2,78	0,0

Lecturers: prof. RNDr. Milan Lapin, CSc., RNDr. Marián Melo, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-152/10	Climatology and Hydrology

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:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 5

A	B	C	D	E	FX
80,0	20,0	0,0	0,0	0,0	0,0

Lecturers: prof. RNDr. Milan Lapin, CSc., RNDr. Marián Melo, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-113/00	Clouds and Precipitation Physics

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:
Elementary terms. Clausius – Clapeyron equation. Condensation nuclei. Vertical atmosphere velocities computation methods. Eckman spiral, water vapour condensation in the surface layer of the atmosphere. Thermodynamic conditions of the fog creating. Convective clouds. Microstructure and physical cloud processes. Precipitation formation theory. Physical conditions of the rainfall process in the surface atmospheric layer. Precipitation measurement failures. Physical aspects of the snow cover formation and its variation. Electrical and optical features of the clouds and precipitations. Artificial stimulation of cloud and rainfall.

Recommended literature:
Rogers, R.R.: A Short Course in Cloud Physics. Pergamon Press, Oxford, 1976, (russian translation: Gidrometeoizdat, Leningrad, 1979, 231s.),
Chrgian, A.Ch.: Fizika atmosfery. Tom 1, 2. Gidrometeoizdat, Leningrad, 1978, 214s. a 319s.
Netopil, R. a kol.: Fyzická geografie 1. SPN, Praha, 1984, 273s.
Pechala, F., Bednář, J.: Příručka dynamické meteorologie. Academia, Praha, 1991, 372s.
Rogers, R.R., Yau, M.K.: A Short Course in Cloud Physics. Third edition, USA, 1996, 290 s.
Young, K.C.: Microphysical processes in clouds. Oxford University Press, 1993, 427 s.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 26

A	B	C	D	E	FX
57,69	23,08	11,54	7,69	0,0	0,0

Lecturers: prof. RNDr. Milan Lapin, CSc., RNDr. Ingrid Damborská, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB+KAFZM/2-FOZ-275/15	Complex Solutions of Real Environmental Problems

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: 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: 13

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

Lecturers: doc. RNDr. Marcela Morvová, PhD., doc. RNDr. Zdenko Machala, PhD., RNDr. Marcela Morvová, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 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: 1

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

Lecturers: doc. RNDr. Martin Gera, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-141/15	Computer Modelling of Environmental Processes

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 1 / 2 **per level/semester:** 14 / 28
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: 5

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

Lecturers: prof. RNDr. Jozef Masarik, DrSc., Mgr. Róbert Breier, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KEF/2-FTL-204/15	Diagnostic Methods in Solid State Physics

Educational activities:
Type of activities: lecture
Number of hours:
per week: 4 **per level/semester:** 56
Form of the course: on-site learning

Number of credits: 6

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: 27

A	B	C	D	E	FX
66,67	25,93	3,7	3,7	0,0	0,0

Lecturers: prof. RNDr. Andrej Plecenik, DrSc., doc. RNDr. Miroslav Zahoran, CSc., doc. Ing. Maroš Gregor, PhD., doc. RNDr. Tomáš Plecenik, PhD., doc. RNDr. Tomáš Roch, Dr., Mgr. Leonid Satrapinskyy, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-913/15	Diploma Thesis

Educational activities:
Type of activities: independent work
Number of hours:
per week: 10 **per level/semester:** 140
Form of the course: on-site learning

Number of credits: 10

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: 19

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

Lecturers:

Last change:

Approved by: prof. RNDr. Ján Urban, DrSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KJFB/2-FOZ-991/15	**Course title:** Diploma Thesis Defence
Number of credits: 4	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. RNDr. Ján Urban, DrSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-920/10	Diploma Thesis Seminar (1)

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

Number of credits: 1

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: 21

A	B	C	D	E	FX
95,24	4,76	0,0	0,0	0,0	0,0

Lecturers: prof. RNDr. Pavel Povinec, DrSc., prof. RNDr. Ján Urban, DrSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KJFB/2-FOZ-921/10	**Course title:** Diploma Thesis Seminar (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: 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: 21

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

Lecturers: prof. RNDr. Pavel Povinec, DrSc., prof. RNDr. Ján Urban, DrSc.	
Last change: 02.06.2015	
Approved by: prof. RNDr. Ján Urban, DrSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-111/00	Dynamic Forecasting Methods in Meteorology

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: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Assimilation cycle, governed atmospheric equations, map projections, generalized vertical coordinate, barotropic model, integration of atmospheric model, Energy and momentum conservation, available potential energy, atmospheric oscillations, sound speed, surface and internal gravity waves, orographic waves, mixed inertial and gravity waves, Rossby waves, sensitivity of atmospheric model to the initial distribution of mass and velocity fields, transformation of energy.

Recommended literature:
Haltiner, G.J., Williams, R.T.: Numerical Prediction and Dynamic Meteorology. U.S.Naval Postgraduate School, 1980.
Acheson, D.J.: Elementary Fluid Dynamics, Clarendon Press, Oxford, 1990
Lajchtman, D.L. i kol.: Dinamičeskaja meteorologija. Gidrometeoizdat, Leningrad, 1976, 607s
F. Pechala, J. Bednář: Příručka dynamické meteorologie, Academia Praha, 1991
B. Haurwitz, Dynamic Meteorology, 1941
Holton: An Introduction to Dynamic Meteorology, Third Edition, Academia Press
J. Bednář, O. Zikmunda: Fyzika mezní vrstvy atmosféry, Academia Praha 1985
Mesinger, F., Arakawa, A.: Numerical Methods Used in Atmospheric Models.Vol.1 GARP Publications No. 17, August 1976
Selected journals: Quart. J. R. Met. Soc., Mon. Weath. Rev.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 22

A	B	C	D	E	FX
18,18	9,09	31,82	27,27	13,64	0,0

Lecturers: doc. RNDr. Martin Gera, PhD.

Last change: 02.06.2015
Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-201/15	Ecology and Radioecology

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: 7

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

Lecturers: RNDr. Miroslav Ješkovský, PhD., Ing. Jakub Kaizer, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-286/15	Ecosystems and their Interactions

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: 0

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

Lecturers: prof. RNDr. Pavel Povinec, DrSc., Mgr. Róbert Breier, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KEF/2-FOZ-109/15	Electric and Optical Properties of Solid Materials

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 4 / 2 **per level/semester:** 56 / 28
Form of the course: on-site learning

Number of credits: 8

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: 14

A	B	C	D	E	FX
7,14	21,43	7,14	14,29	42,86	7,14

Lecturers: doc. RNDr. Richard Hlubina, DrSc.

Last change: 24.09.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 144

A	B	C	D	E	FX
59,72	18,06	9,03	2,08	1,39	9,72

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 78

A	B	C	D	E	FX
64,1	20,51	6,41	1,28	0,0	7,69

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-102/10	Environmental Geophysics

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: 19

A	B	C	D	E	FX
68,42	15,79	10,53	5,26	0,0	0,0

Lecturers: doc. RNDr. Sebastián Ševčík, CSc., RNDr. Róbert Kysel, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-101/10	Environmental Physics

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: 26

A	B	C	D	E	FX
46,15	26,92	11,54	11,54	3,85	0,0

Lecturers: doc. RNDr. Ivan Sýkora, PhD., RNDr. Radoslav Böhm, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KJFB/2-FOZ-954/15	**Course title:** Environmental Physics and Renewable Energy Sources
Number of credits: 4	
Educational level: II.	
State exam syllabus:	
Last change: 16.01.2019	
Approved by: prof. RNDr. Ján Urban, DrSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-118/15	Field Research

Educational activities:
Type of activities: fieldwork
Number of hours:
per week: **per level/semester:** 40s
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: 16

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

Lecturers: doc. RNDr. Marcela Morvová, PhD., RNDr. Ján Hrvoľ, CSc., RNDr. Monika Müllerová, PhD., Mgr. Ivan Kontuľ

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 387

A	B	C	D	E	FX
41,09	21,96	21,19	9,82	2,07	3,88

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 247

A	B	C	D	E	FX
36,03	26,72	21,05	10,93	2,83	2,43

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 97

A	B	C	D	E	FX
36,08	28,87	22,68	7,22	1,03	4,12

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 68

A	B	C	D	E	FX
36,76	35,29	19,12	2,94	1,47	4,41

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-109/00	General and Regional Climatology

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:
Earth's global climate system, climate forming factors and processes and their interactions. Sources utilized in climatology. Radiative and circulation climate forming factors. Climatic patterns for selected climatic elements. Climate and its peculiarities in the individual Earth's regions. Dynamic climatology. Climatic classifications. Climate characteristics according to principal types of climatic classifications. Climate changes and variability. Anthropogenic impacts on climate. Climate modeling. Climatic scenarios for the 21st century. Climate change impacts.

Recommended literature:
Bluthgen, J., Weischet, W.: Algemeine Klimageographie, 3.Ed., Walt de Gruyter, Berlin 1980, 882 pp.
Chrgian, A.Ch.: Fizika atmosfery, Tom 1 a 2., Gidrometeoizdat, Leningrad 1978, 247 a 319 pp.
Okolowicz, W.: General Climatology Polish Sci.Pub., Warszawa 1976, 422 pp.
Netopil, R. et al.: Fyzická geografie 1. SPN, Praha 1984, 272 pp.
Peixoto, J.P., Oort, A.H.: Physics of Climate. AIP Press, Springer, New York 1992, 520 pp.;
Lapin, M., Tomlain, J.: Všeobecná a regionálna klimatológia. Vyd. UK Bratislava, Bratislava 2001, 184 pp.;
Pedlosky, J.: Ocean Circulation Theory. Springer, Berlin 1998, 455 pp.;
Dobrovolski, S.G.: Stochastic Climate Theory. Springer, Berlin 2000, 282 pp.
The newest information from the INTERNET-u and journals.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 45

A	B	C	D	E	FX
51,11	22,22	24,44	0,0	2,22	0,0

Lecturers: prof. RNDr. Milan Lapin, CSc.
Last change: 02.06.2015
Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-173/10	Geomagnetism

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:
The main magnetic field, spherical harmonic analysis, Gauss coefficients, magnetic moment of the Earth, magnetic poles, secular variations. Standards of IAGA magnetic records processing on observatory and repeat stations, magnetic survey, rules and evaluation, measurements by satellite and on an aircrafts.
Physical principles and construction of the present magnetometers, absolute measurements, calibration and base. The Earth's crust influence on measurements and magnetic field variations. Magnetic anomalies.
The external magnetic field, magnetic storms, Dst index, pulsations, Sq variation. Ionospheric dynamo, geomagnetic activity and indices, equatorial electrojet, ring current.
International reference geomagnetic field (IGRF, DGRF), data processing ant their interpretation, nonlinear analysis, errors. INTERMAGNET and international centers for collecting and processing of geomagnetic records. Electromagnetic sounding, magnetotelluric sounding and data postprocessing. Paleomagnetic methods and their contribution to the Earth's magnetic field variations and reversals.

Recommended literature:
J.A. Jacobs: Geomagnetism, Vol. 1-3. Academic Press 1987
Selected papers in J. Geophys. Res.

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: doc. RNDr. Jozef Brestenský, CSc., RNDr. Adriena Ondrášková, PhD.

Last change: 02.06.2015
Approved by: prof. RNDr. Ján Urban, DrSc.

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: 666

A	B	C	D	E	FX
32,28	29,13	21,17	9,91	2,85	4,65

Lecturers: Mgr. Alexandra Maďarová, Mgr. Marián Mancovič

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 423

A	B	C	D	E	FX
30,5	21,99	22,93	14,66	3,78	6,15

Lecturers: Mgr. Alexandra Maďarová, Mgr. Marián Mancovič

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 150

A	B	C	D	E	FX
38,0	28,0	22,0	6,67	2,67	2,67

Lecturers: Mgr. Alexandra Maďarová, Mgr. Marián Mancovič

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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. Alexandra Maďarová, Mgr. Marián Mancovič

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-256/00	Global Climate Research

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: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Structure and characteristic of the climate system (negative and positive feedbacks,…). Climates of the past, paleoclimatic techniques (isotopic method, ice cores, pollen, dendrochronology, lake sediments,…), theories of climatic change. Greenhouse effect. Analogue method, general circulation models. CCCM and GISS climate models. Climate simulation according to the climate models, regional downscaling techniques, climate change projection in the global and regional levels, climate scenarios in the future.

Recommended literature:
Trenberth, K.E. (1992): Climate System Modeling. Cambridge Univ. Press, 788p.
IPCC (2001): Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Houghton, J. T., Ding, Y., Griggs, D. J., Noguer, M., van der Linden, P. J., Xiaosu, D. (eds.). Cambridge Univ. Press, UK, 944 pp.

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: RNDr. Marián Melo, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-241/10	Global Climate System

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:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1

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

Lecturers: prof. RNDr. Milan Lapin, CSc., RNDr. Marián Melo, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-155/15	Hydrogen Energetics and Energy Storage Methods

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:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 15

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

Lecturers: doc. RNDr. Marcela Morvová, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KJFB/2-FOZ-203/10	**Course title:** Isotopic Methods in Environmental Physics
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: 16

A	B	C	D	E	FX
37,5	6,25	25,0	12,5	18,75	0,0

Lecturers: doc. RNDr. Karol Holý, CSc., RNDr. Martin Bulko, PhD., Ing. Jakub Kaizer, PhD.
Last change: 02.06.2015
Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-138/13	Measurements in Modern Aviation and Synoptic Meteorology

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

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Aviation
- measurement of visibility: transmisiometer, forwardscatter
- automatical detection of precipitation and phenomena
- laser measurement of height of clouds: ceilometer
- distant measurement of vertical profiles of temperature, humidity and wind: sodars and lidars
- detection of turbulence and vortex

Synoptical meteorology
- elecrical thermometer and hygrometer
- ultrasonic anemometer, -electrical barometer
- tipping bucket and weighing rain gauges, -global radiation sensor
- quesions of radiation screens/shields and homogenity of stations,

Special
- soil moisture sensor,
- leaves wettnes sensor

Recommended literature:
1. ICAO ANNEX 3 TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION
2. WMO-No.8 GUIDE TO METEOROLOGICAL INSTRUMENTS AND METHODS OF OBSERVATION

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 9

A	B	C	D	E	FX
88,89	11,11	0,0	0,0	0,0	0,0

Lecturers: RNDr. Juraj Bartok, PhD.
Last change: 02.06.2015
Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KEF/2-FTL-114/00	Measuring Techniques in Solid State Physics

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:
Measurement methods of electrical and magnetic properties of materials (probe methods, phase sensitive methods, method of Van der Pauw). Measurements of Hall phenomena, relaxation times of charge carriers by electric and optics methods. Measuremnts of nanovolt electrical signals. Measument of basic physical per-unit values (pressure, temperature, lenght, mass,...)

Recommended literature:
J.Brož a kol., Základy fisikálních měření I A,B a II A,B, Státni pedagogické nakladatelství, Praha (1974).
R.Morrison, Grounding and Schilding Techniques, 4th. Ed.John Wiley & Sons, New York (1998) ISBN 0-471-24518-6

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 39

A	B	C	D	E	FX
56,41	23,08	17,95	2,56	0,0	0,0

Lecturers: doc. RNDr. Tomáš Plecenik, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-142/00	Meteorological Measurement and Observation Methods Practice

Educational activities:
Type of activities: laboratory practicals
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:
Calibration of actinometrical instruments, assessments of thermograph, hygrograph, heliograph, anemograph records, evaluations of air humidity and snow cover characteristics, thermal inertia of thermometers, decoding of report INTER.

Recommended literature:
Slabá, N.: Návod pro pozorovatele meteorologických staníc ČSSR. Hydrometeorologický ústav Praha, 1972, 224 s.
Jevnevič, T. M., Poltaraus, B.V., Samojlenko, V. S.: Meteorologičeskij praktikum. Vyd. Moskovskej univerzity, Moskva, 1981, 176 s.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 27

A	B	C	D	E	FX
96,3	3,7	0,0	0,0	0,0	0,0

Lecturers: RNDr. Ján Hrvoľ, CSc., RNDr. Juraj Bartok, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KJFB/2-FOZ-955/15	**Course title:** Meteorology, Climatology and Hydrology
Number of credits: 4	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. RNDr. Ján Urban, DrSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-108/15	Methods for Data Sets Analysis

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:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 22

A	B	C	D	E	FX
45,45	18,18	9,09	22,73	4,55	0,0

Lecturers: doc. RNDr. Ivan Sýkora, PhD., RNDr. Ingrid Damborská, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-106/15	Methods of Analysis in Meteorology and Climatology

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: 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: 5

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

Lecturers: prof. RNDr. Milan Lapin, CSc., RNDr. Ingrid Damborská, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAFZM/2-FMK-231/00	**Course title:** Microclimatology and Agrometeorology
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:	
Course requirements:	
Learning outcomes:	
Class syllabus: Microclimatological and agroclimatological sub-system, factors and processes active in these areas. Basic data and sources used in the subjects listed above. Agroclimatic and microclimatic patterns, normals and characteristics according to selected elements. Evaporation, water balance and soil moisture. Atmospheric circulation in the ground level layer. Phenology and phanometry. Forest bioclimatology. Pest and diseases in the agriculture and forestry. Agrometeorological and biometeorological forecasts. Agroclimatic conditions in Slovakia. Tasks for agrometeorology at plants protection. Economical efficiency of agrometeorology.	
Recommended literature: Chrgian, A.Ch.: Fizika atmosfery, Tom 1, 2. Gidrometeoizdat, Leningrad 1978, 247 and 319 pp. Netopil, R. et al.: Fyzická geografie 1. SPN, Praha, 1984,273 pp. Nosek, M.: Metody v klimatologii. Academia, Praha 1973, 434 pp. Havlíček, V. et al.: Agrometeorologie. SZN, Praha, 1986, 260 pp. Šamaj, F., Prošek, P., Čabajová, Z.: Agrometeorológia a bioklimatológia. Vyd.UK Bratislava, Bratislava, 1994, 306 pp. Petrík, M. et al.: Lesnícka bioklimatológia. Príroda, Bratislava, 1986, 346 pp. Lapin, M., Tomlain, J.: Všeobecná a regionálna klimatológia, Vyd. UK Bratislava, Bratislava 2001, 184 pp. Špánik et al.: Aplikovaná agrometeorológia. SPU Nitra, 1997, 196 pp. The newest information from the INTERNET and journals.	
Languages necessary to complete the course:	
Notes:	

Past grade distribution Total number of evaluated students: 20					
A	B	C	D	E	FX
70,0	20,0	10,0	0,0	0,0	0,0
Lecturers: prof. RNDr. Milan Lapin, CSc., RNDr. Ingrid Damborská, CSc.					
Last change: 02.06.2015					
Approved by: prof. RNDr. Ján Urban, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FJF-249/16	Modelling of Radiation Interaction with Matter

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: 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: 1

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

Lecturers: prof. RNDr. Stanislav Tokár, DrSc., RNDr. Tibor Ženiš, PhD., Mgr. Róbert Breier, PhD.

Last change: 12.04.2016

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KEF+KAMŠ/2-FOZ-106/10	New Renewable Energy Sources (1)

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: 23

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

Lecturers: doc. RNDr. Ján Boďa, CSc., prof. RNDr. Peter Kúš, DrSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KEF/2-FOZ-115/10	New Renewable Energy Sources (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: 19

A	B	C	D	E	FX
52,63	15,79	26,32	5,26	0,0	0,0

Lecturers: doc. RNDr. Tomáš Roch, Dr., prof. RNDr. Peter Kúš, DrSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KJFB/2-FOZ-202/10	**Course title:** Nuclear Energetics and Environment
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:	
Recommended literature:	
Languages necessary to complete the course:	
Notes:	

Past grade distribution
Total number of evaluated students: 21

A	B	C	D	E	FX
66,67	9,52	9,52	9,52	4,76	0,0

Lecturers: doc. RNDr. Jaroslav Staníček, PhD., RNDr. Monika Müllerová, PhD.
Last change: 02.06.2015
Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FJF-138/00	Nuclear Geophysics and 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: 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Basics theory of nucleosynthesis, primordial, antropogenic and cosmogenic nuclides. Principles of nuclear radiometric methods, dating, erosion study, catastrophic events and their investigation by nuclear methods. Position of the Earth in the Solar system. Isotpos and their applications in Solar system formation chronometry.Space, chemical elemnts in it and their abundances in various objects of Solar system.

Recommended literature:
W.S. Broecker, How to built a habitable planet, Eldigia press, Pallisades, (1988)
D. Lal and B. Peters, Handbuch der Physik, Springer-Verlag, (1967)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 34

A	B	C	D	E	FX
64,71	26,47	2,94	5,88	0,0	0,0

Lecturers: prof. RNDr. Jozef Masarik, DrSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-131/00	Optical and Electrical Phenomena in the Atmosphere

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: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Photometric characteristics and units, Sun as a source of light, visibility, night sky radiation, halo phenomena, rainbow, corona, glory, mirage, Earth electric field, lightning, polar aurora, refraction, human eye.

Recommended literature:
Bednář, J.: Pozoruhodné jevy v atmosféře. Atmosferická optika, akustika a elektrina. Academia, Praha, 1989, 236 pp.
Hrvoľ, J., Tomlain, J.: Žiarenie v atmosfére. Univerzita Komenského, Bratislava, 1997, 136 pp.
Feynman, R.P., Leighton, R.B., Sandr, M.: Feynmanove prednášky z fyziky 2. Alfa, Vydavateľstvo technickej a ekonomickej literatúry, Bratislava, 1982, 496 pp.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 14

A	B	C	D	E	FX
78,57	7,14	14,29	0,0	0,0	0,0

Lecturers: RNDr. Ján Hrvoľ, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-186/15	Options for Regulation of the Greenhouse Gases Content in the Atmosphere

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: 19

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

Lecturers: doc. RNDr. Marcela Morvová, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FBF-102/00	Physical Chemistry and Electrochemistry

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:
1. Fundamentals of chemical thermodynamics, thermochemistry, reaction enthalpy, enthalpy of formation. 2. Chemical potential and its application to equilibrium processes in one and multicomponent systems. 3. Colligative properties, electrolyte solutions, weak and strong electrolytes. 4. Activity, activity coefficient, electrolyte solutions as special case. Debay-Huckel limiting law. 5. Affinity of the chemical reaction, equilibrium constants. Application to electrolyte solutions: pH, pKa, buffer solutions, Henderson-Haselbalch equation. 6. Galvanic cell, Nernst equation, standard electrode potentials, its meaning for oxido-reduction processes. 7. Standard electrode potential and activity coefficient from measurement of EMF of galvanic cell. 8. Classification of electrodes, pH measurement. Corrosion from electrochemical point of view. 9. Introduction to chemical kinetics. Reaction order, methods for its determination. Reaction mechanism and its connection with rate low. 10. Gas-phase reactions. Lindemann-Hinshelwood mechanism. Complex mechanisms. 11. Collision and transition state theories of chemical kinetics. 12. Homogeneous and heterogeneous catalysis. Enzymatic catalysis, autocatalysis, chemical oscillations.

Recommended literature:
W.J. Moore, Physical Chemistry, SNTL Praha, 1979 (in Czech)
P.W Atkins, Physical Chemistry, Oxford Univ. Press, 2001.
P.W. Atkins, Fyzikálna chémia, STU, Bratislava, 1999 (Translation from English).

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 75

A	B	C	D	E	FX
66,67	25,33	5,33	0,0	0,0	2,67

Lecturers: prof. Ing. Pavel Mach, CSc.
Last change: 02.06.2015
Approved by: prof. RNDr. Ján Urban, DrSc.

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: 1433

A	B	C	D	E	FX
99,16	0,56	0,0	0,0	0,0	0,28

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

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 1331

A	B	C	D	E	FX
99,77	0,08	0,0	0,08	0,0	0,08

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

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 1081

A	B	C	D	E	FX
99,44	0,37	0,0	0,0	0,0	0,19

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

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 957

A	B	C	D	E	FX
99,37	0,42	0,0	0,0	0,1	0,1

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

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-107/15	Physics of Lower Atmospheric Layers

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 3 / 1 **per level/semester:** 42 / 14
Form of the course: on-site learning

Number of credits: 5

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: 20

A	B	C	D	E	FX
35,0	20,0	20,0	15,0	10,0	0,0

Lecturers: doc. RNDr. Martin Gera, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-105/15	Physics of Soil and Water

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: 20

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

Lecturers: doc. RNDr. Marcela Morvová, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-110/13	Pollutants Transport in the Atmosphere

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: 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: 24

A	B	C	D	E	FX
54,17	29,17	4,17	4,17	8,33	0,0

Lecturers: prof. RNDr. Milan Lapin, CSc., RNDr. Martin Kremler, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-204/10	Practicum in Radiatonal Monitoring

Educational activities:
Type of activities: laboratory practicals
Number of hours:
per week: 3 **per level/semester:** 42
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: 17

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

Lecturers: doc. RNDr. Ivan Sýkora, PhD., RNDr. Monika Müllerová, PhD., Mgr. Ivan Kontuľ

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-115/00	Pre-diploma Field Practice

Educational activities:
Type of activities: practice
Number of hours:
per week: **per level/semester:** 4t
Form of the course: on-site learning

Number of credits: 1

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
To acquaint with Department of weather forecasts SHMI, operating organization at division of general forecasts, briefings, forecast preparation, forecast numerical model outputs, organization of aviation meteorological service, preparation of aeronautical weather forecasts and warnings. Detailed acquaintance with operation of chosen station by diploma thesis theme, obtaining new information and solving of some problems at diploma thesis.

Recommended literature:
According to instruction of diploma thesis principal

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: RNDr. Ingrid Damborská, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB+KAFZM/2-FOZ-912/15	Preparation of Diploma Thesis

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

Number of credits: 3

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: 19

A	B	C	D	E	FX
94,74	0,0	5,26	0,0	0,0	0,0

Lecturers: prof. RNDr. Ján Urban, DrSc., prof. RNDr. Milan Lapin, CSc., doc. RNDr. Ivan Sýkora, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FJF-126/00	Radiation Environmental Physics

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:
Sources of radioactivity in biosphere. Distribution and transport of radionuclides in environment. Indoor and outdoor radon, its measurement and hazards. Techniques for measurement of radioactive pollutants. Study of environmental processes by the use of radionuclides. Environmental laws, radiation protection legislation, radiation dose limits.

Recommended literature:
Š. Šáro, J. Tolgyesy: Rádioaktivita prostredia, Alfa, Bratislava, 1985.
W. W. Nazaroff, A. V. Nero: Radon and its decay products in Indoor Air. Wiley, New York,1988.
M. Eisenbud, T. Gesell: Environmental Radioactivity. Academic Press, San Diego,1997.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 51

A	B	C	D	E	FX
68,63	9,8	15,69	1,96	1,96	1,96

Lecturers: doc. RNDr. Karol Holý, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-144/00	Radiation in the Atmosphere

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: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Sun as a source of radiant energy, basic characteristics of radiant energy, processes of absorption and scattering of solar radiation, solar climate, solar radiation income on inclined slopes, net radiation and its components, turbidity characteristics.

Recommended literature:
Hrvoľ, J., Tomlain, J.: Žiarenie v atmosfére. Univerzita Komenského, Bratislava, 1997, 136 s.
Kondratiev, K. Ja.: Lučistaja energija solnca. Gidrometeorologičeskoje izdateľstvo, Leningrad 1954, 600 s.
Peixoto, J. P., Oort, A. H.: Physics of climate. Springer-Verlag, New York, 1992, 520 p.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 14

A	B	C	D	E	FX
78,57	21,43	0,0	0,0	0,0	0,0

Lecturers: RNDr. Ján Hrvoľ, CSc., RNDr. Juraj Bartok, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-277/15	Radionuclide Dating

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:

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: RNDr. Miroslav Ješkovský, PhD., RNDr. Alexander Šivo, PhD.

Last change: 28.09.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-242/15	Radionuclides Monitoring Methods

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:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 13

A	B	C	D	E	FX
7,69	23,08	23,08	38,46	7,69	0,0

Lecturers: doc. RNDr. Ivan Sýkora, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-246/00	Remote Sensing in Meteorology

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:
1. Physical principles of the remote sensing.
2. Remote sensing instruments in meteorology.
3. Cloud identification.
4. Wind field.
5. Current trends in remote sensing.
6. Utilization and application of acquired knowledges.

Recommended literature:
Carlsson, C.G.: An Introduction to Remote Sensing in Meteorology. SHMI, Sweden, Norrkoping 1997, 315 pp.
Reinhart, R.E.: Radar for Meteorologists. 2nd ed., North Dakota, USA, 1992, 334 pp.
Doviak, R.J., Zrnic, D.S.: Doppler Radar and Weather Observations, Academic Press, London, 1992, 562 pp.
Rao, P.K. at all.: Weather Satellites – Systems, Data and Environmental Applications, 2nd ed. AMS USA, Boston, 1994, 503 pp.
Kolář, J.: Dálkový průzkum Země. SNTL, Praha, 1990, 170s.

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: Mgr. Marián Jurášek

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 654

A	B	C	D	E	FX
60,4	15,9	10,09	4,74	1,83	7,03

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 399

A	B	C	D	E	FX
65,66	15,79	9,02	4,01	1,0	4,51

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 196

A	B	C	D	E	FX
70,41	17,35	8,67	2,55	0,0	1,02

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

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: 138

A	B	C	D	E	FX
75,36	13,04	7,25	2,9	0,72	0,72

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-202/00	Satellite and Radar Observations of Meteorological Phenomena

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:
Meteorological satellites and weather radars.
Physical principles of meteorological phenomena observation by satellites and radars.
Outputs from meteorological satellites and weather radars.
Interpretation of radar and satellite observations.

Recommended literature:
Carlsson, C.G.: An Introduction to Remote Sensing in Meteorology. SHMI, Sweden, Norrkoping 1997, 315 pp.
Reinhart, R.E.: Radar for Meteorologists. 2nd ed., North Dakota, USA, 1992, 334 pp.
Doviak, R.J., Zrnic, D.S.: Doppler Radar and Weather Observations, Academic Press, London, 1992, 562 pp.
Rao, P.K. at all.: Weather Satellites – Systems, Data and Environmental Applications, 2nd ed. AMS USA, Boston, 1994, 503 pp.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 37

A	B	C	D	E	FX
94,59	2,7	2,7	0,0	0,0	0,0

Lecturers: prof. RNDr. Milan Lapin, CSc., Mgr. Marián Jurášek

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-174/10	Seismology

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: 0

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

Lecturers: doc. Mgr. Jozef Kristek, PhD., prof. RNDr. Peter Moczo, DrSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-251/00	Selected Problems of Meteorology and Climatology

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

Number of credits: 2

Recommended semester: 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Selection of topics depends from students interest, their diploma theses and actual problems in this field. For example: Actual information from the world meteorological and climatological centres, greenhouse effect, climate models, National climate programme of SR, reports about diploma theses from the climatology,…

Recommended literature:
Scientific contributions in world and Slovak journals

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: RNDr. Marián Melo, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-171/10	Semester Project (1)

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

Number of credits: 5

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: 8

A	B	C	D	E	FX
87,5	12,5	0,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Sebastián Ševčík, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-181/10	Semester Project (2)

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

Number of credits: 5

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: 2

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

Lecturers: prof. RNDr. Milan Lapin, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB/2-FOZ-271/10	Semester Project (3)

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

Number of credits: 5

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: 1

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

Lecturers: doc. RNDr. Karol Holý, CSc., doc. RNDr. Ivan Sýkora, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-206/15	Seminar in Applied Meteorology (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: 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: 5

A	B	C	D	E	FX
80,0	20,0	0,0	0,0	0,0	0,0

Lecturers: RNDr. Ingrid Damborská, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-207/15	Seminar in Applied Meteorology (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: 4.

Educational level: II.

Prerequisites: FMFI.KAFZM/2-FOZ-206/15 - Seminar in Applied Meteorology (1)

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: RNDr. Ingrid Damborská, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJFB+KAFZM/2-FOZ-213/15	Seminar in Environmental Physics, Renewable Energy Sources, Meteorology and Climatology

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: 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: 19

A	B	C	D	E	FX
94,74	5,26	0,0	0,0	0,0	0,0

Lecturers: prof. RNDr. Ján Urban, DrSc., doc. RNDr. Karol Holý, CSc., prof. RNDr. Milan Lapin, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-276/15	Seminar in Numerical Modelling and Simulation in Meteorology

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:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1

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

Lecturers: doc. RNDr. Martin Gera, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-205/15	Solutions of Atmospheric Dynamics Equations

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: 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: 5

A	B	C	D	E	FX
40,0	0,0	20,0	20,0	20,0	0,0

Lecturers: doc. RNDr. Martin Gera, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/2-MXX-115/17	Sports in Natur (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: 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: 30

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

Lecturers: Mgr. Branislav Nedbálek

Last change:

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/2-MXX-116/18	Sports in Natur (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: 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: 9

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

Lecturers: Mgr. Branislav Nedbálek

Last change:

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KEF/2-FTL-107/15	Structure and Mechanical Properties of Solids

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 4 / 2 **per level/semester:** 56 / 28
Form of the course: on-site learning

Number of credits: 8

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: 27

A	B	C	D	E	FX
66,67	11,11	11,11	7,41	3,7	0,0

Lecturers: prof. Ing. Roman Martoňák, DrSc., Mgr. Ondrej Tóth

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-102/00	Synoptic Meteorology (2)

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: 5

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The atmospheric fronts classification. Slope of a front. The peculiarities of baric field and pressure tendency field in fronts area. The characteristics and peculiarities of simple and composite fronts. The frontogenesis and the frontolysis. The orography influence upon fronts. The cyclones and anticyclones in temperate geographic zones and their types. Cyclogenesis and anticyclogenesis. Characteristics of cyclones and anticyclones in various phases of development. The remove and regeneration of pressure systems. The orography influence upon pressure systems. General circulation. The models, fundamental laws and some problems of general circulation. Typing of synoptic situations. The principles compiling forecast.

Recommended literature:
Zverev, A.S.: Synoptická meteorológia. Alfa, Bratislava, 1986, 712s.
Bluestein, H.B.: Synoptic-Dynamic Meteorology in Midlatitudes, Vol. 2. Oxford, Univ.Press 1993, 594 pp.
Reuter, H.: Die Wettervorhersage. Springer Verlag, Wien, 1976, 208 s.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 27

A	B	C	D	E	FX
37,04	3,7	22,22	14,81	18,52	3,7

Lecturers: RNDr. Martin Benko, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-103/00	Synoptic Meteorology Practice (2)

Educational activities:
Type of activities: laboratory practicals
Number of hours:
per week: 4 **per level/semester:** 56
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Analyze of pressure tendency field and mean sea level pressure field on surface synoptic charts, important weather. Localization of atmospheric fronts.
Analyze of charts: AT 850, RT 500/1000, AT 700, AT 500.
Monitoring of actual weather changes.

Recommended literature:
Zverev, A.S.: Praktikum po sinoptičeskoj meteorologii. Gidrometeoizdat, Leningrad, 1983, 288 s.
Zverev, A.S.: Synoptická meteorológia. Alfa, Bratislava, 1986, 712 s
Bluestein, H.B.: Synoptic-Dynamic Meteorology in Midlatitudes, Vol.2. Oxford, Univ.Press, 1993, 594 pp.
For the exercises are used materials of SHMI – surface and geopotential charts with synoptic and aerological observations from area of Europe and surroundings.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 26

A	B	C	D	E	FX
80,77	15,38	3,85	0,0	0,0	0,0

Lecturers: RNDr. Martin Benko, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FMK-104/00	Synoptic Meteorology Practice (3)

Educational activities:
Type of activities: laboratory practicals
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:
Analyze of actual synoptic charts including atmospheric fronts localization. Evaluation and description of synoptic situation and attempt to forecast its evolution.
Forecasting materials used by forecasters, used formulation and sequences.
Preparing of weather forecast for next day.
Forecasting materials on the Internet.

Recommended literature:
Zverev, A.S.: Synoptická meteorológia. Alfa, Bratislava, 1986, 712 s
Bluestein, H.B.: Synoptic-Dynamic Meteorology in Midlatitudes, Vol.2. Oxford, Univ.Press, 1993, 594 pp.
For the exercises are used materials of SHMI (data about weather, outputs from numerical weather prediction models ALADIN, ARPEGE, GM-DWD, data from meteorological satellites and radars, etc.)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 26

A	B	C	D	E	FX
88,46	11,54	0,0	0,0	0,0	0,0

Lecturers: RNDr. Martin Benko, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAFZM/2-FOZ-254/15	Technologies for Air Protection

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:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 13

A	B	C	D	E	FX
46,15	38,46	15,38	0,0	0,0	0,0

Lecturers: doc. RNDr. Karol Hensel, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Urban, DrSc.