Course descriptions

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COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-108/22	Activating Methods and Their Use in Learning

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

Number of credits: 2

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 4

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

Lecturers: doc. PaedDr. Elena Čipková, PhD., doc. RNDr. Štefan Karolčík, PhD.

Last change: 11.10.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-357/22	Algorithms and Data Structures (2)

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

Number of credits: 2

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: assessment of short tests (50%) and several smaller projects (50%)
Indicative grading scale: A 88%, B 81%, C 74%, D 67%, E 60%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
After completion of the course, students will be familiar with more advanced data structures and algorithms, understand how they can be used in problem solving, be able to estimate the complexity of operations on individual structures, and compare programs solving the same complex problem in terms of efficiency.

Class syllabus:
- Advanced balanced trees (B-tree, Red-Black tree, Splay tree)
- Lexicographic tree, Skip list
- Heap
- Advanced Hashing
- Other sorting algorithms
- Heuristic algorithms, probabilistic algorithms

Recommended literature:
• the teacher's own electronic study materials published on the course website or in the Moodle system
• Lee, K.D., Hubbard, S.: Data Structures and Algorithms with Python, Springer, 2015
• Ryant, I.: Algoritmy a datové struktury objektově, 2017, S. 288
• Wróblewski, P.: Algoritmy: Datové struktury a programovací techniky, Computer Press, 2004, S. 350
• Mehlhorn , K., Sanders, P.: Algorithms and data structures: The basic toolbox. Berlin: Springer, 2008
• Cormen, T.H., Leiserson, C.E., Rivest, R.L., Syein, C. : Introduction to Algorithms, MIT Press; 3rd edition, 2009

Languages necessary to complete the course:

Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 0

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

Lecturers: doc. RNDr. Zuzana Kubincová, PhD.

Last change: 22.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KJ/N-mXCJ-074/22	CLIL 1 – Content and Language Integrated Learning

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

Number of credits: 2

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 14

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

Lecturers: Mgr. Barbara Kordíková, PhD., Mgr. Karin Rózsová Wolfová

Last change: 26.09.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KJ/N-mXCJ-075/22	CLIL 2 – Content and Language Integrated Learning

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

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites: PriF.KJ/N-mXCJ-074/22 - CLIL 1 – Content and Language Integrated Learning

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 11

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

Lecturers: Mgr. Barbara Kordíková, PhD., Mgr. Karin Rózsová Wolfová

Last change: 21.06.2023

Approved by:

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Natural Sciences	
Course ID: PriF.KDPP/N-UmCH-952/22	**Course title:** Chemistry and Didactics of Chemistry
Number of credits: 5	
Educational level: II.	
State exam syllabus:	
Last change: 20.06.2023	
Approved by:	

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KOrCh/N-mCOR-106/22	Chemistry of Polymers

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:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 3

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

Lecturers: Mgr. Juraj Kronek, PhD., Mgr. Zuzana Benková, PhD.

Last change: 14.06.2023

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-113/22	Computer Networks in the School Environment

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: 3

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: solving tasks
Indicative assessment scale: A 88%, B 75%, C 65%, D 58%, E 50%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
After completing the course, students will have a basic overview of computer networks - the basics of network technology, communication principles, methods of interconnection and security in computer networks.

Class syllabus:
• basic concepts, history, origin and development of computer networks
• OSI reference model
• basics of topology and communication
• network technologies and protocols
• network hardware
• addressing, routing,…
• basics of computer network security
• specifics of network use in the school environment

Recommended literature:
• The teacher's own electronic study materials published on the subject's website or in the Moodle system

Languages necessary to complete the course:
Slovak

Notes:

Past grade distribution
Total number of evaluated students: 14

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

Lecturers: doc. RNDr. Ľubomír Salanci, PhD., Mgr. Miroslav Wagner

Last change: 15.03.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-112/22	Computer and Operating Systems

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: 3

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: solving tasks (60%)
Exam: written (40%)
Indicative assessment scale: A 88%, B 75%, C 65%, D 58%, E 50%
Scale of assessment (preliminary/final): 60/40

Learning outcomes:
After completing the course, the student will be able to understand the activities of a simple compiler or interpreter and modify it. They will have an overview of the internal structure of operating systems, with their tasks, the problems they solve and with the theoretical foundations and algorithms they use to solve them. In the language of symbolic addresses it can solve simple algorithmic problems (at the level of working with memory, mathematical operations, comparisons and jumps). Using logic circuits, it can implement simple logic functions. They will understand the principle of computer operation at various levels - programming language, assembler, machine code, hardware layer.

Class syllabus:
• Computer data representation
• Compilation and interpretation
• Symbolic address language
• Implementation of logic functions at the hardware level
• Implementation of memory functions at the hardware level
• Processor, memory, input and output
• Operating system (OS) tasks
• Process management - process and thread, process state diagram, time dependence and its solutions, process and thread communication
• Memory management - simple memory management, virtual memory, segmentation, paging
• Device management - input / output software layers and their tasks
• File management - typical operations over files and directories and their implementation, structure of disks and files on PCs

Recommended literature:

• The teacher's own electronic study materials published on the subject's website

• Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika : Počítačové systémy 1-3: 1.2 Vzdelávanie nekvalifikovaných učiteľov informatiky na 2. stupni ZŠ a na SŠ / Peter Gurský a kol., Bratislava : Štátny pedagogický ústav, 2010

• Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika : Operačné systémy a počítačové siete : 1.3 Ďalšie vzdelávanie kvalifikovaných učiteľov informatiky na 2. stupni ZŠ a na SŠ / Peter Tomcsányi a kol., Bratislava : Štátny pedagogický ústav, 2010

Languages necessary to complete the course:

Slovak

Notes:

Past grade distribution

Total number of evaluated students: 95

A	B	C	D	E	FX
81,05	3,16	5,26	1,05	7,37	2,11

Lecturers: doc. RNDr. Ľubomír Salanci, PhD., Mgr. Miroslav Wagner

Last change: 22.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-151/22	Creation, Analysis and Use of Algorithmic Tasks

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

Number of credits: 2

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: active work in seminars (20%), homework (40%), projects (40%)
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Students are able to use basic algorithms to solve presented tasks, e.g. shortest path problem, pattern matching.
Students can create complex tasks using theoretical knowledge in conjuction with programming.
Students gain experience in creation of tasks which can be used in developing or rehersing or testing their competences.
Students can use algorithmic tasks from common Slovak programming competitions and their solutions as methodical materials.
Students can analyse solutions of pupils/students and give them constructive feedback.

Class syllabus:
Stručná osnova predmetu:
• recursion
• finding paths in graphs
• pattern matching
• computational geometry
• library algorithms of programming languages
• lesson plan creation based on programming competition task
• connecting computer science themes with algoritmic thinking and programming
• creation of tasks connected with real world (e. g. public transport lines)
• creation of tasks used in final exams
• solving of tasks from Olympiad in informatics

Recommended literature:
• Task archive on prask.ksp.sk
• The teacher's own electronic study materials published on the subject's website, resp. in Moodle

• Michal Forišek a Monika Steinová, Explaining Algorithms Using Metaphors, Springer, 2013
• Zbierka riešených úloh Korešpodenčného seminára z programovania (1998-2006), kolektív organizátorov KSP, FMFI UK, 2011

Languages necessary to complete the course:
Slovak

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. Zuzana Kubincová, PhD., Mgr. Michal Anderle, PhD.

Last change: 22.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-117/10	Databases

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: 3

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: active participation in educational activities (15%), project (45%)
Examination: test
Indicative grading scale: A 88 %, B 81 %, C 74 %, D 67 %, E 60 %
Scale of assessment (preliminary/final): 60/40

Learning outcomes:
The student will understand the basic concepts of the field, will have an overview of database models, will understand the problems that can arise when designing databases, will be able to use the SQL language to communicate with a database system, will be able to create a simple database.

Class syllabus:
- Databases around us. Spreadsheet and databases.
- Database system. Database models.
- Conceptual design of a database.
- Relational data model.
- Introduction to SQL.
- Normalization and denormalization, database design criteria.
- Databases and database software

Recommended literature:
• the teacher's own electronic study materials published on the course website or in the Moodle system
• Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika : Úvod do databáz : 1.2 Vzdelávanie nekvalifikovaných učiteľov informatiky na 2. stupni ZŠ a na SŠ / Zuzana Kubincová ... [et al.]. Bratislava : Štátny pedagogický ústav, 2010
• An introduction to database systems / C. J. Date. Boston : Pearson/Addison-Wesley, 2004

Languages necessary to complete the course:
Slovak

Notes:

Past grade distribution
Total number of evaluated students: 64

A	B	C	D	E	FX
43,75	20,31	17,19	9,38	6,25	3,13

Lecturers: doc. RNDr. Zuzana Kubincová, PhD.

Last change: 22.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-280/19	Didactics Seminar in Informatics (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: 2.

Educational level: II.

Prerequisites:

Course requirements:
Interim evaluation: Active participation in lessons + participation in discussions (40%), educational desing of methodology for one topic from informatics for lower secondary school and its presentation (50%), analysis of real lesson of informatics for lower secondary pupils (10%)
Test: -
Indicative rating scale: A 90%, B 80%, C 70%, D 65%, E 60%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Students are able to analyze and evaluate tasks from the point of view of teaching computer science. They will design and implement a lesson focused on a topic in informatics at the lower secondary school with regard to the stages of the cognitive process. They can analyze the lesson in terms of required input knowledge, goals, tasks ordering, methodological procedures used.

Class syllabus:
• Discussions about observations during pedagogical practice.
• Demonstrations of teaching topics verified in practice.
• Analysis of teaching lessons and problematic topics from informatics for lower secondary pupils.

Recommended literature:
• Electronic study materials published on the subject's website or moodle system
• Collection of innovative methodologies for the 2nd degree of university, IT Academy, 2020 (in Slovak)
• Varga, M. et al.: Further education of primary school and secondary school teachers in the subject of informatics, Didactics of Informatics at the University, Bratislava: State Pedagogical Institute, 2011 (in Slovak)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 21

A	B	C	D	E	FX
71,43	9,52	9,52	4,76	0,0	4,76

Lecturers: doc. RNDr. Ľudmila Jašková, PhD.

Last change: 20.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-281/22	Didactics Seminar in Informatics (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:
Interim evaluation: Active participation in lessons + participation in discussions (40%), educational design of methodology for one topic from informatics for lower secondary school and its presentation (50%)), analysis of real lesson of informatics for upper secondary pupils (10%).
Indicative rating scale: A 90%, B 80%, C 70%, D 65%, E 60%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Students are able to analyze and evaluate tasks from the point of view of teaching computer science. They will design and implement a lesson focused on a topic in informatics at the upper secondary school with regard to the stages of the cognitive process. They can analyze the lesson in terms of required input knowledge, goals, tasks ordering, methodological procedures used.

Class syllabus:
• Discussions about observations during pedagogical practice.
• Demonstrations of teaching topics verified in practice.
• Analysis of teaching lessons and problematic topics from informatics for upper secondary pupils.

Recommended literature:
• Electronic study materials published on the subject's website or moodle system
• Collection of innovative methodologies for the 2nd degree of university, IT Academy, 2020 (in Slovak)
• Lessner, D.: Basics of Informatics for Schools, Jihoče University in České Budějovice, 2020 (in Czech)
• Kalaš et al.: Informatics for Secondary Schools, SPN – Young Summers, 2002 (in Slovak)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 11

A	B	C	D	E	FX
90,91	9,09	0,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Ľudmila Jašková, PhD.

Last change: 20.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUCH-103/22	Didactics of Chemistry 1

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
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: 26

A	B	C	D	E	FX
73,08	23,08	0,0	0,0	0,0	3,85

Lecturers: prof. RNDr. Miroslav Prokša, CSc., Mgr. Lenka Šikulíncová, PhD.

Last change: 09.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUCH-104/22	Didactics of Chemistry 2

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
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: 13

A	B	C	D	E	FX
46,15	46,15	0,0	0,0	7,69	0,0

Lecturers: prof. RNDr. Miroslav Prokša, CSc., PaedDr. Anna Drozdíková, PhD.

Last change: 09.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-120/22	Didactics of Informatics (1)

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: 2

Recommended semester: 2.

Educational level: II., N

Prerequisites:

Course requirements:
In-term evaluation: Written assignments, active participation in class, and reports (60 %), didactic outputs, creation and analysis of methodological materials (20 %), study of professional materials (20 %).
The results of problems solved, discussed and active participation in seminars are counted towards the final maximum of 100 points a student can earn. Another regular obligation is weekly writing on the topic studied.
Indicative grading scale: A 90 %, B 82 %, C 74 %, D 67 %, E 60 %
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
The student acquires a synthesizing view of the issues of teaching informatics and cultivates an overall didactic overview and perception; reflects on the place of informatics in general education, considers the necessary reforms, innovations and obstacles in this context; knows and can compare these contexts in different countries at different stages of development of informatics education; is aware of the differences between the development of digital literacy in education and school informatics - their different and common goals and practices; knows in detail the curricula of the subject informatics at primary and secondary school and its extension forms at secondary school, up to thematriculation (final) exam; knows various didactic procedures for teaching informatics; knows how to deal with various common and specific didactic situations in informatics classes; understands the importance and potential of programming in the implementation of the educational content of other subject areas; knows modern methods of evaluation in informatics; knows various support activities related to informatics education; knows various project and cross-curricular methods suitable for the development of computational thinking; knows modern areas of informatics suitable as attractive topics for secondary school seminars. Thinks about, discusses, and implements productive collaboration between informatics and other subjects.

Class syllabus:
Challenges of modern education, transformation of educational systems in the context of the development of informatics education. General didactics and disciplinary didactics. The role of digital technologies in the process of education and forms of their integration. Digital literacy

and informatics. Different concepts of teaching informatics - at home and abroad. Problems of development of informatics education in different educational contexts. Holistic approach to pupil development and the potential of informatics in it. Modern view of programming and its role in the development of informatics thinking. Educational goals of informatics in different educational systems. Didactic situations in informatics and ways of solving them. Promotion of social constructivism in informatics. Objectives and forms of assessment in informatics education. Forms of cooperation with other teachers and cross-curricular activities.

Recommended literature:

• Kalaš, I. a kol.: Premeny školy v digitálnom veku. Bratislava: Slovenské pedagogické nakladateľstvo, 2013
• the subject lecturerr's own electronic texts
• selection of up-to-date professional materials from the world research literature
• Kalaš, I.: Informatika na križovatke. Didinfo 2021
• up-to-date materials for teaching informatics on the portal of the IT Akadémia and iMyšlení projects, materials of the DVUi project

Languages necessary to complete the course:

Slovak, for the study of some items from the recommended literature, also English as a secondary language

Notes:

Past grade distribution

Total number of evaluated students: 120

A	B	C	D	E	FX
85,0	5,83	2,5	5,0	0,83	0,83

Lecturers: prof. RNDr. Ivan Kalaš, PhD.

Last change: 23.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-219/22	Didactics of Informatics (2)

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

Number of credits: 2

Recommended semester: 3.

Educational level: II., N

Prerequisites:

Course requirements:
Written assignments, active participation in class, reports, didactic outputs, creation and analysis of methodological materials, study of professional materials.
The results of problems solved, discussed and active participation in seminars are counted towards the final maximum of 100 points a student can earn. Another regular obligation is weekly writing on the topic studied.
Indicative grading scale: A 92 %, B 84 %, C 76 %, D 68 %, E 60 %
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Learning outcomes:
This course is an immediate continuation and part of the course Didactics of Informatics (1). The student will further develop and deepen the knowledge and skills acquired during the first part of the course. It will delve deeper into the concepts and issues involved in teaching informatics, this semester with a particular emphasis on secondary school. Further develops a synthesizing view of issues in computer science teaching and cultivates overall didactic insight and perception; reflects on the place of informatics in general education, considers needed reforms, innovations and obstacles in this context; knows and can compare these contexts in different countries at different stages of development of informatics education; is aware of the differences between the development of digital literacy in education and school informatics - their different and common goals and practices; knows in detail the curricula of the subject informatics at the primary and secondary school level and its extension forms at the secondary school level, up to the matriculation (final) examination; knows various didactic procedures for teaching informatics; knows how to deal with various common and specific didactic situations in informatics classes; understands the importance and potential of programming in the implementation of the educational content of other subject areas; knows the modern methods of informatics classroom teaching; knows the various support activities related to informatics education; knows the various project and cross-curricular methods suitable for the development of computational thinking; knows the modern areas of informatics suitable as attractive topics for secondary school seminars. Thinks about, discusses and implements productive collaboration between informatics and other subjects

Class syllabus:

Didactic situations in the teaching of informatics at the 2nd level of primary and secondary school. Preparation, implementation and evaluation of the lesson. Comparison of actual curriculum with educational contents in some other countries with developed informatics education. Relationship between methodology and didactics of informatics. Assessment in the subject of informatics, its different forms and functions. Matriculation (final) examination in informatics, matriculation requirements, analysis of matriculation questions. Work in informatics classes with talented pupils. Project teaching in informatics and cross-curricular projects.

Recommended literature:

Recommended literature:

• Kalaš, I. a kol.: Premeny školy v digitálnom veku. Bratislava: Slovenské pedagogické nakladateľstvo, 2013

• the subject lecturerr's own electronic texts

• selection of up-to-date professional materials from the world research literature

• Kalaš, I.: Informatika na križovatke. Didinfo 2021

• up-to-date materials for teaching informatics on the portal of the IT Akadémia and iMyšlení projects, materials of the DVUi project

Languages necessary to complete the course:

Slovak, for the study of some items from the recommended literature, also English as a secondary language

Notes:

Past grade distribution

Total number of evaluated students: 100

A	B	C	D	E	FX
86,0	8,0	5,0	0,0	0,0	1,0

Lecturers: prof. RNDr. Ivan Kalaš, PhD.

Last change: 23.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-108/15	Didactics of Programming (1)

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: 1.

Educational level: II., N

Prerequisites:

Course requirements:
Continuous assessment: The student can get 50% of points for the preparation of topics for computer science lessons, another 25% of points for the preparation of detailed methodological material for teachers. He can get the remaining 25% of points for the didactic output.
Indicative assessment scale: A 92%, B 84%, C 77%, D 68%, E 60%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Students are able to analyze and evaluate programming languages, environments, textbooks and other materials from the perspective of programming didactics. They will compile and implement a lesson focused on programming in primary school with regard to the stages of the cognitive process.

Class syllabus:
• Programming languages and environments in terms of programming didactics
• Basic programming constructions and their order in teaching programming for different programming languages
• Programming in the state educational program
• Teaching programming in primary school
• Didactics of teaching the topic of sequence of commands
• The topic of the cycle and various didactic procedures of its teaching
• Variables and students' ability to understand their meaning and how they are used in programming
• Construction of a conditional statement in programming languages, logical conditions and didactic procedures suitable for mastering a conditional statement
• Testing students in teaching programming
• The importance of student evaluation in didactics, project teaching, peer evaluation of programming projects

Recommended literature:
• The teacher's own electronic study materials published on the subject's website, resp. in Moodle
• Ľubomír Salanci [et al.] Programming Didactics 1: Further education of qualified computer science teachers at the 2nd level of primary school and at secondary school. - 1st ed. - Bratislava:

Štátny pedagogický ústav, 2010. - 36 s. - (In-service training of primary and secondary school teachers in computer science)
• Ľubomír Salanci [et al.]: Didactics of programming 2: Further education of qualified computer science teachers at the 2nd level of primary and secondary schools. - 1st ed. - Bratislava: Štátny pedagogický ústav, 2010. - 36 s. - (In-service training of primary and secondary school teachers in computer science)
• Vaníček, J., Nagyová, I., Tomcsányiová, M .: Programming in Scratch for the 2nd level of primary school. University of South Bohemia in České Budějovice, 2020. • Černochová, M., Vaňková, P., Štípek, J .: Scratch programming for advanced - projects for the 2nd grade of primary school. University of South Bohemia in České Budějovice, 2020.

Languages necessary to complete the course:
Slovak

Notes:

Past grade distribution
Total number of evaluated students: 58

A	B	C	D	E	FX
70,69	22,41	5,17	1,72	0,0	0,0

Lecturers: doc. PaedDr. Monika Tomcsányiová, PhD.

Last change: 20.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-109/22	Didactics of Programming (2)

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

Number of credits: 2

Recommended semester: 2.

Educational level: II., N

Prerequisites:

Recommended prerequisites:
2-UIN-108/22 Didactics of Programming (1)

Course requirements:
Interim evaluation: active participation (20%), homeworks (40%), didactic presentation (40%)
Test: -
Indicative rating scale: A 92%, B 84%, C 77%, D 68%, E 60%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
After completing the course, students are able to analyze and evaluate algorithmic tasks from the point of view of didactics of programming. They design and implement a didactic sequence of steps to support students solving an algorithmic problem. They will design and implement a lesson (possibly a sequence of lessons) focused on programming in secondary school with regard to the stages of the cognitive process and bloom taxonomy.

Class syllabus:
• Programming in the official curriculum – programming in lower grades of grammar school and programming as part of the greduate examination
• Cognitive process and Bloom taxonomy of educational goals – applications in teaching programming
• Analysis of programming languages and environments in terms of their suitability for teaching programming
• Textbooks and methodological materials
• Different approaches to teaching programming
• Abstraction levels in solving a complex algorithmic task
• Creation and analysis of tasks from programming for the graduate exam and evaluation of the student's knowledge at the graduate exam.
• Ordering of topics in the field of Algorithmic problem solving and their teaching in individual years of upper secondary education

Recommended literature:

• Electronic study materials published on the subject's website or moodle system
• Salanci, Ľ. A kol.: Didactics of programming for SS 1, Further education of primary and secondary school teachers in the subject of informatics, Bratislava: l State Pedagogical Institute, 2011 (in Slovak)
• Salanci, Ľ. A kol.: Didactics of programming for SS 2, Further education of primary and secondary school teachers in the subject of informatics, Bratislava: l State Pedagogical Institute, 2011 (in Slovak)
• Blaho, A. et al.: Programming in the Python for secondary schools (in Slovak)
• Mészárosová, E.: PYTHON AND TURTLE GRAPHIC, Methodological material for teaching the basics of programming for gymnasiums, Library and Publishing Centre FMFI UK, Bratislava, 2017 (in Slovak)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 51

A	B	C	D	E	FX
58,82	15,69	11,76	3,92	5,88	3,92

Lecturers: doc. RNDr. Ľudmila Jašková, PhD.

Last change: 20.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUCH-105/22	Didactics of School Experiments in Chemistry 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:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 26

A	B	C	D	E	FX
3,85	57,69	15,38	15,38	3,85	3,85

Lecturers: PaedDr. Anna Drozdíková, PhD.

Last change: 09.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUCH-106/22	Didactics of School Experiments in Chemistry 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: PriF.KDPP/N-mUCH-105/22 - Didactics of School Experiments in Chemistry 1

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	38,46	30,77	23,08	0,0	0,0

Lecturers: PaedDr. Anna Drozdíková, PhD.

Last change: 09.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUCH-107/22	Digital Technologies in Chemistry Education

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

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 13

A	B	C	D	E	FX
69,23	30,77	0,0	0,0	0,0	0,0

Lecturers: Mgr. Lenka Šikulíncová, PhD.

Last change: 22.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-106/22	Education to Marriage and Parenthood

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

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 25

A	B	C	D	E	FX
96,0	0,0	0,0	0,0	0,0	4,0

Lecturers: RNDr. Soňa Nagyová, PhD.

Last change: 22.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KOrCh/N-mUCH-098/22	Everyday Life 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:

Recommended literature:

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: doc. Ing. Mária Mečiarová, PhD., Mgr. Henrieta Stankovičová, PhD.

Last change: 13.09.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KGP/N-mUXX-132/22	Geology for Natural Scientists

Educational activities:
Type of activities: lecture / seminar
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:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 3

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

Lecturers: prof. Mgr. Natália Hlavatá Hudáčková, PhD., doc. Mgr. Peter Uhlík, PhD., prof. RNDr. Martin Bednarik, PhD., doc. RNDr. Ľubomír Jurkovič, PhD.

Last change: 06.09.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KOrCh/N-mUCH-101/22	Green 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: 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: 11

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

Lecturers: doc. Ing. Mária Mečiarová, PhD.

Last change: 13.09.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UXX-108/00	History of Informatics

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

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: active participation in class, presentation
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Students will know the basic milestones in the history of storing, transmitting and processing information from antiquity to the present day, as well as a brief history of computer science.

Class syllabus:
• History of storage, transmission and processing of information (various storage media: stone, clay, papyrus, parchment, paper, magnetic record;
• information transmission: messenger, sound and light signals, wire telegraph I wireless, radio, television, internet;
• information processing: fonts, positional systems, analog aids, the first calculators, the idea of a universal computer, digital machines, the first electromechanical and electronic computers, a brief look at the development of computer technology after the Second World War).
• History of informatics: algorithm, development in mathematics that influenced informatics: algebra, variables, mathematics mathematics, development of analysis, logic, decidability, computability, efficiency.
• Brief overview of the history of computer technology and informatics in Slovakia (within Czechoslovakia)

Recommended literature:
- Teacher's own electronic study materials published on the course website or in the Moodle system
- Gruska, Havel, Zelený, Wiedermann. Počítačová revolúcia, Sofsem 1984

Languages necessary to complete the course:
Slovak

Notes:

Past grade distribution
Total number of evaluated students: 89

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

Lecturers: RNDr. Michal Winczer, PhD., prof. RNDr. Ivan Kalaš, PhD.

Last change: 17.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KOrCh/N-mUCH-099/22	Industrial Chemistry for Teachers

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: 23

A	B	C	D	E	FX
30,43	39,13	17,39	0,0	8,7	4,35

Lecturers: RNDr. Jana Chrappová, PhD., Mgr. Tibor Peňaška, PhD.

Last change: 10.07.2023

Approved by:

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Natural Sciences	
Course ID: FMFI.KDMFI/2-UIN-951/15	**Course title:** Informatics and Didactics of Informatics
Number of credits: 3	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by:	

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-268/22	Information Systems

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: 2

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:
Interim evaluation: Solving specified tasks (85%) + contributions to discussion forums, project development (15%)
Exam: -
Indicative rating scale: A 90%, B 80%, C 70%, D 65%, E 60%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
After completing the course, students will understand the basic concepts in the field of information systems. They will know the different types of information systems used in different institutions and at different levels of management. They will gain practical experience in the use of existing information systems, with particular emphasis on school information systems. Students learn to specify and assess their characteristics. They will briefly familiarize themselves with the process of designing, creating and maintaining the information system.

Class syllabus:
• The information society and its development in the history of mankind
• System and model of the system, information system and its characteristics
• Information systems at different levels of management (transaction systems, management systems, decision support systems, information systems for top management, business intelligence systems)
• Information systems applications (school IS, geographic IS, business IS)
• Design, development and maintenance of information systems (examples from practice).

Recommended literature:
• Electronic study materials published on the subject's website or moodle system
• Stair, R.,Reynolds G.: Principles of Information Systems, Thirteanth Edition, Thomson Course Technology, Boston, 2018, ISBN-10: 9781305971776.....
• Mihók P., Révészová, L.: Information Systems for Economists, Faculty of Economics of the Technical University of Košice, 2006, ISBN 80-8073-497-6 (in Slovak)
• Buchalceva, A.: Methodology of Information Systems Building, Oeconomica, 2009 , ISBN: 9788024515403 (in Slovak)

• Kalaš I. et al.: School transformations in the digital age, SPN - Young Summers, Bratislava, 2013, ISBN: 9788010024094 (in Slovak)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 23

A	B	C	D	E	FX
86,96	8,7	0,0	0,0	4,35	0,0

Lecturers: doc. RNDr. Ľudmila Jašková, PhD.

Last change: 20.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI+KAI/2-MXX-131/21	International Team-based Research Project

Educational activities:
Type of activities: independent work / course
Number of hours:
per week: 3 **per level/semester:** 30s / 42
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: active participation in research in an international student team (25%), presentation of work in a workshop (25%), scientific article (50%)
Indicative evaluation scale: A 90 %, B 80 %, C 70 %, D 60 %, E 50 %
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Students will learn in the team to agree on a common research topic, formulate research questions, determine research methods for the problem, collect and evaluate data, discuss their findings, present research results to the professional public, analyze and evaluate the scientific work of their colleagues, prepare a scientific article suitable for publication

Class syllabus:
- Research methodology
- Design and implementation of a research project in an international group (preferably interdisciplinary)
- Methods and tools for collaboration in virtual space, collaboration in science and practice
- Academic writing, presentation of research results through scientific articles; objectives, content and structure of scientific articles; forms of academic publication, publication forums and evaluation of their quality
- Quality assurance and feedback - peer review
- Communication of results through posters or conference presentations

Recommended literature:
- Teachers' own electronic study materials published on the course website or in the Moodle system
- Gavora, Peter a kol. 2010. Elektronická učebnica pedagogického výskumu. [online]. Bratislava : Univerzita Komenského, 2010. Dostupné na: http://www.e-metodologia.fedu.uniba.sk/ ISBN 978–80–223–2951–4.

- Tharenou, P., Donohue, R. and Cooper, B., 2007. Management research methods. Cambridge University Press.
- Topping, A., 2015: The Quantitative-Qualitative Continium. In: Gerrish, K. and Lathlean, J., The Research Process in Nursing, p. 159-172
- Williamson, K. and Johanson, G. eds., 2017. Research methods: Information, systems, and contexts. Chandos Publishing.

Languages necessary to complete the course:
English

Notes:

Past grade distribution
Total number of evaluated students: 6

A	B	C	D	E	FX
66,67	0,0	0,0	0,0	33,33	0,0

Lecturers: doc. RNDr. Zuzana Kubincová, PhD., doc. RNDr. Martin Homola, PhD.

Last change: 22.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-356/22	Introduction to Artificial Intelligence

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: 2

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:
Interim evaluation: Active participation in lessons + participation in discussions (50%), design of methodology for one topic in the field of artificial intelligence (suitable for secondary education students) and its presentation (50%).
Test: -
Indicative rating scale: A 90 %, B 80 %, C 70 %, D 65 %, E 60 %)
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
After completing the course, students are able to prepare and implement attractive and age-appropriate educational activities in the field of artificial intelligence with secondary students. They will be able to discuss with students various aspects of the use of artificial intelligence in devices they know from everyday life.

Class syllabus:
• Artificial intelligence as a topic in the curriculum
• Classification by decision trees
• Machine learning or pattern recognition using neural networks
• Computer as a smart player in computer games
• Search for patterns in large amounts of data
• Turing test or how do we know if we are talking to a machine

Recommended literature:
• Electronic study materials published on the subject's website or moodle system
• Collection of innovative methodologies for RS (artificial intelligence section), IT Academy, 2020 (in Slovak)
• Lindner, A. et al.: Unplugged Activities in the Context of AI, In: ISSEP 2019
• Spano, M. Artificial Intelligence in a Nut Shell, Živé.sk, 2019 (in Slovak)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 3

A	B	C	D	E	FX
33,33	0,0	66,67	0,0	0,0	0,0

Lecturers: doc. RNDr. Ľubomír Salanci, PhD., doc. RNDr. Ľudmila Jašková, PhD.

Last change: 20.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-102/22	Master's Thesis Seminar

Educational activities:
Type of activities: seminar
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: 86

A	ABS	B	C	D	E	FX
54,65	0,0	20,93	15,12	1,16	5,81	2,33

Lecturers: prof. RNDr. Miroslav Prokša, CSc., doc. RNDr. Štefan Karolčík, PhD., doc. RNDr. PaedDr. Zuzana Haláková, PhD., doc. PaedDr. Elena Čipková, PhD., RNDr. Soňa Nagyová, PhD., RNDr. Peter Likavský, CSc., RNDr. Henrieta Mázorová, PhD., PaedDr. Anna Drozdíková, PhD., Mgr. Lenka Šikulíncová, PhD., prof. RNDr. Ladislav Tolmáči, PhD., doc. Mgr. Marcel Horňák, PhD., RNDr. Ivan Ružek, PhD., doc. RNDr. František Križan, PhD., RNDr. Katarína Danielová, PhD., Mgr. Marta Nevřelová, PhD., PhDr. ThLic. Peter Ikhardt, PhD., Mgr. Štefan Zolcer, PhD., RNDr. Jana Ciceková, PhD., doc. RNDr. Eliška Gálová, PhD., prof. RNDr. Andrea Ševčovičová, PhD., RNDr. Jana Chrappová, PhD., doc. RNDr. Jozef Tatiersky, PhD., doc. Ing. Mária Mečiarová, PhD.

Last change: 14.09.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-127/22	Means of Motivation in Teaching Chemistry

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
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: 11

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

Lecturers: prof. RNDr. Miroslav Prokša, CSc.

Last change: 22.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KAlCh/N-mUCH-112/22	Methods of Chemical Analysis in School Experiments

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

Number of credits: 3

Recommended semester: 1., 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: doc. RNDr. Radoslav Halko, PhD., RNDr. Simona Procházková, PhD.

Last change: 30.09.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-144/22	Methods of Creating Efficient Algorithms

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: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: homework (50%), active participation (50%)
Homework: the student chooses one of the assigned tasks and writes it out in writing.
Active participation: In the class, students present their solutions to others, resp. the presenter tries to simulate with others who did not solve the given task, as if they were high school students
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
The student will be acquainted with the methods of creating efficient algorithms and will be able to design and use algorithms for selected problems.

Class syllabus:
• Complexity of algorithms, complexity analysis
• Methods of creating efficient algorithms (divide and conquer, greeds, dynamic programming, methods based on state space search)
• Search for a pattern in the text
• Graph algorithms
• Algorithms for NP difficult problems - probabilistic, approximate

Recommended literature:
• Zbierka úloh Korešpondenčného seminára z programovania (1983-1997) / Michal Winczer. Bratislava : Metodické centrum, 1997
• Zbierka úloh Korešpondenčného seminára z programovania 1983-2001 / Zostavovateľ Michal Winczer. Bratislava : Fakulta matematiky, fyziky a informatiky UK, 2001
• Teacher's own electronic study materials published on the course website or in the Moodle systeme

Languages necessary to complete the course:
Slovak

Notes:

Past grade distribution
Total number of evaluated students: 13

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

Lecturers: RNDr. Michal Winczer, PhD., doc. RNDr. Zuzana Kubincová, PhD.

Last change: 22.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-238/15	Mobile Platform Programming for Secondary Schools

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: 2

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: The student can get 50% points for active participation in seminars and task development. He will get another 50% of points for the design and implementation of the project.
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
After completing the course the student
• has an overview of programming environments that are suitable for programming applications for mobile platforms
• is able to recognize which environment is suitable for high school students
• knows and is able to apply knowledge of other programming languages in a language that is suitable for programming mobile devices
• is able to assess which applications in the selected programming tool are suitable and reasonably demanding for high school students
• programs moderately demanding projects in the selected environment

Class syllabus:
• Programming languages and environments for mobile devices
• Overview of mobile platforms and programming approaches for them
• Programming tools for programming mobile applications that are suitable for high school students.
• Multi-platform development environment versus platform-specific development environment
• Cycle and its use in the selected programming language
• Create and use variables in simple tasks for mobile devices
• Conditional statement construction
• Project specification and design
• Project implementation, debugging
• Project presentation, evaluation and project discussion

Recommended literature:
The teacher's own electronic study materials published on the subject's website, resp. in Moodle

Beginning Android 4 application development / Wei-Meng Lee; Chaim Krause. Indianapolis, Ind. : Wrox / John Wiley & Sons, 2012
MIT App Inventor, website and educational materials from www.appinventor.mit.edu

Languages necessary to complete the course:
Slovak

Notes:

Past grade distribution
Total number of evaluated students: 13

A	B	C	D	E	FX
53,85	23,08	7,69	0,0	0,0	15,38

Lecturers: doc. PaedDr. Monika Tomcsányiová, PhD.

Last change: 20.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-109/22	Mobile Science Learning 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:

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. PaedDr. Elena Čipková, PhD., PhDr. Michael Fuchs

Last change: 21.06.2023

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-110/22	Mobile Science Learning 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:

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. PaedDr. Elena Čipková, PhD., PhDr. Michael Fuchs

Last change: 21.06.2023

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-131/22	New Concepts of Teaching

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: 4

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

Lecturers: doc. RNDr. PaedDr. Zuzana Haláková, PhD.

Last change: 22.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-124/22	Pedagogical Assessment

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: 57

A	B	C	D	E	FX
22,81	52,63	15,79	5,26	1,75	1,75

Lecturers: PhDr. ThLic. Peter Ikhardt, PhD.

Last change: 27.09.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-125/22	Pedagogical Research Methodology

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
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: 82

A	B	C	D	E	FX
24,39	23,17	23,17	14,63	10,98	3,66

Lecturers: prof. RNDr. Miroslav Prokša, CSc., PaedDr. Anna Drozdíková, PhD.

Last change: 09.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-126/22	Philosophical Aspects of Education

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

Type, volume, methods and workload of the student - additional information
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:
Course requirements:
During the teaching period of the semester: participation, activity, elaboration of assignments or final test. The test or assignments will be from the material covered during the semester. The student can get a maximum of 50 points, the minimum for successful completion of the course is 30 points.
Classification scale: A: 100-92%, B: 91-84%; C: 83-76%, D: 75-68%, E: 67-60% FX: 0-59%
Violation of academic ethics results in the cancellation of the obtained points in the relevant evaluation item. The teacher accepts max. 2 absences with proven documents.
Interim / final evaluation weight: 100% in the examination period

Learning outcomes:
Learning outcomes:
Upon successful completion of the course, students will know:
A: in the field of knowledge:
• What is philosophy, its basic structure, goals and mission
• What issues do philosophy of education and philosophical anthropology address, what are their goals and mission?
• What is the significance of philosophy for solving problems of theory and practice of education
B: in the field of skills:
• Orientation in basic philosophical problems, disciplines and concepts
• Ask questions and formulate answers regarding philosophical questions of education
• Think independently about philosophical issues of education

Class syllabus:
Class syllabus:

1. The concept and structure of philosophy
2. Philosophical and pedagogical anthropology
3. Philosophical anthropology and axiology
4. Philosophy of education I.
5. Philosophy of education II.
6. Philosophy of culture and values
7. Ethical issues and perspectives of education

Recommended literature:

ANZENBACHER, Arno: Úvod do filosofie. Praha: SPN, 1991. ISBN: 80-04-26038-1.
BREZINKA, Wolfgang: Filozofické základy výchovy. Praha: Zvon, 1996. ISBN: 80-7113-169-5
CORETH, Emerich: Co je člověk? Základy filosofické antropologie. Praha: Zvon, 1994. ISBN: 80-7113-098-2
POPKIN, Richard. H., STROLL, Avrum: Filozofie pro každého. Praha: Ivo Železný, 2000. ISBN: 80-240-0257-4
PELCOVÁ, Naděžda: Filozofická a pedagogická antropologie. Praha: Karolinum, 2000. ISBN: 80-246-0076-5
Complementary literature and literature that is not in AK UK will be presented at the beginning and during the semester. Teachers' presentations and non-AK UK literature are available at MS Teams.

Languages necessary to complete the course:

Languages necessary to complete the course:
Slovak

Notes:

Past grade distribution

Total number of evaluated students: 87

A	B	C	D	E	FX
63,22	17,24	14,94	2,3	1,15	1,15

Lecturers: Mgr. Štefan Zolcer, PhD.

Last change: 02.03.2023

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-115/22	Prevention of Drug Addiction

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

Number of credits: 2

Recommended semester: 1., 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: 60

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

Lecturers: RNDr. Soňa Nagyová, PhD.

Last change: 20.06.2023

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-262/22	Programming Competitions

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: 2

Recommended semester: 4.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: active participation in class (25%), homework (75%)
Students know how to search for basic information about the competition, find out for whom it is intended, rules, course, get acquainted with the types of tasks that are typical for the competition.
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%

Learning outcomes:
Students will have an overview of computer competitions for primary and secondary school, respectively. with competitions that have no restrictions on participants. They will know the characteristics of these competitions in order to be able to guide the students in which to participate. They will know the difficulty level of the tasks in each competition. They will know about possible sources of ideas for interesting examples in the competition archives.

Class syllabus:
233 / 5 000
Výsledky prekladov
• Overview of IT competitions with a focus on programming, resp. Troubleshooting.
• Get acquainted with their rules, organization, target group and other specifics.
• Demonstrations of problems from these competitions and their solutions.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 25

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

Lecturers: RNDr. Michal Winczer, PhD., doc. PaedDr. Monika Tomcsányiová, PhD.

Last change: 22.06.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-236/15	Programming of Application for WEB (2)

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

Number of credits: 2

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
Intermediate assessment: practical assignments
Indicative evaluation scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
The student will be able to create a more complex educational web application using databases, or other repositories and modern technologies for the development of dynamic web applications.

Class syllabus:
- HTML5 - Canvas, Web Storage, Media, Drag&Drop
- AJAX - manipulation of objects with their properties (also CSS), effects, event handling, efficient work with forms, etc.
- Two-way communication between server and client
- JQuery, JQueryUI, Vue.js, or other suitable framework

Recommended literature:
• own electronic texts published on the website or in the Moodle environment
• actual documentation for each technology
• w3schools.com

Languages necessary to complete the course:
Slovak

Notes:

Past grade distribution
Total number of evaluated students: 11

A	B	C	D	E	FX
18,18	9,09	9,09	18,18	36,36	9,09

Lecturers: PaedDr. Roman Hrušecký, PhD., doc. RNDr. Ľudmila Jašková, PhD.

Last change: 21.06.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-116/22	Rhetoric for Teachers

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: 35

A	B	C	D	E	FX
40,0	20,0	25,71	14,29	0,0	0,0

Lecturers: Mgr. Štefan Zolcer, PhD.

Last change: 14.09.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-237/22	Robotics in Education

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: 2

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:
Interim evaluation: creation of activities during seminars (50%) and methodological materials and parallel testing of these activities for selected robotic toys (50%)
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Students will be at the end of the semester:
- Able to work with one or two robotic toys
- Know and apply the criteria for creating methodological materials for working with robotic toys and kits
- They will have experience in verifying proposed activities
- They will be able to look at teaching robotics from the perspective of taxonomies
- They will know the risks and benefits of educational robotics and its impact on the development of students' skills

Class syllabus:
• Work with a selected robotic kit
• Didactic analysis of the curriculum in educational robotics
• Taxonomy in the context of robotic toy programming
• Preparation and analysis of methodological materials for robotic kits
• Verification of proposed materials

Recommended literature:
• The teacher's own electronic study materials published on the subject's website, resp. in Moodle
• Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika : Didaktika robotických stavebníc : 1.2 Vzdelávanie nekvalifikovaných učiteľov informatiky na 2. stupni ZŠ a na SŠ / Martina Kabátová, ... [et al.]. Bratislava : Štátny pedagogický ústav, 2010
Premeny školy v digitálnom veku / Ivan Kalaš a kolektív. Bratislava : Slovenské pedagogické nakladateľstvo - Mladé letá, 2013

• Various materials from manufacturers of selected robotic kits such as LEGO, Ozobot, Micro: bit, etc.

Languages necessary to complete the course:
Slovak

Notes:

Past grade distribution
Total number of evaluated students: 83

A	B	C	D	E	FX
89,16	3,61	1,2	2,41	0,0	3,61

Lecturers: Mgr. Karolína Miková, PhD., Mgr. Jakub Krcho

Last change: 21.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KAgCh/N-mUCH-111/22	School Chemical Calculations

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

Number of credits: 2

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 6

A	B	C	D	E	FX
16,67	16,67	16,67	16,67	16,67	16,67

Lecturers: doc. RNDr. Jozef Tatiersky, PhD.

Last change: 04.10.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KAgCh/N-mUCH-112/22	Selected Chapters from Inorganic Chemistry

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
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: 30

A	B	C	D	E	FX
10,0	13,33	33,33	23,33	6,67	13,33

Lecturers: doc. RNDr. Jozef Tatiersky, PhD., RNDr. Jana Chrappová, PhD.

Last change: 14.09.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KBCh/N-mUCH-001/22	Selected Chapters in Biochemistry

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 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: 23

A	B	C	D	E	FX
13,04	8,7	17,39	43,48	17,39	0,0

Lecturers: doc. RNDr. Jana Korduláková, PhD.

Last change: 27.07.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KOrCh/N-mUCH-100/22	Selected Topics in Organic Chemistry

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
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: 28

A	B	C	D	E	FX
17,86	17,86	17,86	25,0	10,71	10,71

Lecturers: doc. Ing. Mária Mečiarová, PhD., Mgr. Henrieta Stankovičová, PhD.

Last change: 14.06.2023

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KFTCh/N-mUCH-056/22	Selected Topics in Physical Chemistry

Educational activities:
Type of activities: lecture / seminar
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:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 13

A	B	C	D	E	FX
15,38	15,38	53,85	15,38	0,0	0,0

Lecturers: doc. Mgr. Michal Pitoňák, PhD., prof. RNDr. Vladimír Kellö, DrSc.

Last change: 31.07.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-130/22	Specific Learning Disorders in School Practice

Educational activities:
Type of activities: lecture / seminar
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:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 6

A	B	C	D	E	FX
83,33	16,67	0,0	0,0	0,0	0,0

Lecturers: RNDr. Jana Ciceková, PhD.

Last change: 22.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KAgCh/N-mUCH-110/22	Subject Competitions in Education

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

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

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. Jana Chrappová, PhD.

Last change: 14.09.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-103/22	Teaching Practice 2 (A)

Educational activities:
Type of activities: practice
Number of hours:
per week: **per level/semester:** 10d
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: 69

A	B	C	D	E	FX
65,22	30,43	0,0	2,9	1,45	0,0

Lecturers: doc. RNDr. Štefan Karolčík, PhD., prof. RNDr. Miroslav Prokša, CSc., doc. RNDr. PaedDr. Zuzana Haláková, PhD., doc. PaedDr. Elena Čipková, PhD., PhDr. Michael Fuchs, RNDr. Peter Likavský, CSc., RNDr. Henrieta Mázorová, PhD., doc. RNDr. Katarína Pavličková, CSc., RNDr. Hubert Žarnovičan, PhD., PaedDr. Anna Drozdíková, PhD., Mgr. Lenka Šikulíncová, PhD.

Last change: 22.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-104/22	Teaching Practice 2 (B)

Educational activities:
Type of activities: practice
Number of hours:
per week: **per level/semester:** 10d
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: 81

A	ABS	B	C	D	E	FX
59,26	0,0	29,63	8,64	1,23	1,23	0,0

Lecturers: doc. RNDr. Štefan Karolčík, PhD., prof. RNDr. Miroslav Prokša, CSc., doc. RNDr. PaedDr. Zuzana Haláková, PhD., doc. PaedDr. Elena Čipková, PhD., PhDr. Michael Fuchs, RNDr. Peter Likavský, CSc., RNDr. Henrieta Mázorová, PhD., doc. RNDr. Katarína Pavličková, CSc., RNDr. Hubert Žarnovičan, PhD., PaedDr. Anna Drozdíková, PhD., Mgr. Lenka Šikulíncová, PhD., M. A. Linda Steyne, PhD., Mgr. Monika Šajánková, PhD.

Last change: 22.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-113/22	Teaching Practice 3 (A)

Educational activities:
Type of activities: practice
Number of hours:
per week: **per level/semester:** 15d
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: 84

A	B	C	D	E	FX
66,67	17,86	7,14	2,38	4,76	1,19

Lecturers: doc. PaedDr. Elena Čipková, PhD., doc. RNDr. Štefan Karolčík, PhD., RNDr. Peter Likavský, CSc., RNDr. Henrieta Mázorová, PhD., prof. RNDr. Miroslav Prokša, CSc., PaedDr. Anna Drozdíková, PhD., RNDr. Hubert Žarnovičan, PhD., PhDr. Michael Fuchs, Mgr. Lenka Šikulíncová, PhD., Mgr. Michaela Vargová, PhD.

Last change: 14.09.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-114/22	Teaching Practice 3 (B)

Educational activities:
Type of activities: practice
Number of hours:
per week: **per level/semester:** 15d
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: 110

A	ABS	B	C	D	E	FX
61,82	0,0	22,73	10,0	2,73	2,73	0,0

Lecturers: doc. PaedDr. Elena Čipková, PhD., doc. RNDr. Štefan Karolčík, PhD., RNDr. Peter Likavský, CSc., RNDr. Henrieta Mázorová, PhD., prof. RNDr. Miroslav Prokša, CSc., PaedDr. Anna Drozdíková, PhD., RNDr. Hubert Žarnovičan, PhD., PhDr. Michael Fuchs, Mgr. Lenka Šikulíncová, PhD., M. A. Linda Steyne, PhD., Mgr. Monika Šajánková, PhD., Mgr. Michaela Vargová, PhD.

Last change: 22.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUCH-108/22	Technical and Law Aspects of School Chemical Experiments

Educational activities:
Type of activities: practicals / seminar
Number of hours:
per week: 2 / 1 **per level/semester:** 28 / 14
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: PaedDr. Anna Drozdíková, PhD.

Last change: 22.08.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
PriF.KDPP/N-mUXX-107/22	The Art of Presentation and Communication

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

Number of credits: 2

Recommended semester: 1., 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: 6

A	B	C	D	E	FX
83,33	0,0	0,0	0,0	0,0	16,67

Lecturers: RNDr. Peter Likavský, CSc., doc. RNDr. PaedDr. Zuzana Haláková, PhD., RNDr. Soňa Nagyová, PhD.

Last change: 11.10.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-101/22	Theoretical Computer Science (1)

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: 2

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: yes, homework (25%)/ tests (25%)
Exam: written
Indicative evaluation scale: A 90%, B 80%, C 70%, D 60%, E% 50%)

Learning outcomes:
To introduce the issue of theoretical informatics, to acquaint students with classical and current areas of research, in which there are basic questions: Can all problems be solved algorithmically? How effective is the solution? What are the solution techniques? After completing the course, students will know what a computational model is. On the computational model, the finite state machine (KA) will know what the calculation step is, the calculation, the accepting calculation. They will be able to show (prove) that a specific problem (language recognition) is solvable or. unsolvable at KA. Students will understand the definition of nondeterminism and its use in solving simple problems. Students will be able to write simple programs for the Turing machine.

Class syllabus:
Brief introduction to the main concepts of theoretical computer science:
• Alphabets, Words, Languages and Algorithmic Problems
• computational model Finite automaton (KA),
• Configuration, calculation step, calculation, accepting and non-accepting calculation.
• Method of KA design: ad hoc and the need for proof of correctness resp. modular design
• Existence of problems that are unsolvable at KA. Evidence of non-existence
• Nondeterministic finite state machine (NKA), Configuration, calculation step, calculation, accepting and non-accepting calculation.
• Equivalence of KA and NKA (subsoil construction)
• Introduction to the computational model of the Turing machine

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 36

A	B	C	D	E	FX
77,78	13,89	5,56	2,78	0,0	0,0

Lecturers: RNDr. Michal Winczer, PhD., doc. RNDr. Zuzana Kubincová, PhD.

Last change: 22.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023

University: Comenius University Bratislava

Faculty: Faculty of Natural Sciences

Course ID:	**Course title:**
FMFI.KDMFI/2-UIN-102/22	Theoretical Computer Science (2)

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

Number of credits: 2

Recommended semester: 4.

Educational level: II.

Prerequisites: FMFI.KI/1-INF-215/14 - Formal Languages and Automata (1) or FMFI.KAI +KDMFI/1-AIN-211/10 - Introduction to Theoretical Informatics or FMFI.KDMFI/2-UIN-101/15 - Theoretical Computer Science (1) or FMFI.KDMFI/2-UIN-101/22 - Theoretical Computer Science (1)

Course requirements:
Continuous assessment: homework (25%)/ tests (25%)
Exam: written
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E% 50%

Learning outcomes:
Students will deepen and expand their knowledge in the field of theoretical informatics, they will get acquainted with other current areas of research, they will further explore the basic questions of theoretical informatics: How effective is the solution? What are the solution techniques? Students will know the computational model of TS, they will be able to simulate several modifications of TS (multiband, nondeterministic). They will know that there are problems that cannot be solved on TS. They will be able to use the reduction between problems to prove both solvability and unsolvability.

Class syllabus:
• Turing machines
• Computability
• Complexity theory
• Ways to solve difficult problems
• Cryptography

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: RNDr. Michal Winczer, PhD., doc. RNDr. Zuzana Kubincová, PhD.

Last change: 22.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Natural Sciences	
Course ID: FMFI.KDMFI+KAI/2-UIN-247/15	**Course title:** Web Technologies in Teaching
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: 2	
Recommended semester: 3.	
Educational level: II.	
Prerequisites:	
Course requirements: Continuous assessment: active participation in class (15%), homework (25%), papers (25%), project (35%) Indicative grading scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0	
Learning outcomes: Students will be familiar with different tools based on the latest web technologies, will be able to decide which of these tools are suitable for which learning activities and will be able to suggest different ways of using them in school practice.	
Class syllabus: - new interactive web tools - overview, technological and pedagogical background, relation to learning theories - blog, vlog, microblog - collaborative editors and other tools, wikis - podcasting, social bookmarking and tagging - social networks - tools for evaluating activities on the interactive web, peer-review, peer-assessment, self-assessment	
Recommended literature: • The teacher's own electronic study materials published on the course website or in the Moodle system • Selection of recent publications in the field	
Languages necessary to complete the course: SLovak, English	
Notes:	

Past grade distribution
Total number of evaluated students: 10

A	B	C	D	E	FX
90,0	0,0	10,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Zuzana Kubincová, PhD., doc. RNDr. Martin Homola, PhD.

Last change: 22.06.2022

Approved by: