CONTENT

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ AMS3/05	**Course name:** Atomic and Molecular Spectroscopy

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 2 **Per study period:** 28 / 28
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 2.

Course level: III.

Prerequisities:

Conditions for course completion:
Based on continuous assessment and test results.

Learning outcomes:
Advanced theoretical and practical knowledge of the methods of atomic and molecular spectroscopy.

Brief outline of the course:
Enhanced information about atomic absorption and emission spectral methods. History of the spectral methods development and their use in analytical practice. Optical analytical methods, principles, classification. Theoretical principles of spectroscopy. Experimental basis of spectral methods.
Atomic absorption spectrometry. Atomic emission spectrometry (optical emission spectrometry). Atomic fluorescence spectrometry. Plasma Mass Spectrometry. Mass spectrometry. Spectral methods based on the X-rays observation and observation of the released electrons.
Absorption spectroscopy in the visible and UV region. Emission spectroscopy of molecules. Vibration-rotation spectroscopy in analytical chemistry. Infrared and Raman spectrometry, nuclear magnetic resonance, electron paramagnetic resonance: principles, development in analytical chemistry. Automation and miniaturization of spectral methods. Hybrid spectral methods. Organic reagents. Ionic associates with basic dyes.

Recommended literature:
Günzler H., Wiliams A.: Handbook of Analytical Techniques. Wiley-VCH, 2001.
Skoog D. A., et al: Principle of Instrumental Analysis, Thomson Brooks/Cole, 2007.
Welz B., Sperling M.: Atomic Absorption Spectrometry, Wiley-VCH, 1998.
Rios, A. Escarpa, B. Simonet: Miniaturization of Analytical Systems: Principles, Designs and Applications. Wiley, 2009.
D. Harvey: Modern Analytical Chemistry, McGraw-Hill Companies, Inc., 2000.
Current journal.

Course language:

Notes:

Course assessment Total number of assessed students: 18	
N	P
0.0	100.0
Provides: prof. Dr. Yaroslav Bazeľ, DrSc., doc. Ing. Viera Vojteková, PhD.	
Date of last modification: 20.01.2022	
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ACM3/05	**Course name:** Chemometrics and Experiment Metodics

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 2 **Per study period:** 28 / 28
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:
On the basis of individual work.
On the basis of the continuous assesment and examination.

Learning outcomes:
Learning of the basic methodology of experimentation and statistical evaluation of the measurements.

Brief outline of the course:
The basic methodology of experimentation. The sources of the scientific information. Literature search. Choice and classification of scientific journals. The sample treatment. (sampling, measurements, evaluation of results). Knowledge acquisition of the correct and theoretically-based processing and evaluation of results of chemical analysis: Signal Processing; Calibration, Data Processing. Knowledge acquisition of the methods and methodologies for results evaluation. Decision-making statistics. Information about validation of the method, about metrology, and accreditation of the laboratories. Conception of the uncertainties of results and methods. Practical application of the theoretical knowledge gained during the course.

Recommended literature:
Brereton R. G.: Chemometrics, Wiley, 2003.
Günzler H., Wiliams A.: Handbook of Analytical Techniques. Wiley-VCH, 2001.
J.N. Miller, J.C. Miller: Statistics and Chemometrics for Analytical Chemistry, Pearson Education Limited, 2010

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 25

N	P
0.0	100.0

Provides: prof. Dr. Yaroslav Bazeľ, DrSc., doc. Ing. Viera Vojteková, PhD.
Date of last modification: 20.01.2022
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ CHR3/05	**Course name:** Chromatographic Separation Methods

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 2 **Per study period:** 28 / 28
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 2.

Course level: III.

Prerequisities:

Conditions for course completion:
Individual work. Solving the problem of chromatography according to the assignment
Examination.

Learning outcomes:
Basic and advanced theory of chromatographic separation methods and their possibilities and use in research and analytical practice.

Brief outline of the course:
Basic principles of chromatography. Chromatographic resolution, optimization of chromatographic parameters. Theory of liquid chromatography, classification. Stationary phases. Selectivity, sensitivity of HPLC detectors.. Fast LC chromatography. UPLC. Combined LC techniques. Comprehensive and multidimensional LC methods. Aplications.

Recommended literature:
Skoog D.A., Leary J.J.,Principles of Instrumental Analysis, Saunders, 1997.
Lehotay J., Separačné metódy v analytickej chémii,STU Bratislava 2009.
Scientific journal literature.

Course language:
Slovak language

Notes:

Course assessment
Total number of assessed students: 17

N	P
0.0	100.0

Provides: doc. RNDr. Taťána Gondová, CSc.

Date of last modification: 24.11.2021

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ CZC/04	**Course name:** Citation in the International Scientific Journal
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 71	

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ CDC/04	**Course name:** Citation in the Local Scientific Journal
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 1	

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ CM/04	**Course name:** Citation in the Monograph
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 20	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 4	

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ SDPR/04	**Course name:** Co-worker of a Local Project
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 518

abs	n
99.81	0.19

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ SMPR/04	**Course name:** Co-worker of an International Project

Course type, scope and the method:
Course type:
Recommended course-load (hours):
Per week: Per study period:
Course method: present

Number of ECTS credits: 15

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
Membership in the research team of an international project.

Learning outcomes:
Active involvement by solving a specific task within a team of international project solvers. The PhD student demonstrates the ability to work in a team, take responsibility for the assigned task, adhere to the time schedule and fulfill the project outputs. The PhD student gains personal experience from the implementation of an international project, participation in its key stages, creation of measurable outputs, grant funding of science.

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 42

abs	n
100.0	0.0

Provides:

Date of last modification: 08.11.2022

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ODZP/2014/15	**Course name:** Defence of Doctoral Thesis

Course type, scope and the method:
Course type:
Recommended course-load (hours):
Per week: Per study period:
Course method: present

Number of ECTS credits: 30

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
The Dissertation thesis is the result of the student's own scientific research. It must not show elements of academic fraud and must meet the criteria of correct research practice defined in the Rector's Decision no. 21/2021, which lays down the rules for assessing plagiarism at Pavel Jozef Šafárik University in Košice and its constituents. Fulfillment of the criteria is verified mainly in the process of supervising and in the process of the thesis defense. Failure to do so is grounds for disciplinary action.

Learning outcomes:
The Dissertation thesis has elements of a scientific work and the student demonstrates extensive mastery of the theory and professional terminology of the field of study, acquisition of knowledge, skills and competences in accordance with the declared profile of the graduate of the field of study, as well as the ability to apply them in an original way in solving selected problems of the field of study. The student demonstrates the ability of independent scientific work in terms of content, formal and ethical aspects. Further details of the Dissertation thesis are determined by Directive no. 1/2011 on the essential prerequisites of final theses and by the Study Rules of Procedure at UPJŠ in Košice for doctoral studies.
The doctoral student demonstrated the ability and readiness for independent scientific and creative activity in the field of study of philology in accordance with the expectations of the relevant qualification framework and the profile of the graduate.

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 64

N	P
0.0	100.0

Provides:
Date of last modification: 08.11.2022
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ PPC/04	**Course name:** Direct Pedagogical Activities
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 1	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 422	

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ DZS/15	**Course name:** Dissertation examination
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 20	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 63	

N	P
0.0	100.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ EACH/21	**Course name:** Electroanalytical chemistry

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 2 **Per study period:** 28 / 28
Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course: 2., 4.

Course level: III.

Prerequisities:

Conditions for course completion:
Theoretical and practical knowledge in flied of electroanalytical methods.
Successful completion of the final test or oral exam.

Learning outcomes:
Getting knowledge in the field of advanced techniques of electroanalytical methods, the latest trends in miniaturization and automation of electrochemical analytical methods.

Brief outline of the course:
Advanced techniques of electroanalytical methods, electrochemical measurements in flow systems, miniaturization of electrochemical analytical methods, new trends in this field of analytical chemistry.
Instrumentation. Working electrodes. Electrode requirements. Principles and more detailed description of measuring technique. Potentiometry. Voltammetry. Linear and cyclic voltammetry. Pulse voltammetry. Stripping voltammetry. Voltammetric titrations. Amperometry and titrations with polarizable electrodes. Coulometry. Potentiostatic coulometry. Coulometric titration. Conductometry.
Electroanalytical measurements in flow devices. Miniaturization of electrochemical analytical methods.
Current trends in this area. Selected applications of electroanalytical methods such as quality control in the analysis of technological products, in bioanalytical applications, analysis of foreign substances in the environment, in diagnostic and clinical analysis, in forensic science, etc.

Recommended literature:
1. J. Labuda a kol. Analytická chémia, STU, Bratislava 2014.
2. Allen J. Bard, Cynthia G. Zoski. Electroanalytical Chemistry. A Series of Advances: Volume 26. Taylor&Francis, 2015.
3. D. Harvey: Modern Analytical Chemistry. McGraw Hill, Boston, 2000.
4. Aktuálna časopisecká literatúra.

Course language:

Notes:

Course method and conditions for completing the course are updated annually at the beginning of the semester.

Course assessment
Total number of assessed students: 4

N	P
0.0	100.0

Provides: prof. Dr. Yaroslav Bazeľ, DrSc., RNDr. Jana Šandrejová, PhD.

Date of last modification: 15.11.2021

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/ AJD1/07	**Course name:** English Language for PhD Students 1

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:
Completion of e-course English for PhD Students (lms.upjs.sk), consultations (1-3).
Written assignments - Professional/Academic CV, Short Academic Biography.

Learning outcomes:
The development of students´ language skills - reading, writing, listening, speaking, improvement of their linguistic competence - students acquire knowledge of selected phonological, lexical and syntactic aspects, development of pragmatic competence - students can efectively use the language for a given purpose, with focus on Academic English and English for specific/professional purposes, level B2.

Brief outline of the course:
Specific aspects of academic and professional English with focus on correct pronunciation, vocabulary development (noun and verb collocations, phrasal verbs, prepositional phrases, word-formation, formal/informal language, etc.), selected aspects of English grammar (prepositions, grammar tenses, passive voice, etc.), academic writing (professional/academic CV, Short Academic Biography).

Recommended literature:
Moore, J.: Oxford Academic Vocabulary Practice. OUP, 2017.
Kolaříková, Z., Petruňová, H., Timková, R.: Angličtina v akademickom prostredí – cvičebnica. Košice, Vydavateľstvo ŠafárikPress, 2021.
Tomaščíková, S., Rozenfeld, J. Developing Academic English in Speaking and Writing. Vydavateľstvo ŠafárikPress, 2021.
McCarthy, M., O´Dell, F.: Academic Vocabulary in Use. CUP, 2008.
Štepánek, L., J. De Haff a kol.: Academic English-Akademická angličtina. Grada Publishing, a.s., 2011.
Armer, T.: Cambridge English for Scientists. CUP, 2011.
lms.upjs.sk

Course language:
English, level B2 according to CEFR

Notes:

Course assessment
Total number of assessed students: 738

N	Ne	P	Pr	abs	neabs
0.0	0.0	48.1	0.0	51.9	0.0

Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD.

Date of last modification: 16.09.2022

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: CJP/ AJD2/07	**Course name:** English Language for PhD Students 2
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 2 **Per study period:** 28 **Course method:** present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course: 2.	
Course level: III.	
Prerequisities:	
Conditions for course completion: Test, oral exam in accordance with the exam requirements (https://www.upjs.sk/filozoficka-fakulta/cjp/doktorandi-upjs/)	
Learning outcomes: The development of students´ language skills - reading, writing, listening, speaking, improvement of their linguistic competence - students acquire knowledge of selected phonological, lexical and syntactic aspects, development of pragmatic competence - students can efectively use the language for a given purpose, with focus on Academic English and English for specific/professional purposes, level B2.	
Brief outline of the course: Academic communication (self-presentation, presenting at scientific meetings and conferences). Specific aspects of academic and professional English with focus on vocabulary development (formality, academic word-list), English grammar (passive voice, nominalisatio), language functions (expressing opinion, cause/effect, presenting arguments, giving examples, describing graphs/charts/schemes, etc.). Cross-language interference.	
Recommended literature: Moore, J.: Oxford Academic Vocabulary Practice. OUP, 2017. Kolaříková, Z., Petruňová, H., Timková, R.: Angličtina v akademickom prostredí (cvičebnica). UPJŠ Košice, 2021. Tomaščíková, S., Rozenfeld, J. Developing Academic English in Speaking and Writing. Vydavateľstvo ŠafárikPress, 2021. McCarthy, M., O´Dell, F.: Academic Vocabulary in Use. CUP, 2008. Štepánek, L., J. De Haff a kol.: Academic English-Akademická angličtina. Grada Publishing, a.s., 2011. Armer, T.: Cambridge English for Scientists. CUP, 2011.	
Course language: B2 level according to CEFR	
Notes:	

Course assessment
Total number of assessed students: 729

N	Ne	P	Pr	abs	neabs
0.27	0.0	93.83	1.1	4.8	0.0

Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD.

Date of last modification: 10.03.2022

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/SSOL/04	**Course name:** Individual Study of Scientific Literature

Course type, scope and the method:
Course type:
Recommended course-load (hours):
Per week: Per study period:
Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Independent work of a doctoral student with books, monographies, databases and source documents, obtaining informations for elaboration of the thesis, for preparation of experiments or preparation of publication, respectively.

Brief outline of the course:
Independent study of literature following the suggestions of the tutor.

Recommended literature:
Books, monographs,
Web of Science,
SCOPUS,
original papers

Course language:
English language.

Notes:

Course assessment
Total number of assessed students: 211

abs	n
100.0	0.0

Provides:

Date of last modification: 05.11.2021

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ MK/04	**Course name:** International Conference
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 227	

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ZKC/04	**Course name:** International Currented Journal

Course type, scope and the method:
Course type:
Recommended course-load (hours):
Per week: Per study period:
Course method: present

Number of ECTS credits: 20

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
Publication od the paper in journal registered in CC database.

Learning outcomes:

Brief outline of the course:
Authorship or co-authorship of doctoral student on a paper published in a foreign journal registered in the Current Contents Connect database.

Recommended literature:

Course language:
English language.

Notes:

Course assessment
Total number of assessed students: 342

abs	n
99.71	0.29

Provides:

Date of last modification: 05.11.2021

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ZNC/04	**Course name:** International Non-Currented Jounal
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 28	

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/DK/04	**Course name:** Local Conference

Course type, scope and the method:
Course type:
Recommended course-load (hours):
Per week: Per study period:
Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
Active participation in the home conference.

Learning outcomes:
By actively participating in the national scientific conference, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology in his scientific field. He demonstrates the ability to reflect on a specific scientific problem by using the latest approaches and applying them critically. Demonstrates competence in using existing theories and concepts in an innovative way, as well as generating new original scientific knowledge and communicating research results to a wider audience using adequate means and through the Slovak language.

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 126

abs	n
100.0	0.0

Provides:

Date of last modification: 08.11.2022

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ DKZU/04	**Course name:** Local Conference with Foreign Participation
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 4	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 256

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ DKC/04	**Course name:** Local Currented Journal
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 15	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 10

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ DNC/04	**Course name:** Local Non-Currented Journal
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 18

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ MET3/05	**Course name:** Methodology of the chemical analysis of environmental systems and biological systems

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 2 **Per study period:** 28 / 28
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 4.

Course level: III.

Prerequisities:

Conditions for course completion:
Individual work. Examination.

Learning outcomes:
The aim of the course is to obtain information about the methodology of chemical analysis of environmental and biological systems.

Brief outline of the course:
Chemical analysis procedure, measurement in analytical chemistry, reliability, accuracy, precision, repeatability, reproducibility, sensitivity, analytical range, limit of detection (LOD) and limit of quantification (LOQ), detection of systematic errors, nature, sources and elimination of systematic errors. Optimization of chemical analysis process. Recognition of noise sources and its reduction, planning of analytical experiment, improvement of individual modules of measuring equipment. Processing of measured analytical signal, filtration and modulation, smoothing, transformation, prediction. Selection of analytical method for solving specific tasks. Possibilities and limitations of the main chemical, electrochemical, spectral methods of analysis. Influence of experimental conditions on the reliability of analysis results. Peculiarities of treatment of environmental and biological samples before analysis. Automatic multielemental microanalysis of inorganic-organic, organic, environmental and biological samples. Isolation, evidence and determination of selected groups of organic substances and biologically important compounds (amino acids, proteins, lipids, vitamins, enzymes, sugars). Clinical chemistry. Overview of basic chemical tests and recommended methods. Qualitative and quantitative analysis of drugs and their metabolites. Analysis of organic and biologically important substances in the food chain. Analysis of toxic substances for the needs of input and output controls in the production process. Basics of automation in the laboratory. Signal processing. Automation of analytical operations. Automatic analyzers. Automation in environmental monitoring. Analyzers in production processes. Physical methods for checking the purity of very pure substances.

Recommended literature:
1.Christian G.D. Analytical Chemistry. John Wiley & Sons, Inc. New York – Chichester – Brisbane – Toronto – Singapore 1994.
2. Current journal literature

Course language:
Slovak, english

Notes:

Course assessment
Total number of assessed students: 12

N	P
0.0	100.0

Provides: prof. Dr. Yaroslav Bazeľ, DrSc., doc. RNDr. Katarína Reiffová, PhD., prof. Mgr. Vasiľ Andruch, DSc.

Date of last modification: 20.01.2022

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ MAS3/05	**Course name:** Miniaturization of Analytical Systems

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 2 **Per study period:** 28 / 28
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:
Individual work. Examination.

Learning outcomes:
The student will acquire knowledge of miniaturized analytical systems.

Brief outline of the course:
Introduction. Classification of sensors. Chemical sensors. Electrochemical sensors . Potentiometric electrochemical sensors. Electrode with liquid membrane. Biosensors. Optical sensors. Application of biosensors in biotechnology. Biosensors for medicine and environment monitoring. Miniaturization of sensors, equipment and devices. Flow injection analysis .

Recommended literature:
1. Janata J. Principles of Chemical Sensors, Plenum Press, London, 1989.
2. Narayanaswamy R., Wolfbeis O.S. Optical Sensors, Springer, 2004, 421 p.

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 22

N	P
0.0	100.0

Provides: prof. Dr. Yaroslav Bazeľ, DrSc., prof. Mgr. Vasiľ Andruch, DSc.

Date of last modification: 22.07.2022

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/NZ/04	**Course name:** Not-Reviewed International or Local Proceedings
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 195

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ PVS/04	**Course name:** Patents, Inventions, Software
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion: Patent filed, invention, software product created.	
Learning outcomes: The PhD student demonstrates the ability to create an innovative product in a given scientific field, or with impact on an interdisciplinary scale or in technical practice.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	

abs	n
0.0	0.0

Provides:
Date of last modification: 08.11.2022
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ PgVU/17	**Course name:** Pedagogy for University Teachers

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 28s
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
1. Development of a teaching diary—100%
2. Compulsory active participation and attendance in accordance with the Study Regulations.

Learning outcomes:
Students will be able to:
Apply didactic principles, methods, forms, and tools in the teaching of a specialised subject. Specify the educational procedures of a university teacher in subject teaching, pedagogical diagnostics, evaluation of learning outcomes, and self-reflection. Present rationalisation and streamlining possibilities in the teaching of specialised subjects. Apply educational competencies of university teachers taking into account the peculiarities of educating university students.

Brief outline of the course:
The personality of a university teacher. Teaching styles. Student in university education. Student learning styles. Possibilities of adapting teaching styles and student learning styles. University teacher–student interaction and communication in the teaching process. Pedagogical competencies of a university teacher. Didactic analysis of the curriculum; teaching materials and textbooks. Forms of university teaching. Methods of university teaching. Verification methods and student assessment. Creation of a didactic test. Designing university teaching process. University teacher self-reflection.

Recommended literature:
Čapek, R. (2015). Moderní didaktika. Lexikon výukových a hodnoticích metod. Praha, Grada Publishing, a.s.
Danek, J. (2014). Pedagogická komunikácia na vysokej škole. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.
Dargová, J. (2001). Tvorivé kompetencie učiteľa. Prešov, Privat Press.
Dvořáček, J. (2014). Základy pedagogiky. Praha, Oeconomica.
Hupková, M., Petlák, E. (2004). Sebareflexia a kompetencie v práci učiteľa. Bratislava, IRIS.
Kyriacou, CH. (1996). Klíčové dovednosti učitele. Praha, Portál.
Mertin, V. a kol. (2012). Metody a postupy poznávaní žáka: pedagogická diagnostika. Praha, Wolters Kluwer.
Petty,G. (2013). Moderní vyučování. Praha, Portál.

Prucha, J. (2013). Moderní pedagogika. Praha, Portál.
Sirotová, M. (2014). Vysokoškolský učiteľ v edukačnom procese. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.
Slávik, M. a kol. (2012). Vysokoškolská pedagogika. Praha, Grada.
Šebeň Zaťková, T. (2014). Úvod do vysokoškolskej pedagogiky. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.
Turek, I. (2014). Didaktika. Bratislava, Wolters Kluwer, s.r.o.
Zormanová, L. (2014). Obecná didaktika. Praha, Grada.

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 78

abs	n	neabs
98.72	0.0	1.28

Provides: doc. PaedDr. Renáta Orosová, PhD.

Date of last modification: 07.09.2022

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ VYS/04	**Course name:** Presentation in Seminar
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 191

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PsVU/17	**Course name:** Psychology for University Lecturers

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 28s
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
Case study, micro-output, its analysis
Current modifications of the course are listed in the electronic bulletin board of the course.

Learning outcomes:
After completing the course, students can:
and Understand, summarize and explain selected psychological knowledge from cognitive psychology, emotion and motivation psychology, personality psychology, developmental, social, educational psychology and health psychology.
b) apply the above psychological knowledge necessary for the professional, competent performance of university teaching practice of doctoral students
c) to create and implement the teaching of a professional topic with applied psychological knowledge
d) evaluate their performance and the performance of their classmates, provide feedback

Brief outline of the course:
The content of the course is based on selected psychological knowledge of cognitive psychology, psychology of emotions and motivation, personality psychology, developmental, social, educational psychology and health psychology. Teaching is realized by a combination of lectures with interactive, experiential methods, discussion, open communication with mutual respect, support of independence, activity and motivation of students. Syllabus: University teacher and his work in the teaching process with a focus on: teachers in relation to themselves (cognitive, personal, social and competencies in the use of methods), in relation to students and as part of the teacher-student relationship on the basis of selected areas of cognitive psychology, psychology of emotions and motivation, developmental psychology, social psychology, educational psychology and health psychology with application to the university environment

Recommended literature:
Alexitch, L. R. (2005). Applying social psychology to education. Social Psychology.–Ed.: Schneider F., Gruman J., Coutts L.–Sage Publications, Inc, 205-228.
Fry, H., Ketteridge, S., & Marshall, S. (2008). A handbook for teaching and learning in higher education: Enhancing academic practice. Routledge.
Mareš, J.: Pedagogická psychologie. Portál, 2013.

Kniha psychologie. Universum, 2014
Čáp, J., Mareš, J.: Psychologie pro učitele. Praha: Portál 2007.
Vágnerová, M.: Školní poradenská psychológie pro pedagogy. Praha: Karolínum 2005.

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 70

abs	n	neabs
100.0	0.0	0.0

Provides: PhDr. Anna Janovská, PhD.

Date of last modification: 24.06.2022

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ VPBP/04	**Course name:** Review of a Bachelor Thesis
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 67	

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ RZ/04	**Course name:** Reviewed International or Local Proceedings
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 367	

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ SCI/04	**Course name:** SCI Citation
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 20	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 298	
abs	n
100.0	0.0
Provides:	
Date of last modification: 15.09.2021	
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: Dek. PF UPJŠ/JSD/14	**Course name:** Spring School for PhD Students

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 4d
Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
Active participation in the Spring School of PhD students of UPJŠ.

Learning outcomes:
By actively participating in the Spring School of PhD Students of UPJŠ, the PhD student demonstrates a high level of ability to process the issues of his dissertation for a multidisciplinary audience with an emphasis on clarifying the motivation, scientific problem, processing methodology and own contribution to the solution of the selected topic. The PhD student demonstrates the ability to professionally discuss various research topics, present his own positions and accept a plurality of opinions. Demonstrates the ability to communicate research results to a wider professional audience with adequate means and through the Slovak language.

Brief outline of the course:
1. Interdisciplinary lectures from the fields of medicine, natural sciences, law, public affairs, humanities. Lecturers - top foreign or national experts from the mentioned fields.
2. Scientific lectures in sections created within related disciplines. Lecturers - top experts from UPJŠ from the mentioned fields.
3. Scientific contributions of PhD students in sections of related fields.
4. Panel discussions on the issue of PhD studies and current trends in the development of scientific disciplines at UPJŠ.

Recommended literature:
Proceedings of the Spring School of Doctoral Students.

Course language:

Notes:

Course assessment
Total number of assessed students: 187

abs	n
100.0	0.0

Provides: doc. RNDr. Marián Kireš, PhD.

Date of last modification: 08.11.2022
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ZSP/04	**Course name:** Study Stay Abroad
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 6., 8.	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 92	

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ VBP/04	**Course name:** Supervision of Bachelor Thesis
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course: 6., 8.	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 318	

abs	n
100.0	0.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ VPSV/04	**Course name:** Supervision of a Students Scientific Work
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course: 6., 8.	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 79	
abs	n
100.0	0.0
Provides:	
Date of last modification: 15.09.2021	
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ TZAC3/05	**Course name:** Theoretical basics of analytical chemistry

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 2 **Per study period:** 28 / 28
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:
Written work.

Learning outcomes:
To expand and deepen knowledge about the theoretical foundations of modern analytical chemistry.

Brief outline of the course:
Analytical chemistry. Relationship between analytical chemistry and other scientific branches. History of analytical chemistry. Problems and trends in recent analytical chemistry. Objects of analysis. Instrumental equipment of a modern analytical laboratory. Research analytical chemistry and analytical practice. Validation of analytical methods. Factors important to bear in mind when choosing a proper method. Reasons of improper analytical results. Modern, highly selective methods of analysis. Speed and factors affecting the speed of analysis. Test and screening methods. Field analysis. Primary X-ray spectrometry, microprobe. Non-destructive methods of analysis, principle, utility. Distance analysis. Automation of analysis, examples. Flow analysis – FIA and SIA. Miniaturization of analytical measurements. Economic aspects of analysis. Analytical reaction, chemical equilibrium in solutions. Gravimetric. Volumetric. Instrumental methods of qualitative and quantitave determination of analytes. Absorption and emission spectroscopy, UV-VIS spectrometry, fluorescence and phosphorence spectrophotometry, emission and atomic absorption spectroscopy, infrared spectrometry, Raman spectroscopy, Roentgen spectroscopic methods, radiochemical methods, NMR spectroscopy, mass spectrometry. Electroanalytical methods (voltamperometry, potenciometry, electroseparation, coulometry and conductometry). Thermical analysis. Kinetic methods of analysis. Separation methods. Microextraction techniques (DLLME, SDME, SPME). Gas chromatography. Liquid chromatography, TLC, HPLC.

Recommended literature:
1. D. Harvey, Modern Analytical Chemistry, 2000, McGraw-Hill Companies, Inc.
2. D. Harvey D. Analytical Chemistry 2.1. LibreText. 2021.
3. H.H. Willard, L.L. Merritt, J.A. Dean, F.A. Settle, Instrumental Methods of Analysis, 1988, Wadsworth Publ. Co.
4. A. Rios, A. Escarpa, B. Simonet, Miniaturization of Analytical Systems, 2009, John Wiley &Sons, Ltd.
5. J. Ružicka, E. Hansen, Flow Injection Analysis, 1988, John Wiley &Sons.

6. J. Dean, Extraction Techniques in Analytical Sciences, 2009, John Wiley &Sons.
7. Current journal literature.

Course language:
Slovak, English.

Notes:

Course assessment
Total number of assessed students: 27

N	P
0.0	100.0

Provides: prof. Dr. Yaroslav Bazeľ, DrSc., doc. RNDr. Taťána Gondová, CSc., doc. RNDr. Katarína Reiffová, PhD., doc. Ing. Viera Vojteková, PhD., prof. Mgr. Vasiľ Andruch, DSc.

Date of last modification: 28.10.2021

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ PDS/18	**Course name:** Writing Dissertation Work
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 0	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 6

N	P
0.0	100.0

Provides:
Date of last modification: 15.09.2021
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.