# Course descriptions

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# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-236/22 | **Course title:**<br>Algorithms and Data Structures |
|---|---|

**Educational activities:**
  Type of activities: course
  **Number of hours:**
   per week: 4  per level/semester: 52
 **Form of the course:** on-site learning

**Number of credits:** 5

**Recommended semester:** 4.

**Educational level:** I., II.

**Prerequisites:** FMFI.KDMFI/1-UIN-241/15 - Programming (3)

**Course requirements:**
 Interim assessment: assessment of short tests (30%) and several smaller projects (20%)
 Examination: test and practical exam at the computer
 Indicative grading scale: A 88%, B 81%, C 74%, D 67%, E 60%
 Scale of assessment (preliminary/final): 50/50

**Learning outcomes:**
 After completing the course, students will understand different abstract data types, understand the differences between their different implementations, will be able to estimate the complexity of operations on individual structures, will be able to use more complex data structures and advanced algorithms in programming more complex problems, analyze and compare programs solving the same problem in terms of efficiency.

**Class syllabus:**
 • complexity criteria, program run time calculation, asymptotic notation
 • basic abstract data types - list, stack, row
 • tree, binary tree, binary search tree
 • balanced tree
 • priority queue
 • chart, searching, backtracking
 • dictionary, hashing
 • sorting

**Recommended literature:**
 the teacher's own electronic study materials published on the subject's website, resp. in Moodle
 Ryant, I .: Object-Oriented Algorithms and Data Structures, 2017, P. 288
 Wróblewski, P .: Algorithms: Data Structures and Programming Techniques, Computer Press, 2004, p. 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: 72

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 25,0 | 12,5 | 12,5 | 20,83 | 16,67 | 12,5 |

**Lecturers:** doc. RNDr. Zuzana Kubincová, PhD.

**Last change:** 22.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KAlCh/N-bUCH-039/22 | **Course title:**<br>Analytical Chemistry Practicals for Teachers |
|---|---|

| |
|---|
| **Educational activities:**<br>  **Type of activities:** practicals<br>  **Number of hours:**<br>   **per week:** 2  **per level/semester:** 26<br>  **Form of the course:** on-site learning |
| **Number of credits:** 2 |
| **Recommended semester:** 6. |
| **Educational level:** I. |
| **Prerequisites:** |
| **Course requirements:** |
| **Learning outcomes:** |
| **Class syllabus:** |
| **Recommended literature:** |
| **Languages necessary to complete the course:** |
| **Notes:** |

**Past grade distribution**
Total number of evaluated students: 51

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 60,78 | 33,33 | 5,88 | 0,0 | 0,0 | 0,0 |

| |
|---|
| **Lecturers:** doc. RNDr. Radoslav Halko, PhD., doc. RNDr. Róbert Góra, PhD., Mgr. Iveta Boháčová, PhD. |
| **Last change:** 30.09.2022 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KAlCh/N-bUCH-038/22 | **Course title:**<br>Analytical Chemistry for Teachers |
|---|---|

| |
|---|
| **Educational activities:**<br>  **Type of activities:** lecture / seminar<br>  **Number of hours:**<br>    **per week:** 2 / 2  **per level/semester:** 26 / 26<br>  **Form of the course:** on-site learning |
| **Number of credits:** 5 |
| **Recommended semester:** 6. |
| **Educational level:** I. |
| **Prerequisites:** |
| **Course requirements:** |
| **Learning outcomes:** |
| **Class syllabus:** |
| **Recommended literature:** |
| **Languages necessary to complete the course:** |
| **Notes:** |

**Past grade distribution**
 Total number of evaluated students: 53

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 9,43 | 22,64 | 35,85 | 13,21 | 15,09 | 3,77 |

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|---|
| **Lecturers:** doc. RNDr. Radoslav Halko, PhD., doc. RNDr. Róbert Góra, PhD. |
| **Last change:** 30.09.2022 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:** PriF.KAlCh/N-bCAL-055/22 | **Course title:** Analytical Chemistry in School Experiments |
|---|---|

**Educational activities:**
  **Type of activities:** practicals / seminar
  **Number of hours:**
   **per week:** 2 / 1  **per level/semester:** 26 / 13
  **Form of the course:** on-site learning

**Number of credits:** 3

**Recommended semester:** 6.

**Educational level:** I.

**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., Mgr. Iveta Boháčová, PhD.

**Last change:** 30.09.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# STATE EXAM DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |
| **Course ID:** PriF.KDPP/N-bOBH-100/22 | **Course title:** Bachelor's Thesis Defence |
| **Number of credits:** 8 | |
| **Educational level:** I. | |
| **State exam syllabus:** | |
| **Last change:** 01.08.2022 | |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. | |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KBCh/N-bUCH-003/22 | **Course title:**<br>Biochemistry for Teachers |
|---|---|

**Educational activities:**
  **Type of activities:** lecture / seminar
  **Number of hours:**
    **per week:** 4 / 2  **per level/semester:** 52 / 26
  **Form of the course:** on-site learning

**Number of credits:** 7

**Recommended semester:** 5.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**

**Learning outcomes:**

**Class syllabus:**

**Recommended literature:**

**Languages necessary to complete the course:**

**Notes:**

**Past grade distribution**
 Total number of evaluated students: 76

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 18,42 | 21,05 | 15,79 | 22,37 | 17,11 | 5,26 |

**Lecturers:** prof. RNDr. Katarína Mikušová, DrSc., doc. RNDr. Marek Mentel, PhD., Mgr. Júlia Zemanová, PhD., Mgr. Barbora Bučková, PhD., Mgr. Petra Chovančíková, PhD.

**Last change:** 02.10.2024

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:** <br> PriF/N-bUXX-003/22 | **Course title:** <br> Calculus for Chemistry Teacher |
|---|---|

| |
|---|
| **Educational activities:** <br>  **Type of activities:** seminar <br>  **Number of hours:** <br>   **per week:** 2  **per level/semester:** 26 <br>  **Form of the course:** on-site learning |
| **Number of credits:** 2 |
| **Recommended semester:** 1. |
| **Educational level:** I. |
| **Prerequisites:** |
| **Course requirements:** |
| **Learning outcomes:** |
| **Class syllabus:** |
| **Recommended literature:** |
| **Languages necessary to complete the course:** |
| **Notes:** |

**Past grade distribution**
Total number of evaluated students: 44

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 22,73 | 18,18 | 22,73 | 13,64 | 11,36 | 11,36 |

| |
|---|
| **Lecturers:** doc. PaedDr. Klára Velmovská, PhD., PaedDr. Tünde Kozánek Kiss, PhD. |
| **Last change:** 17.10.2022 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KAgCh/N-bCXX-002/22 | **Course title:**<br>Chemical Calculation (1) |
|---|---|

| |
|---|
| **Educational activities:**<br>  **Type of activities:** seminar<br>  **Number of hours:**<br>    **per week:** 2  **per level/semester:** 26<br>  **Form of the course:** on-site learning |
| **Number of credits:** 2 |
| **Recommended semester:** 1. |
| **Educational level:** I. |
| **Prerequisites:** |
| **Course requirements:** |
| **Learning outcomes:** |
| **Class syllabus:** |
| **Recommended literature:** |
| **Languages necessary to complete the course:** |
| **Notes:** |
| **Past grade distribution**<br> Total number of evaluated students: 366 |

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 15,3 | 15,3 | 18,31 | 15,85 | 13,66 | 21,58 |

| |
|---|
| **Lecturers:** doc. Mgr. Olivier Monfort, PhD., Mgr. Roman Bystrický, PhD. |
| **Last change:** 14.09.2022 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:** PriF.KAgCh/N-bCAG-005/22 | **Course title:** Chemical Calculation (2) |
|---|---|

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|---|
| **Educational activities:**<br>  **Type of activities:** seminar<br>  **Number of hours:**<br>   **per week:** 2  **per level/semester:** 26<br>  **Form of the course:** on-site learning |
| **Number of credits:** 2 |
| **Recommended semester:** 2. |
| **Educational level:** I. |
| **Prerequisites:** |
| **Course requirements:** |
| **Learning outcomes:** |
| **Class syllabus:** |
| **Recommended literature:** |
| **Languages necessary to complete the course:** |
| **Notes:** |
| **Past grade distribution**<br> Total number of evaluated students: 35 |

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 45,71 | 8,57 | 8,57 | 11,43 | 5,71 | 20,0 |

| |
|---|
| **Lecturers:** RNDr. Ján Šimunek, PhD. |
| **Last change:** 14.09.2022 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KAgCh/N-bCAG-026/22 | **Course title:**<br>Chemistry Olympiad in Education |
|---|---|

**Educational activities:**
  **Type of activities:** practicals
  **Number of hours:**
    **per week:** 2  **per level/semester:** 26
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 4.

**Educational level:** I.

**Prerequisites:** PriF.KAgCh/N-bUCH-034/22 - General Chemistry for Teachers and PriF.KAgCh/N-bUCH-035/22 - Laboratory Technique for Teachers

**Course requirements:**

**Learning outcomes:**

**Class syllabus:**

**Recommended literature:**

**Languages necessary to complete the course:**

**Notes:**

**Past grade distribution**
 Total number of evaluated students: 19

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 89,47 | 10,53 | 0,0 | 0,0 | 0,0 | 0,0 |

**Lecturers:** RNDr. Jana Chrappová, PhD.

**Last change:** 14.09.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-683/22 | **Course title:**<br>Creating of Educational Software |
|---|---|

**Educational activities:**
 **Type of activities:** course
 **Number of hours:**
  **per week:** 2  **per level/semester:** 26
 **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 6.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**
Continuous assessment: The student earns points for meeting the criteria for five control stages (20% points for each stage) in the design, development and testing of their own emerging educational software.
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

**Learning outcomes:**
According to the requirements of the teacher from practice, the student will design and develop educational software.
The program designs and tests in control stages.
The result of the last stage is a functional program.
The software is developed using Design-based Research methods.
The student will write a user manual for the teacher and methodological material for using their software in teaching.

**Class syllabus:**
Future teacher as a creator of educational software.
Selection of a suitable topic for educational software for teaching informatics at primary and secondary schools.
Specification of educational software in terms of design and functionality.
Interactivity, multimedia, openness of the software (settings, tasks, pictures, editor for the teacher, student registration, tables and diagrams of student evaluation ...).
Desktop programs vs. web applications.
Software development.
Multiple deployment of software in teaching.
Evaluation of software by users - teachers and students.
Software development using Design-based Research methods.

**Recommended literature:**

Transformations of the school in the digital age / Ivan Kalaš and team. Bratislava: Slovenské pedagogické nakladateľstvo - Mladé letá, 2013
T. Plomp, N. Nieveen et al. Educational Design Research. Slo 2013
own electronic texts published on the website, resp. in the Moodle environment

**Languages necessary to complete the course:**
Slovak

**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. Monika Tomcsányiová, PhD.

**Last change:** 20.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-574/22 | **Course title:**<br>Didactic Proseminar in Computer Science |
|---|---|

**Educational activities:**
  **Type of activities:** course
  **Number of hours:**
    **per week:** 2  **per level/semester:** 26
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 5.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**
Continuous assessment: seminar work, paper
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

**Learning outcomes:**
The student:
- can assess and evaluate different educational programs according to whether they are suitable for a given level of education
- understands and is able to design activities for different types of computer science lessons
- knows and is able to design instructional and constructivist lessons in practice
- knows, can compare and evaluate computer science curricula in different countries
- prepares and implements computer science lessons in seminars with colleagues, in which he applies non-traditional ways of teaching computer science topics

**Class syllabus:**
At each of the seminars we will address some problem of didactics of informatics from practice, such as:
- IT topics in the State Education Program,
- different approaches to teaching computer science,
- constructivism and constructionism,
- IT instructivism,
- informatics vs. digital literacy,
- informatics in primary and pre-primary education,
- informatics in other countries,
- non-traditional ways of teaching computer science,
- evaluation and feedback,
- methods of working in computer science lessons

**Recommended literature:**
methodical materials of teachers from practice

own electronic texts published on the website, resp. in the Moodle environment

**Languages necessary to complete the course:**
Slovak

**Notes:**

**Past grade distribution**
Total number of evaluated students: 17

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 82,35 | 11,76 | 5,88 | 0,0 | 0,0 | 0,0 |

**Lecturers:** doc. PaedDr. Monika Tomcsányiová, PhD., Mgr. Lucia Budinská, PhD., Mgr. Barbora Stenová

**Last change:** 20.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KDPP/N-bUCH-039/22 | **Course title:**<br>Didactics of Chemistry |
|---|---|

| |
|---|
| **Educational activities:**<br>  **Type of activities:** lecture / seminar<br>  **Number of hours:**<br>   **per week:** 2 / 2  **per level/semester:** 26 / 26<br>  **Form of the course:** on-site learning |
| **Number of credits:** 4 |
| **Recommended semester:** 6. |
| **Educational level:** I. |
| **Prerequisites:** |
| **Course requirements:** |
| **Learning outcomes:** |
| **Class syllabus:** |
| **Recommended literature:** |
| **Languages necessary to complete the course:** |
| **Notes:** |
| **Past grade distribution**<br> Total number of evaluated students: 51 |

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 35,29 | 41,18 | 21,57 | 1,96 | 0,0 | 0,0 |

| |
|---|
| **Lecturers:** doc. PaedDr. Anna Drozdíková, PhD. |
| **Last change:** 08.09.2025 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

| | |
|---|---|
| **University:** Comenius University Bratislava | |

| | |
|---|---|
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:** PriF.KDPP/N-bUCH-038/22 | **Course title:** Didactics of School Experiments in Chemistry |
|---|---|

**Educational activities:**
 **Type of activities:** practicals
 **Number of hours:**
  **per week:** 2  **per level/semester:** 26
 **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 5.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**

**Learning outcomes:**

**Class syllabus:**

**Recommended literature:**

**Languages necessary to complete the course:**

**Notes:**

**Past grade distribution**
 Total number of evaluated students: 76

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 13,16 | 32,89 | 34,21 | 17,11 | 0,0 | 2,63 |

**Lecturers:** doc. PaedDr. Anna Drozdíková, PhD.

**Last change:** 01.08.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:** PriF.KOrCh/N-bCOR-001/22 | **Course title:** Elective Seminar on Organic Chemistry |
|---|---|

**Educational activities:**
  **Type of activities:** seminar
  **Number of hours:**
    **per week:** 2  **per level/semester:** 26
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 4.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**

**Learning outcomes:**

**Class syllabus:**

**Recommended literature:**

**Languages necessary to complete the course:**

**Notes:**

**Past grade distribution**
 Total number of evaluated students: 206

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 36,89 | 13,59 | 13,11 | 9,71 | 10,19 | 16,5 |

**Lecturers:** doc. Ing. Mária Mečiarová, PhD., doc. RNDr. Peter Magdolen, PhD., RNDr. Viera Poláčková, PhD., Mgr. Henrieta Stankovičová, PhD., Mgr. Tibor Peňaška, PhD., Mgr. Dominika Mravcová, PhD., Mgr. Viktória Némethová, PhD., Mgr. Bernard Mravec, PhD.

**Last change:** 25.07.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:** PriF.KOrCh/N-bCOR-008/22 | **Course title:** Elective Seminar on Organic Synthesis |
|---|---|

**Educational activities:**
  **Type of activities:** seminar
  **Number of hours:**
    **per week:** 2  **per level/semester:** 26
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 4.

**Educational level:** I.

**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 |
|---|---|---|---|---|---|
| 47,62 | 8,33 | 13,1 | 8,33 | 5,95 | 16,67 |

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

**Last change:** 25.07.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KAlCh/N-bCXX-043/22 | **Course title:**<br>Environmental Chemistry |
|---|---|

**Educational activities:**
  **Type of activities:** lecture / seminar
  **Number of hours:**
    **per week:** 2 / 1  **per level/semester:** 26 / 13
  **Form of the course:** on-site learning

**Number of credits:** 3

**Recommended semester:** 2.

**Educational level:** I.

**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. Radoslav Halko, PhD., RNDr. Renáta Górová, PhD., RNDr. Helena Jurdáková, PhD.

**Last change:** 26.09.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:** PriF.KAgCh/N-bUCH-034/22 | **Course title:** General Chemistry for Teachers |
|---|---|

**Educational activities:**
  **Type of activities:** lecture / seminar
  **Number of hours:**
   **per week:** 2 / 2  **per level/semester:** 26 / 26
  **Form of the course:** on-site learning

**Number of credits:** 4

**Recommended semester:** 1.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**

**Learning outcomes:**

**Class syllabus:**

**Recommended literature:**

**Languages necessary to complete the course:**

**Notes:**

**Past grade distribution**
 Total number of evaluated students: 116

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 8,62 | 9,48 | 17,24 | 17,24 | 14,66 | 32,76 |

**Lecturers:** prof. RNDr. Jozef Noga, DrSc.

**Last change:** 04.10.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KAlCh/N-bCXX-008/22 | **Course title:**<br>Identification and Quantification of Chemical Substances |
|---|---|

**Educational activities:**
  **Type of activities:** lecture / seminar
  **Number of hours:**
   **per week:** 1 / 1  **per level/semester:** 13 / 13
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 3.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**

**Learning outcomes:**

**Class syllabus:**

**Recommended literature:**

**Languages necessary to complete the course:**

**Notes:**

**Past grade distribution**
 Total number of evaluated students: 31

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 83,87 | 12,9 | 0,0 | 0,0 | 0,0 | 3,23 |

**Lecturers:** doc. RNDr. Andrea Vojs Staňová, PhD., doc. RNDr. Róbert Góra, PhD., doc. RNDr. Róbert Bodor, PhD., prof. RNDr. Marian Masár, PhD., doc. RNDr. Radoslav Halko, PhD.

**Last change:** 30.09.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| **Academic year:** 2025/2026 |
|---|

| **University:** Comenius University Bratislava |
|---|

| **Faculty:** Faculty of Natural Sciences |
|---|

| **Course ID:** FMFI.KDMFI/1-UIN-121/22 | **Course title:** Infomatics (1) |
|---|---|

**Educational activities:**
  **Type of activities:** practicals / lecture
  **Number of hours:**
   **per week:** 2 / 2  **per level/semester:** 26 / 26
  **Form of the course:** on-site learning

| **Number of credits:** 4 |
|---|

| **Recommended semester:** 1. |
|---|

| **Educational level:** I. |
|---|

| **Prerequisites:** |
|---|

**Course requirements:**
Continuous assessment: The student can get 40% points for working in seminars, another 20% for independent creative work and the remaining 20% for writing a paper.
Exam: practical exam 20% points
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 80/20

**Learning outcomes:**
The student:
- will gain first-hand experience with various topics of theoretical computer science, which he will encounter during his further study
- can discuss the presented IT problems and their use
- analyzes various approaches to solving the presented IT problems in terms of their usability and effectiveness (at an intuitive level)
- is able to design their own solutions to these problems, or modifications of existing solutions, on the basis of various criteria
- is able to evaluate the correctness of solutions and discuss their improvements

**Class syllabus:**
 1. number systems
 2. encoding (text, images, sound ...)
 3. code error detection, self-correcting codes
 4. Huffman coding, compression
 5. logic operations, logic, logic circuits
 6. logic programming
 7. trees, binary search trees, decision trees
 8. simple graphs and work with them
 9. encryption - classic ciphers
 10. symmetric and asymmetric encryption

**Recommended literature:**

Sedem divov informatiky / Juraj Hromkovic; translation by Michal Winczer. Ruzomberok: Verbum, 2012
Algorithmic Puzzles / Anany Levitin, Maria Levitin. Oxford University Press Inc, 2011
Tasks and methodologies at: http://csunplugged.org/
Task archive on the website: www.prask.ksp.sk
own electronic texts published on the website, resp. in the Moodle environment

**Languages necessary to complete the course:**
Slovak

**Notes:**

**Past grade distribution**
Total number of evaluated students: 58

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 60,34 | 31,03 | 6,9 | 0,0 | 1,72 | 0,0 |

**Lecturers:** doc. PaedDr. Monika Tomcsányiová, PhD., PaedDr. Daniela Bezáková, PhD., Mgr. Lucia Budinská, PhD.

**Last change:** 20.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-322/22 | **Course title:**<br>Informatics (2) |
|---|---|

**Educational activities:**
  **Type of activities:** course
  **Number of hours:**
   **per week:** 2  **per level/semester:** 26
 **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 3.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**
Continuous assessment: The student can get 50% of points for work in seminars, another 25% for independent creative work and the remaining 25% for the elaboration of a paper.
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 gain practical experience with various topics of theoretical computer science, which he encounters during his studies
- is able to discuss the presented IT problems and uses knowledge from other subjects to solve them
- analyzes various approaches to solving the presented IT problems in terms of their usability and effectiveness (at an intuitive level)
- is able to design their own solutions to these problems, or modifications of existing solutions, on the basis of various criteria
- is able to evaluate the correctness of solutions and discuss their improvements

**Class syllabus:**
- sorting
- information theory
- languages and grammars
- algorithmic solvability of problems
- finite automata
- determinism and nondeterminism
- more complex coding
- encryption
- problems from graph theory - paths, skeletons
- problems from graph theory - coloring, coverage

**Recommended literature:**

Sedem divov informatiky / Juraj Hromkovic; translation by Michal Winczer. Ruzomberok: Verbum, 2012
Algorithmic Puzzles / Anany Levitin, Maria Levitin. Oxford University Press Inc, 2011
Discrete and Combinatorial Mathematics: An Applied Introduction, 5th Editirion / Ralph P. Grimaldi. Pearson, 2003
Introduction to Automata Theory, Languages, and Computation / J. Hopcroft, et. al. Pearson, 2006
Tasks and methodologies at: http://csunplugged.org/
Task archive on the website: www.prask.ksp.sk
own electronic texts published on the website, resp. in the Moodle environment

**Languages necessary to complete the course:**
Slovak

**Notes:**

**Past grade distribution**
Total number of evaluated students: 46

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 50,0 | 13,04 | 17,39 | 13,04 | 0,0 | 6,52 |

**Lecturers:** Mgr. Lucia Budinská, PhD., doc. PaedDr. Monika Tomcsányiová, PhD.

**Last change:** 20.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# STATE EXAM DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-951/15 | **Course title:**<br>Informatics for Teachers |
|---|---|

**Number of credits:** 2

**Educational level:** I.

**Learning outcomes:**
State examination for the completion of a bachelor's degree in teacher education in combination with computer science.

**Class syllabus:**
Programming in a higher level programming language. PPE and its principles. Basic mathematical concepts and principles needed to solve problems in the practice of computer science teachers. Mathematical structures (graphs, formal languages and automata, fractals). Creation of an educational program for the subject of informatics at primary and secondary school. Data structures (list, stack, row, trees, lexicographic trees, graphs). Parallel processes. Solving tasks in school informatics at primary and secondary school in a programming language that is suitable for a given level of education.

**State exam syllabus:**
State examination for the completion of a bachelor's degree in teacher education in combination with informaticsInformatics
1. Data types in the Scratch environment.
2. New (custom) blocks in the Scratch environment.
3. Using text files in the Scratch environment.
4. Multiple characters in a Scratch environment.
5. Keyboard and mouse events in the Scratch environment.
6. Advanced Scratch environment options, custom variables.
7. Working with the field. Associative fields. (Python)
8. Characteristics of object-oriented programming. Classes. Inheritance. (Python)
9. Characteristics and use of files. Text files and ways to work with them. (Python)
10. Working with graphic information. Working with the tkinter module. (Python)
11. Turtle graphics. Recursion. Working with the turtle module. (Python)
12. Dynamic data structures.
13. Representation of sets.
14. Finding information in tables
15. Sorting algorithms.
Didactics of informatics
1. Teaching informatics at primary and secondary schools. Basic school documents. General and partial educational goals. Facts, concepts, generalizations.
2. Taxonomy of educational goals. Significance of taxonomies, levels of cognitive taxonomy (Bloom).
3. Preparation of a lesson for work with a spreadsheet editor at elementary school.
4. Preparation of a lesson on security in high school.

5. Children's programming languages. Features of a programming language that is suitable for teaching programming to students at the 2nd level of elementary school. Comparison Karel, Scratch.
6. Digital technologies in teaching.
7. E-learning. Advantages and disadvantages of various forms of e-learning. Risks and pitfalls of e-learning.
8. Use of software in education.
9. Organizational forms.
10. Evaluation. Forms and functions of evaluation.
11. Didactic principles.

**Recommended literature:**
Literature recommended by individual subjects during the whole bachelor study.

**Languages necessary to complete the course:**
Slovak

**Last change:** 31.05.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KAgCh/N-bCAG-027/22 | **Course title:**<br>Inorganic Chemistry Practical for Teachers |
|---|---|

| |
|---|
| **Educational activities:**<br>  **Type of activities:** practicals<br>  **Number of hours:**<br>    **per week:** 3  **per level/semester:** 39<br>  **Form of the course:** on-site learning |
| **Number of credits:** 3 |
| **Recommended semester:** 2. |
| **Educational level:** I. |
| **Prerequisites:** |
| **Course requirements:** |
| **Learning outcomes:** |
| **Class syllabus:** |
| **Recommended literature:** |
| **Languages necessary to complete the course:** |
| **Notes:** |
| **Past grade distribution**<br> Total number of evaluated students: 20 |

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 65,0 | 30,0 | 5,0 | 0,0 | 0,0 | 0,0 |

| |
|---|
| **Lecturers:** RNDr. Jana Chrappová, PhD., Mgr. Dominika Lacušková |
| **Last change:** 14.09.2022 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KAgCh/N-bUCH-037/22 | **Course title:**<br>Inorganic Chemistry for Teachers |
|---|---|

| |
|---|
| **Educational activities:**<br>  **Type of activities:** lecture / seminar<br>  **Number of hours:**<br>    **per week:** 2 / 2  **per level/semester:** 26 / 26<br>  **Form of the course:** on-site learning |
| **Number of credits:** 4 |
| **Recommended semester:** 2. |
| **Educational level:** I. |
| **Prerequisites:** PriF.KAgCh/N-bUCH-034/22 - General Chemistry for Teachers |
| **Course requirements:** |
| **Learning outcomes:** |
| **Class syllabus:** |
| **Recommended literature:** |
| **Languages necessary to complete the course:** |
| **Notes:** |
| **Past grade distribution**<br> Total number of evaluated students: 67 |

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 10,45 | 14,93 | 14,93 | 23,88 | 13,43 | 22,39 |

| |
|---|
| **Lecturers:** prof. RNDr. Jozef Noga, DrSc., RNDr. Jana Chrappová, PhD. |
| **Last change:** 27.07.2022 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-524/22 | **Course title:**<br>Introduction to Information Security |
|---|---|

**Educational activities:**
  **Type of activities:** course
  **Number of hours:**
    **per week:** 2  **per level/semester:** 26
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 5.

**Educational level:** I., II.

**Prerequisites:** FMFI.KDMFI/1-UIN-141/22 - Programming (2)

**Course requirements:**
Continuous assessment: The student can get 80% points for active participation in seminars and problem solving.
Exam: A student can get 20% of points for completing a written test.
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 80/20

**Learning outcomes:**
The student:
- acquire terminology in the field of IB
- can identify and describe security vulnerabilities and risks
- manages to imitate a fictitious attacker and demonstrate a simple attack

**Class syllabus:**
- Basic terminology on IB
- Information security vs. privacy protection
- Methods of social engineering
- Basics of computer networks
- Network attacks
- Symmetric and asymmetric cryptography
- Certificates
- Passwords and hashing
- Code vulnerabilities
- Protective mechanisms

**Recommended literature:**
Zeman, M., Oster, J., Blšák, M., Chromek D .: Textbook of information security for secondary vocational schools and grammar schools
Tomková, J., Kubovič, O., Kučera, P., Daubner, J .: Handbook on digital security for primary and secondary school teachers
own electronic texts published on the website, resp. in the Moodle environment

| Languages necessary to complete the course: |
| --- |
| Slovak |

| **Notes:** |
| --- |

**Past grade distribution**
Total number of evaluated students: 39

| A | B | C | D | E | FX |
| --- | --- | --- | --- | --- | --- |
| 48,72 | 28,21 | 15,38 | 5,13 | 2,56 | 0,0 |

**Lecturers:** prof. RNDr. Ivan Kalaš, PhD., Mgr. Tomáš Kubla

**Last change:** 20.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

| | |
|---|---|
| **University:** Comenius University Bratislava | |

| | |
|---|---|
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>FMFI.KDMFI/1-UIN-423/22 | **Course title:**<br>Introduction to Solving Computer Science Problems |
|---|---|

**Educational activities:**
  Type of activities: course
  **Number of hours:**
    per week: 4  per level/semester: 52
  Form of the course: on-site learning

**Number of credits:** 4

**Recommended semester:** 4.

**Educational level:** I., II.

**Prerequisites:** FMFI.KDMFI/1-UIN-322/22 - Informatics (2)

**Course requirements:**
Continuous assessment: The student can get 30% of points for work in seminars, 20% of points for independent creative work. He can get 50% of points for solving homework.
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

**Learning outcomes:**
The student:
- gain practical experience with programming solutions to more complex IT tasks
- is able to discuss different approaches to solving the presented IT problems
- analyzes various approaches to solving the presented IT problems, considers marginal cases
- is able to identify what methods to use to solve specific tasks and design and program their own solution
- can evaluate the correctness of solutions, their algorithmic complexity and efficiency

**Class syllabus:**
- naive approaches to problem solving
- greedy algorithms
- programming solution of logic problems
- Divide and rule
- dynamic programming
- recursion
- backtracking
- state space search
- hashing
- optimization of algorithms

**Recommended literature:**
Algorithmic Puzzles / Anany Levitin, Maria Levitin. Oxford University Press Inc, 2011
Task archive on the website: www.prask.ksp.sk
Task archive on the website: www.ksp.sk

own electronic texts published on the website, resp. in the Moodle environment

**Languages necessary to complete the course:**
 Slovak

**Notes:**

**Past grade distribution**
 Total number of evaluated students: 30

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 46,67 | 33,33 | 16,67 | 3,33 | 0,0 | 0,0 |

**Lecturers:** PaedDr. Daniela Bezáková, PhD., doc. PaedDr. Monika Tomcsányiová, PhD.

**Last change:** 20.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-355/22 | **Course title:**<br>Introduction to Web Documents Formation |
|---|---|

**Educational activities:**
  **Type of activities:** course
  **Number of hours:**
    **per week:** 2  **per level/semester:** 26
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 5.

**Educational level:** I.

**Prerequisites:** FMFI.KDMFI/1-UIN-141/22 - Programming (2)

**Antirequisites:** FMFI.KDMFI/1-AIN-112/15

**Course requirements:**
Continuous assessment: tasks (90%), project (10%)
Exam: practical
Indicative assessment 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 be able to create a correct website (in HTML) with the correct structure and properly formatted content. The design will be solved using CSS, while it will be adapted to different devices. The site will meet the basic conditions of accessibility for people with special needs.

**Class syllabus:**
- HTML - structuring of the document, elements for content formatting, basic elements of the page, including multimedia objects, checking the correctness of the code, tables, forms and their appropriate structuring.
- Cascading Style Sheets (CSS) - properties and their values, selectors, pseudo-classes, properties for formatting fonts and text, tables and other objects, colors, backgrounds, lengths, units, box model, object placement, visual document formatting, styles for various devices , Media Queries, additional CSS options with respect to current versions.
- Basic information about website accessibility.

**Recommended literature:**
Elizabeth Castro: HTML5 & CSS3 Visual Quickstart Guide, Computer Press, 2012, ISBN 9788025137338
Marek Laurenčík: Web Design in HTML and CSS, Grada, 2019, ISBN 9788027122417
Daniela Bezáková et al .: Data Creation and Presentation, Bratislava: Center for Scientific and Technical Information of the Slovak Republic, 2020ISBN 978-80-89965-67-0
own electronic texts published on the website, resp. in the Moodle environment

| **Languages necessary to complete the course:** |
| Slovak |

| **Notes:** |

**Past grade distribution**
Total number of evaluated students: 107

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 45,79 | 17,76 | 13,08 | 2,8 | 12,15 | 8,41 |

**Lecturers:** doc. RNDr. Ľudmila Jašková, PhD., PaedDr. Mgr. Natália Kováčová, PhD.

**Last change:** 20.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KBCh/N-bCBI-027/22 | **Course title:**<br>Lab Practical in Biochemistry for Teachers |
|---|---|

| |
|---|
| **Educational activities:**<br> **Type of activities:** practicals<br> **Number of hours:**<br>  **per week:** 2  **per level/semester:** 26<br> **Form of the course:** on-site learning |
| **Number of credits:** 2 |
| **Recommended semester:** 5. |
| **Educational level:** I. |
| **Prerequisites:** |
| **Course requirements:** |
| **Learning outcomes:** |
| **Class syllabus:** |
| **Recommended literature:** |
| **Languages necessary to complete the course:** |
| **Notes:** |
| **Past grade distribution**<br> Total number of evaluated students: 9 |

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 22,22 | 44,44 | 22,22 | 0,0 | 11,11 | 0,0 |

| |
|---|
| **Lecturers:** Mgr. Petra Chovančíková, PhD., doc. Mgr. Peter Polčic, PhD. |
| **Last change:** 27.07.2022 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KAgCh/N-bUCH-038/22 | **Course title:**<br>Lab Practical in Inorganic Chemistry for Teachers |
|---|---|

**Educational activities:**
  **Type of activities:** practicals
  **Number of hours:**
   **per week:** 3  **per level/semester:** 39
  **Form of the course:** on-site learning

**Number of credits:** 3

**Recommended semester:** 2.

**Educational level:** I.

**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 |
|---|---|---|---|---|---|
| 11,59 | 34,78 | 39,13 | 2,9 | 1,45 | 10,14 |

**Lecturers:** RNDr. Jana Chrappová, PhD., Mgr. Natalia Lucia Miklášová, PhD., Mgr. Dominika Lacušková

**Last change:** 09.10.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KOrCh/N-bUCH-005/22 | **Course title:**<br>Lab Practical in Organic Chemistry for Teachers |
|---|---|

| |
|---|
| **Educational activities:**<br>  **Type of activities:** practicals<br>  **Number of hours:**<br>   **per week:** 1  **per level/semester:** 13<br>  **Form of the course:** on-site learning |
| **Number of credits:** 1 |
| **Recommended semester:** 4. |
| **Educational level:** I. |
| **Prerequisites:** |
| **Course requirements:** |
| **Learning outcomes:** |
| **Class syllabus:** |
| **Recommended literature:** |
| **Languages necessary to complete the course:** |
| **Notes:** |

**Past grade distribution**
Total number of evaluated students: 62

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 61,29 | 22,58 | 14,52 | 1,61 | 0,0 | 0,0 |

| |
|---|
| **Lecturers:** RNDr. Viera Poláčková, PhD. |
| **Last change:** 27.07.2022 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KFTCh/N-bUCH-003/22 | **Course title:**<br>Lab Practical in Physical Chemistry for Teachers |
|---|---|

| |
|---|
| **Educational activities:**<br>  **Type of activities:** practicals<br>  **Number of hours:**<br>    per week: 2  **per level/semester:** 26<br>  **Form of the course:** on-site learning |
| **Number of credits:** 2 |
| **Recommended semester:** 3. |
| **Educational level:** I. |
| **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 | B | C | D | E | FX |
|---|---|---|---|---|---|
| 37,21 | 32,56 | 24,42 | 4,65 | 1,16 | 0,0 |

| |
|---|
| **Lecturers:** RNDr. Eva Noskovičová, PhD. |
| **Last change:** 22.09.2022 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:** PriF.KAgCh/N-bUCH-035/22 | **Course title:** Laboratory Technique for Teachers |
|---|---|

**Educational activities:**
  **Type of activities:** practicals
  **Number of hours:**
   **per week:** 4  **per level/semester:** 52
  **Form of the course:** on-site learning

**Number of credits:** 4

**Recommended semester:** 1.

**Educational level:** I.

**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 | B | C | D | E | FX |
|---|---|---|---|---|---|
| 10,91 | 18,18 | 30,91 | 12,73 | 5,45 | 21,82 |

**Lecturers:** RNDr. Jana Chrappová, PhD., Mgr. Dominika Lacušková

**Last change:** 14.09.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-345/22 | **Course title:**<br>Linux |
|---|---|

**Educational activities:**
  **Type of activities:** course
  **Number of hours:**
   **per week:** 2  **per level/semester:** 26
  **Form of the course:** on-site learning

**Type, volume, methods and workload of the student - additional information**
talk, 1h/week, online synchronous
training, 1h/week, online synchronous

**Number of credits:** 2

**Recommended semester:** 5.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**
 Continuous assessment: practical computer tasks 60%
 Exam: practical computer test 40%
 Indicative assessment scale: A 92%, B 84%, C 76%, D 68%, E 60%
 Scale of assessment (preliminary/final): 60/40

**Learning outcomes:**
 The student:
 - knows the principle and function of the command line
 - knows the principles of operation of the GNU / Linux operating system
 - knows and understands the basic components of the GNU / Linux OS such as process, file system, user administration, access rights, ...
 - recognizes and applies a set of commands according to scenarios
 - creates a "one - line compound command" or a simple task assignment script

**Class syllabus:**
 - History and philosophy of GNU / Linux. Text console. File system navigation. (pwd, ls, cd, less, cat, man, w, exit, ssh, mosh, ...)
 - Folders and files (mkdir, rmdir, rm, cp, mv, ...)
 - Users, groups, redirects and search. Regular expressions. (id, su, passwd, grep, ...)
 - Attributes of files and folders (chown, chgrp, chmod, ...)
 - Text editor I know
 - File sorting and selection commands (sort, head, tail, nl, uniq, tac, shuf)
 - File system search (find)
 - Processes (ps, top, kill)
 - sed - stream editor
 - Processing with awk

| - Basics of bash scripts |
| --- |

**Recommended literature:**
vlastné elektronické texty zverejňované na webovej stránke
elektronické materiály, tutoriály a manuály k operačnému systému Linux

**Languages necessary to complete the course:**
Slovak

**Notes:**

**Past grade distribution**
Total number of evaluated students: 48

| A | B | C | D | E | FX |
| --- | --- | --- | --- | --- | --- |
| 87,5 | 2,08 | 0,0 | 8,33 | 2,08 | 0,0 |

**Lecturers:** RNDr. Marek Nagy, PhD.

**Last change:** 23.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-101/22 | **Course title:**<br>Mathematics for Informatics Teachers (1) |
|---|---|

**Educational activities:**
 **Type of activities:** practicals / lecture
 **Number of hours:**
  **per week:** 2 / 2  **per level/semester:** 26 / 26
 **Form of the course:** on-site learning

**Number of credits:** 4

**Recommended semester:** 2.

**Educational level:** I.

**Prerequisites:** FMFI.KDMFI/1-UIN-121/22 - Infomatics (1)

**Course requirements:**
Continuous assessment: The student will receive 30% points for active work in exercises, 30% points for homework and 40% points for papers.
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 able to defend or refute mathematical statements (from given topics)
- can combine and apply knowledge from different mathematical areas
- acquire mathematical culture, way of thinking and expression

**Class syllabus:**
Course contents:
- Mathematical expressions
- Propositional logic
- Predicate logic
- Introduction to number theory
- Types of evidence
- Mathematical induction
- Sets
- Sessions
- Features
- Combinatorics

**Recommended literature:**
own electronic texts published on the website, resp. in the Moodle environment
Olejár, D., Škoviera, M .: Discrete Mathematics 1: Introduction to Set Theory, Theory of Boolean Functions and Mathematical Logic. Bratislava: Comenius University, 1992
Matoušek, J., Nešetřil, J .: Chapters from discrete mathematics. Charles University, 2009

**Languages necessary to complete the course:**

Slovak

**Notes:**

**Past grade distribution**
 Total number of evaluated students: 95

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 32,63 | 23,16 | 21,05 | 7,37 | 9,47 | 6,32 |

**Lecturers:** PaedDr. Daniela Bezáková, PhD., doc. RNDr. Zuzana Kubincová, PhD.

**Last change:** 20.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-102/22 | **Course title:**<br>Mathematics for Informatics Teachers (2) |
|---|---|

**Educational activities:**
 **Type of activities:** course
 **Number of hours:**
  **per week:** 2  **per level/semester:** 26
 **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 3.

**Educational level:** I.

**Prerequisites:** FMFI.KDMFI/1-UIN-101/22 - Mathematics for Informatics Teachers (1)

**Course requirements:**
 active participation in seminars and at least 50% of the ongoing evaluation
 Continuous assessment: homework (50%), papers (50%)
 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 able to classify different types of graphs and construct a graph with given properties
 - will be able to use analytical geometry to solve selected problems of planimetry
 - can explain and apply the relationship between totals and recurrence
 - will be able to apply the acquired knowledge in programming

**Class syllabus:**
 - Graphs - basic concepts, representations, types of graphs
 - Graph continuity, graph travel
 - Distances in graphs
 - Trees, skeletons
 - Eulerian graphs
 - Analytic geometry in the plane - vectors
 - Analytical geometry in the plane - lines
 - Analytical geometry in the plane - circle
 - Sums
 - Recurrence

**Recommended literature:**
 own electronic texts published on the website, resp. in the Moodle environment
 Knor, M. Combinatorics and Graph Theory I, Comenius University, Bratislava, 2000
 Belan, A. Analytic geometry for those who need to understand it

**Languages necessary to complete the course:**
 Slovak

| Notes: | | | | | |
|---|---|---|---|---|---|
| **Past grade distribution** Total number of evaluated students: 82 | | | | | |
| A | B | C | D | E | FX |
| 34,15 | 24,39 | 21,95 | 9,76 | 7,32 | 2,44 |
| **Lecturers:** PaedDr. Daniela Bezáková, PhD., doc. RNDr. Zuzana Kubincová, PhD. | | | | | |
| **Last change:** 20.06.2022 | | | | | |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. | | | | | |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KOrCh/N-bBXX-015/22 | **Course title:**<br>Medicinal Chemistry |
|---|---|

**Educational activities:**
  **Type of activities:** lecture / seminar
  **Number of hours:**
   **per week:** 1 / 1  **per level/semester:** 13 / 13
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 6.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**

**Learning outcomes:**

**Class syllabus:**

**Recommended literature:**

**Languages necessary to complete the course:**

**Notes:**

**Past grade distribution**
 Total number of evaluated students: 1390

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 20,65 | 10,14 | 13,02 | 12,73 | 20,94 | 22,52 |

**Lecturers:** doc. RNDr. Andrej Boháč, CSc.

**Last change:** 25.07.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-346/15 | **Course title:**<br>Multimedia |
|---|---|

**Educational activities:**
  **Type of activities:** course
  **Number of hours:**
    **per week:** 2  **per level/semester:** 26
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 5.

**Educational level:** I., II.

**Prerequisites:**

**Course requirements:**
Continuous assessment: Students can get 100% points for completing assignments on individual topics.
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 create and edit a variety of multimedia content. They can use digital tools to process graphics, audio and video. They understand the principles of digital media processing. They are able to integrate outdoor activities into the classroom using mobile applications and design assignments for this type of learning activity. They are able to use virtual and augmented reality in education.

**Class syllabus:**
- creation of graphic design using online tools
- photo editing
- work with 3D graphics
- working with vector graphics in a children's programming environment
- collaborative creation and verification of outdoor educational activities using a mobile application
- Collaborative video creation and processing using more complex editing
- work with sound in video editor
- getting acquainted with the possibilities of using virtual and augmented reality in education

**Recommended literature:**

**Languages necessary to complete the course:**
 Slovak

**Notes:**

| Past grade distribution | | | | | |
|---|---|---|---|---|---|
| Total number of evaluated students: 46 | | | | | |
| A | B | C | D | E | FX |
| 80,43 | 6,52 | 8,7 | 4,35 | 0,0 | 0,0 |

**Lecturers:** Mgr. Mária Čujdíková, PhD., doc. PaedDr. Monika Tomcsányiová, PhD.

**Last change:** 22.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:** PriF.KOrCh/N-bUCH-041/22 | **Course title:** Natural Compounds |
|---|---|

**Educational activities:**
  **Type of activities:** lecture / seminar
  **Number of hours:**
   **per week:** 1 / 1  **per level/semester:** 13 / 13
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 5.

**Educational level:** I.

**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:** Mgr. Ambroz Almássy, PhD.

**Last change:** 14.09.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KOrCh/N-bCOR-024/22 | **Course title:**<br>Organic Chemistry Practicals for Teachers |
|---|---|

**Educational activities:**
  **Type of activities:** practicals
  **Number of hours:**
   **per week:** 4  **per level/semester:** 52
  **Form of the course:** on-site learning

**Number of credits:** 4

**Recommended semester:** 4.

**Educational level:** I.

**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 |
|---|---|---|---|---|---|
| 61,54 | 30,77 | 7,69 | 0,0 | 0,0 | 0,0 |

**Lecturers:** RNDr. Viera Poláčková, PhD.

**Last change:** 27.07.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:** PriF.KOrCh/N-bUCH-004/22 | **Course title:** Organic Chemistry for Teachers |
|---|---|

**Educational activities:**
  **Type of activities:** lecture / seminar
  **Number of hours:**
    **per week:** 4 / 2  **per level/semester:** 52 / 26
  **Form of the course:** on-site learning

**Number of credits:** 6

**Recommended semester:** 4.

**Educational level:** I.

**Prerequisites:** PriF.KAgCh/N-bUCH-034/22 - General Chemistry for Teachers

**Course requirements:**

**Learning outcomes:**

**Class syllabus:**

**Recommended literature:**

**Languages necessary to complete the course:**

**Notes:**

**Past grade distribution**
 Total number of evaluated students: 66

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 18,18 | 13,64 | 12,12 | 16,67 | 24,24 | 15,15 |

**Lecturers:** doc. Ing. Mária Mečiarová, PhD., Mgr. Dominika Mravcová, PhD., Mgr. Viktória Némethová, PhD., Mgr. Tibor Peňaška, PhD.

**Last change:** 24.08.2023

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| Academic year: 2025/2026 | |
|---|---|
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |
| **Course ID:**<br>PriF.KOrCh/N-bCXX-012/22 | **Course title:**<br>Perspectives in Chemistry |

| Educational activities: |
|---|
| **Type of activities:** lecture<br>**Number of hours:**<br>　**per week:** 2　**per level/semester:** 26<br>**Form of the course:** on-site learning |

| **Number of credits:** 2 |
|---|
| **Recommended semester:** 1. |
| **Educational level:** I. |
| **Prerequisites:** |
| **Course requirements:** |
| **Learning outcomes:** |
| **Class syllabus:** |
| **Recommended literature:** |
| **Languages necessary to complete the course:** |
| **Notes:** |

**Past grade distribution**
Total number of evaluated students: 37

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 35,14 | 43,24 | 2,7 | 2,7 | 5,41 | 10,81 |

**Lecturers:** doc. RNDr. Martin Putala, CSc., doc. RNDr. Oľga Rosskopfová, PhD., prof. RNDr. Ivan Černušák, DrSc., Mgr. Peter Hrobárik, PhD., doc. RNDr. Erik Rakovský, PhD., prof. RNDr. Marian Masár, PhD., doc. Mgr. Peter Polčic, PhD., doc. RNDr. Radoslav Halko, PhD., Mgr. Táňa Sebechlebská, PhD., Ing. Darina Tóthová, CSc., doc. RNDr. Jana Korduláková, PhD., doc. RNDr. Andrej Boháč, CSc.

**Last change:** 10.10.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:** PriF.KFTCh/N-bUCH-002/22 | **Course title:** Physical Chemistry for Teachers |
|---|---|

**Educational activities:**
  **Type of activities:** lecture / seminar
  **Number of hours:**
    **per week:** 3 / 2  **per level/semester:** 39 / 26
  **Form of the course:** on-site learning

**Number of credits:** 5

**Recommended semester:** 3.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**

**Learning outcomes:**

**Class syllabus:**

**Recommended literature:**

**Languages necessary to complete the course:**

**Notes:**

**Past grade distribution**
Total number of evaluated students: 91

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 21,98 | 21,98 | 16,48 | 12,09 | 14,29 | 13,19 |

**Lecturers:** doc. RNDr. Monika Jerigová, PhD., Mgr. Táňa Sebechlebská, PhD.

**Last change:** 12.07.2023

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-682/22 | **Course title:**<br>Preparation Tasks for Programming Competitions |
|---|---|

**Educational activities:**
  Type of activities: course
  **Number of hours:**
    per week: 2  per level/semester: 26
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 4., 6.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**
The student can get 30% points for active participation in seminars, 20% for the design and preparation of methodological procedures for solving tasks and 50% for the design, formulation and solution of their own tasks.
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

**Learning outcomes:**
The student:
- identifies and examines tasks from various IT competitions
- according to the text of the task can specify the IT knowledge needed to solve it
- is able to design their own assignments for the IT competition, while being able to take into account the age and knowledge of students that are necessary to solve it
- processes the proposed tasks into a suitable form, e.g. website, forms
- verifies the tasks in a small group of students and processes the results of their observations using qualitative research methods

**Class syllabus:**
- Overview of Slovak and foreign IT competitions
- Classification of tasks according to the age of students
- Tasks of the iBobor competition
- Creating assignments that contain the same IT concepts but have different motivations
- Characteristics of the task according to the age of students
- Design of interactive tasks for competitions
- Preparation of graded sequences of tasks on various IT topics
- Designing websites, forms or other systems in which students can solve tasks
- Design and implementation of qualitative research with prepared tasks
- Evaluation and presentation of research

**Recommended literature:**
own electronic texts published on the website, resp. in the Moodle environment

| **Languages necessary to complete the course:** |
|---|
| Slovak |

| **Notes:** |
|---|

**Past grade distribution**
Total number of evaluated students: 5

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

**Lecturers:** doc. PaedDr. Monika Tomcsányiová, PhD.

**Last change:** 23.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

| | |
|---|---|
| **University:** Comenius University Bratislava | |

| | |
|---|---|
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>FMFI.KDMFI/1-UIN-681/22 | **Course title:**<br>Preparation and Publication of Pedagogical Research |
|---|---|

**Educational activities:**
  **Type of activities:** course
  **Number of hours:**
    **per week:** 2  **per level/semester:** 26
  **Form of the course:** on-site learning

**Number of credits:** 1

**Recommended semester:** 4., 6.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**
 Working on a project from the researcher's point of view
 processing and presentation of a publishable article (100%)
 Ongoing evaluation:
 Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
 Scale of assessment (preliminary/final): 0/100

**Learning outcomes:**
 The student:
 - is able to design research from the scientific or professional field of informatics according to his interest (formulate the goal, choose the research methods, research sample and data processing methods)
 - processes its research in a form suitable for publication
 - write the article to an appropriate extent
 - present the processed results of their own scientific work to a suitable professional audience

**Class syllabus:**
 Solving a partial problem of a research problem.
 Involvement of students in scientific work under the guidance of pedagogical and scientific staff.
 Content, scope and processing of research scientific work into an article.
 Utilize and process literature and web resources.
 Public presentation of achieved results.

**Recommended literature:**
 own electronic texts published on the website, resp. in the Moodle environment
 various electronic, magazine and book materials that relate to the issues addressed

**Languages necessary to complete the course:**
 Slovak

**Notes:**

| Past grade distribution | | | | | |
|---|---|---|---|---|---|
| Total number of evaluated students: 2 | | | | | |
| A | B | C | D | E | FX |
| 100,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |

**Lecturers:** Mgr. Lucia Budinská, PhD., doc. Mgr. Karolína Miková, PhD.

**Last change:** 21.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| **Academic year:** 2025/2026 | |
|---|---|

| **University:** Comenius University Bratislava | |
|---|---|

| **Faculty:** Faculty of Natural Sciences | |
|---|---|

| **Course ID:**<br>FMFI.KDMFI/1-UIN-140/22 | **Course title:**<br>Programming (1) |
|---|---|

**Educational activities:**
  Type of activities: practicals / lecture
  **Number of hours:**
    **per week:** 2 / 2  **per level/semester:** 26 / 26
  **Form of the course:** on-site learning

**Number of credits:** 5

**Recommended semester:** 1.

**Educational level:** I., II.

**Prerequisites:**

**Course requirements:**
Continuous evaluation: the course is scored, the maximum number of points for the course is 150. The student gains continuous (weekly) points for solved problem tasks (70 pts), two interm tests (20 pts total), solved project (20 pts), active work during the semester (10 pts), and for solving assigned programming problems on the exam (30 pts). The student must earn a minimum of 58 points during the semester.
Detailed grading requirements will be specified by the instructor at the beginning of the semester.
Exam: In the form of solving a set of programming problems at the computer.
A 92%, B 84%, C 76%, D 68%, E 60%.
Scale of assessment (preliminary/final): 70/30The results of problems solved and active participation in seminars are counted towards the final maximum of 60 points a student can earn during the semester. An additional 10 points can be earned for completing a more complex research-oriented project (within a specified time, essentially before the final exam). The remaining 30 points is the maximum possible score for solving a set of problems on the exam. The time for solving it is usually 120 minutes, directly behind the computer.

**Learning outcomes:**
Develop a systematic understanding of the basics of programming in a programming language appropriate to the state of knowledge. Develop understanding of basic programming concepts and practices that is characterized by the ability to: · program the solution of a given problem, explain the function of the individual elements in it at the level of commands, control structures and the whole. Explain the strategy (algorithm) of the learner's solution, debug the solution, know how to modify it according to the requirements, · analyse the program code (created by themselves or by someone else), verify its behaviour, recognise the basic concepts and procedures in it (also comparing it with other programming environments that students have already encountered in primary and secondary school, including programmable robotic building blocks and toys), · explore a programming solution (created by someone else) using the decomposition method, to verify its behaviour, in various cases, · compare and explain the differences in various solutions of the same or similar problem.

**Class syllabus:**

the environment and options for direct control, the executor and its settings, the use and modification of settings,

elements of the programming language, command with no input, command with one or more inputs, groups of commands and their execution and reexecution,

creation of a user's command, its definition, use and modification, use of randomness, generation of random values and their use with various constraints,

creating and using an expression as an input to a command,

other control structures,

conditions and visualizing their changing values, use of conditions in computation,

working with multiple sprites, cooperation and communication between multiple sprites, programmed animations,

requested input and working with input value; variable and working with it,

creating and using composite data, working with a list, data visualisation

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**Recommended literature:**
the lecturer's own electronic study materials published on the course website or in the Moodle system

Vickers, V.: How to Think Like a Programmer. Course Technology, 2008, 611 p.

Vaníček, J., Nagyová, I., Tomcsányiová, M.: Programování ve Scratch pro 2. stupeň základní školy. University of South Bohemia in České Budějovice, 2020.

Černochová, M., Vaňková, P., Štípek, J.: Programování ve Scratch pro pokročilé – projekty pro 2. stupeň základní školy. University of South Bohemia in České Budějovice, 2020. · Blaho, A., Salanci, Ľ., Šimandl, V.: Programování v jazyce Python pro střední školy. University of South Bohemia in České Budějovice, 2020. · Guniš, J., Šnajder, Ľ.: Programovanie v Pythone 1. Pavol Jozef Šafárik University in Košice, 2021, 170 p.

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**Languages necessary to complete the course:**
Slovak, for the study of some materials secondary also English

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**Notes:**

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**Past grade distribution**
Total number of evaluated students: 118

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 45,76 | 16,1 | 15,25 | 5,08 | 5,93 | 11,86 |

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**Lecturers:** prof. RNDr. Ivan Kalaš, PhD.

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**Last change:** 23.06.2022

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**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-141/22 | **Course title:**<br>Programming (2) |
|---|---|

**Educational activities:**
  **Type of activities:** practicals / lecture
  **Number of hours:**
    **per week:** 2 / 2  **per level/semester:** 26 / 26
  **Form of the course:** on-site learning

**Number of credits:** 5

**Recommended semester:** 2.

**Educational level:** I., II.

**Prerequisites:** FMFI.KDMFI/1-UIN-140/22 - Programming (1)

**Course requirements:**
Continuous assessment: assessment of homework(5%), short tests(40%), a project (10%) and one final test (15%)
Examination: practical programming examination
Indicative grading scale: A 88%, B 81%, C 74%, D 67%, E 60%
Scale of assessment (preliminary/final): 70/30

**Learning outcomes:**
After completing the course, students will have mastered the basics of programming in an object-oriented programming language, will understand the syntax and semantics of simple program constructs, will be able to use the basic constructs and basic data structures of the programming language and also basic algorithms in creating programs to solve simple problems. They will be able to analyse programming code and detect errors in it.

**Class syllabus:**
Brief outline of the course:
programming language environment, basic concepts and programming constructs (variable, command, program, assignment, conditional statements, loops, input, output)
basic data types and data structures of the language (integer type, decimal type, logical type, string, ...)
basic work with graphics, generation and use of random values
functions without return value and with return value
basic structured types and files
events in the graphical area
basic algorithms with numbers, on structured types, with graphical commands, for user interaction, etc.
basics of object-oriented programming (class, object, encapsulation, inheritance)

**Recommended literature:**
the teacher's own electronic study materials published on the course website or in the Moodle system

Blaho, A., Salanci, Ľ., Šimandl, V.: Programování v jazyce Python pro střední školy. Jihočeská univerzita v Českých Budějovicích, 2020.
Guniš, J., Šnajder, Ľ.: Programovanie v Pythone 1. Univerzita Pavla Jozefa Šafárika v Košiciach, 2021, 170 p.
Kučera, P.: Programujeme v Pythone, e-kniha, 2017

**Languages necessary to complete the course:**
Slovak

**Notes:**

**Past grade distribution**
Total number of evaluated students: 89

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 40,45 | 20,22 | 17,98 | 11,24 | 0,0 | 10,11 |

**Lecturers:** doc. RNDr. Zuzana Kubincová, PhD., PaedDr. Andrea Hrušecká, PhD.

**Last change:** 22.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-241/15 | **Course title:**<br>Programming (3) |
|---|---|

**Educational activities:**
 **Type of activities:** practicals / lecture
 **Number of hours:**
  **per week:** 2 / 2  **per level/semester:** 26 / 26
 **Form of the course:** on-site learning

**Number of credits:** 4

**Recommended semester:** 3.

**Educational level:** I., II.

**Prerequisites:** FMFI.KDMFI/1-UIN-141/22 - Programming (2)

**Course requirements:**
Continuous assessment: assessment of homework (5%), short tests (40%), a project (10%) and one final test (15%)
Examination: practical programming examination
Indicative grading scale: A 88%, B 81%, C 74%, D 67%, E 60%
Scale of assessment (preliminary/final): 60/40

**Learning outcomes:**
After completing the course, students will be able to use more complex data types and program constructs of the object-oriented programming language and basic algorithms for working with them, they will better understand the principles of object-oriented programming, they will be able to program the solution of more complex problems and analyze more complex programs.

**Class syllabus:**
- other data types and program constructs
- recursion
- polymorphism
- working with images and animation
- linked structures
- algorithms on more complex structures

**Recommended literature:**
• the teacher's own electronic study materials published on the course website or in the Moodle system
• Pecinovský, R.: Začínáme programovat v jazyku Python. Grada, 2020, S. 272
• Guniš, J., Šnajder, Ľ.: Programovanie v Pythone 1. Univerzita Pavla Jozefa Šafárika v Košiciach, 2021, S. 170
• Kučera, P.: Programujeme v Pythone, e-kniha, 2017

**Languages necessary to complete the course:**
 Slovak

| Notes: | | | | | |
|---|---|---|---|---|---|
| **Past grade distribution**<br>Total number of evaluated students: 84 | | | | | |
| A | B | C | D | E | FX |
| 44,05 | 21,43 | 13,1 | 7,14 | 8,33 | 5,95 |
| **Lecturers:** doc. RNDr. Zuzana Kubincová, PhD. | | | | | |
| **Last change:** 19.09.2025 | | | | | |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. | | | | | |

# COURSE DESCRIPTION

**Academic year:** 2025/2026

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-327/22 | **Course title:**<br>Programming Etudes (1) |
|---|---|

**Educational activities:**
  **Type of activities:** course
  **Number of hours:**
    **per week:** 2  **per level/semester:** 26
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 5.

**Educational level:** I., II.

**Prerequisites:**

**Course requirements:**
Continuous assessment: The student can get 50% points for the elaboration of tasks at the seminar, another 50% for the design, implementation and presentation 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:**
The student:
- can assess whether the programming environment is suitable for a given level of education
- uses more advanced techniques of the programming environment for students at the 2nd level of elementary school
- Designs and programs projects and small educational applications
- when solving problems, he can choose the right programming technique and implement it
- can decide whether the programming technique is suitable for the given level of education

**Class syllabus:**
- programming techniques: mouse click on an object on the stage
- data structure list and its use in the programming environment
- programming techniques: the use of data list structure in solving tasks
- programming techniques: moving the object using the keys
- programming techniques enabling animations in the programming environment
- programming techniques leading to an object-oriented approach
- more advanced programming techniques leading to parallelism
- project specification and design
- project implementation, error tuning
- project demonstration, evaluation and project discussion

**Recommended literature:**
own electronic texts published on the website, resp. in the Moodle environment

**Languages necessary to complete the course:**
Slovak

| Notes: | | | | | |
|---|---|---|---|---|---|
| **Past grade distribution** Total number of evaluated students: 79 | | | | | |
| A | B | C | D | E | FX |
| 62,03 | 10,13 | 12,66 | 11,39 | 2,53 | 1,27 |
| **Lecturers:** doc. PaedDr. Monika Tomcsányiová, PhD. | | | | | |
| **Last change:** 20.06.2022 | | | | | |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. | | | | | |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:** FMFI.KDMFI/1-UIN-325/22 | **Course title:** Programming Etudes (2) |
|---|---|

**Educational activities:**
  **Type of activities:** course
  **Number of hours:**
   **per week:** 2  **per level/semester:** 26
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 6.

**Educational level:** I., II.

**Prerequisites:**

**Course requirements:**
Continuous assessment: 60% elaboration of assignments at the seminar, homework, 40% final project.
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 60/40

**Learning outcomes:**
The student:
- designs and implements several graded programming projects from the teacher's practice.
- can find errors in the source code, e.g. its stepping, checklists.
- is able to discuss several solutions to the same programming problem.
- is able to implement some solutions.

**Class syllabus:**
- Programming techniques for solving problems using cycles, conditions and fields.
- Creating graded projects to solve more complex tasks.
- Use of recursion to implement different types of sorting, visualization.
- Solving high school programming tasks from various competitions
- project specification and design
- project implementation, error tuning
- project demonstration, evaluation and project discussion

**Recommended literature:**
own electronic texts published on the website, resp. in the Moodle environment

**Languages necessary to complete the course:**
Slovak

**Notes:**

| Past grade distribution | | | | | |
|---|---|---|---|---|---|
| Total number of evaluated students: 60 | | | | | |
| A | B | C | D | E | FX |
| 81,67 | 8,33 | 1,67 | 5,0 | 0,0 | 3,33 |

**Lecturers:** doc. PaedDr. Monika Tomcsányiová, PhD., PaedDr. Andrea Hrušecká, PhD.

**Last change:** 20.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-351/17 | **Course title:**<br>Programming in JavaScript |
|---|---|

**Educational activities:**
 **Type of activities:** course
 **Number of hours:**
  **per week:** 2  **per level/semester:** 26
 **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 6.

**Educational level:** I., II.

**Prerequisites:**

**Course requirements:**
The student can get 50% points for studying and applying the features of the JavaScript programming language. He can get another 50% of points for programming the assigned tasks during the seminars.
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

**Learning outcomes:**
The student:
- knows the commands of JavaScript, a language that is suitable for creating applications that work in a web browser
- Understands how to embed JavaScript code in an html page
- recognizes and explains the function of individual elements that are part of the html code and whose actions are linked to JavaScript
- is able to write and debug its problem solution in JavaScript language

**Class syllabus:**
Course contents:
Basic structures of JavaScript: variables, Boolean expressions
JS and html collaboration
JS and functions
Design for repetition
Branching in JS
One-dimensional arrays, array rendering
Two-dimensional arrays, Life game
Mouse events - click
Mouse events - dragging
Special event customization and syntax for mobile devices
Working with images in JS

**Recommended literature:**

Tomcsányiová, M .: JavaScript: from Introduction to Games, internal material of the Department of Didactics of the IFI, FMFI Comenius University in Bratislava, 2021
JavaScript website
own electronic texts published on the website, resp. in the Moodle environment

**Languages necessary to complete the course:**
Slovak

**Notes:**

**Past grade distribution**
Total number of evaluated students: 49

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 61,22 | 6,12 | 10,2 | 12,24 | 2,04 | 8,16 |

**Lecturers:** doc. PaedDr. Monika Tomcsányiová, PhD.

**Last change:** 23.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| **Academic year:** 2025/2026 | |
|---|---|
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |
| **Course ID:**<br>FMFI.KDMFI/1-UIN-349/22 | **Course title:**<br>Programming of Application for WEB |

**Educational activities:**
 Type of activities: course
 **Number of hours:**
  per week: 2  per level/semester: 26
 **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 6.

**Educational level:** I., II.

**Prerequisites:** FMFI.KDMFI/1-UIN-355/22 - Introduction to Web Documents Formation

**Course requirements:**
 Continuous assessment: practical tasks (100%)
 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, students will be able to create a simple web application on the server side with the possibility of personalized access to individual parts of the application. The data will be stored in a database.

**Class syllabus:**
 - Server-side web applications
 - Introduction to PHP
 - Basic constructions of language (1) - variables, constants, strings, operators, conditions, cycles
 - Basic language constructions (2) - working with date and time, fields, functions for working with fields and strings
 - Reuse code
 - Form processing, processing and treatment of inputs
 - SESSION, COOKIES
 - Introduction to working with a database
 - Basic queries to the database - SELECT, INSERT, UPDATE, DELETE
 - Linking PHP to a database
 - Working with multiple tables at once

**Recommended literature:**
 PHP and MySQL: Web Application Development / Luke Welling, Laura Thomson; Translation by Jan Kuklínek. Prague: SoftPress, 2005
 We program PHP professionally / Jesus Castagnetto ... [et al.]; Translation by Ludvík Roubíček. Brno: Computer Press, 2004
 Own electronic texts of the subject, published via the subject's website, resp. Moodle system.

**Languages necessary to complete the course:**

| Slovak |
|---|

**Notes:**

**Past grade distribution**
Total number of evaluated students: 41

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 34,15 | 17,07 | 21,95 | 21,95 | 2,44 | 2,44 |

**Lecturers:** PaedDr. Roman Hrušecký, PhD.

**Last change:** 23.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-250/00 | **Course title:**<br>Propedeutics of Informatics Education (1) |
|---|---|

**Educational activities:**
 **Type of activities:** seminar
 **Number of hours:**
  **per week:** 2  **per level/semester:** 26
 **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 3.

**Educational level:** I., II., N

**Prerequisites:**

**Course requirements:**
 active participation in seminars and at least 50% of the semester
 Continuous assessment: active participation in seminars (50%) and homework (30%)
 Final test (20%)
 Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
 Scale of assessment (preliminary/final): 80/20

**Learning outcomes:**
 The student:
 - knows the content and scope of the subject of informatics determined by the State Educational Program for various types and levels of schools
 - will be able to design and evaluate curricula for the subject Informatics
 - is able to identify the basic steps in creating the educational content of the lesson
 - can interpret and evaluate available methodological materials
 - acquires basic pedagogical habits

**Class syllabus:**
 - Computer science teacher
 - Informatics in other countries
 - Curriculum analysis using Brunner's concept
 - Phases of teaching in computer science teaching
 - Educational goals of the subject of informatics at the 2nd level of elementary school and high school
 - Educational goals of individual topics of informatics
 - School curricula and curricula
 - Project teaching
 - Work with methodical materials
 - Planning and implementation of evaluation in the subject of informatics

**Recommended literature:**
 own electronic texts published

From educational program to teaching lesson / Marvin Pasch ... [et al.]; translated by Milan Koldinský. Prague: Portal, 2005

Školní didaktika / Zdeněk Kalhous, Otto Obst ... [et al.]. Prague: Portal, 2002

Transformations of the school in the digital age / Ivan Kalaš and team. Bratislava: Slovenské pedagogické nakladateľstvo - Mladé letá, 2013

**Languages necessary to complete the course:**
Slovak

**Notes:**

**Past grade distribution**
Total number of evaluated students: 225

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 73,33 | 8,44 | 8,44 | 3,11 | 0,89 | 5,78 |

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

**Last change:** 21.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-251/00 | **Course title:**<br>Propedeutics of Informatics Education (2) |
|---|---|

**Educational activities:**
 **Type of activities:** seminar
 **Number of hours:**
  **per week:** 2  **per level/semester:** 26
 **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 4.

**Educational level:** I., II., N

**Prerequisites:** FMFI.KDMFI/1-UIN-250/00 - Propedeutics of Informatics Education (1)

**Course requirements:**
 Interim evaluation: active participation in seminars (presentation of preparation (50%) and feedback (50%))
 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 have experience in using theoretical knowledge in creating preparations for the lesson.
 He will be able to critically evaluate the design and implementation of the lesson and express his opinion in the discussion.
 The student will have built some basic pedagogical habits.

**Class syllabus:**
 Course contents:
 Students will create preparations for computer science lessons for the following topics:
 Anti-virus and anti-spyware programs
 Internet security and risks
 Working with tables
 Working with presentations
 Working with graphics
 Working with sound
 Working with text
 Working with a website
 Encryption
 Coding
 Working with multimedia
 Communication tools
 Web search
 In the form of a simulation, the lessons will test the preparations made and then discuss them.

| | |
|---|---|
| **Recommended literature:** |
| From educational program to teaching lesson / Marvin Pasch ... [et al.]; translated by Milan Koldinský. Prague: Portal, 2005 |
| Informatics for secondary schools: učebnica / Ivan Kalaš ... [et al.]. Bratislava: Slovenské pedagogické nakladateľstvo, 2005 |
| Transformations of the school in the digital age / Ivan Kalaš and team. Bratislava: Slovenské pedagogické nakladateľstvo - Mladé letá, 2013 |
| Work with graphics: thematic notebook for the 1st year of grammar schools, for the fifth of eight-year grammar schools / Ľubomír Salanci. Bratislava: Slovenské pedagogické nakladateľstvo, 2000 |
| own electronic texts published on the website, resp. in the Moodle environment |

**Languages necessary to complete the course:**
Slovak

**Notes:**

**Past grade distribution**
Total number of evaluated students: 177

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 74,01 | 6,78 | 8,47 | 2,26 | 2,82 | 5,65 |

**Lecturers:** Mgr. Jakub Krcho, PaedDr. Mgr. Natália Kováčová, PhD., doc. Mgr. Karolína Miková, PhD.

**Last change:** 21.06.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KJCh/N-bCJD-045/22 | **Course title:**<br>Radiation and life for teachers |
|---|---|

| |
|---|
| **Educational activities:**<br>  **Type of activities:** lecture<br>  **Number of hours:**<br>    **per week:** 2  **per level/semester:** 26<br>  **Form of the course:** on-site learning |
| **Number of credits:** 2 |
| **Recommended semester:** 3. |
| **Educational level:** I. |
| **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 |
|---|---|---|---|---|---|
| 66,67 | 33,33 | 0,0 | 0,0 | 0,0 | 0,0 |

| |
|---|
| **Lecturers:** doc. RNDr. Eva Viglašová, PhD. |
| **Last change:** 13.09.2023 |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. |

# COURSE DESCRIPTION

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|---|---|
| **Academic year:** 2025/2026 | |

**University:** Comenius University Bratislava

**Faculty:** Faculty of Natural Sciences

| **Course ID:**<br>FMFI.KDMFI/1-UIN-673/22 | **Course title:**<br>Software in Education |
|---|---|

**Educational activities:**
 **Type of activities:** course
 **Number of hours:**
  **per week:** 2  **per level/semester:** 26
 **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 6.

**Educational level:** I., II., N

**Prerequisites:**

**Course requirements:**
Continuous assessment: The student can get 40% points for a review of software for teaching computer science. He will get another 60% of points for the design, specification and implementation of his own educational software.
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

**Learning outcomes:**
The student is able to assess the suitability of specific educational software for teaching computer science at elementary schools, high schools, respectively. VŠ. He is able to classify educational software. Can give examples of software that is suitable for education for a specific age group of students. Review educational software. Can apply the findings to the design of educational software. Creates a software proposal for teaching computer science for elementary or high school students.

**Class syllabus:**
The importance of digital technologies in the cognitive process, in teaching and learning.
Definition and classification of software used in education.
Criteria for evaluating educational software from different perspectives.
Educational applications for teaching computer science to primary and secondary school students.
Information systems used for education.
Software for education and developmental stages of knowledge.
GUI design for software to be used in education.
Action research - students and teachers as co-authors of software design for education.
Principles of creating software for education.
Educational software for students with special needs.

**Recommended literature:**
own electronic texts published on the website, resp. in the Moodle environment

**Languages necessary to complete the course:**
 Slovak

| Notes: | | | | | |
|---|---|---|---|---|---|
| **Past grade distribution**<br>Total number of evaluated students: 6 | | | | | |
| A | B | C | D | E | FX |
| 66,67 | 16,67 | 16,67 | 0,0 | 0,0 | 0,0 |
| **Lecturers:** doc. PaedDr. Monika Tomcsányiová, PhD. | | | | | |
| **Last change:** 20.06.2022 | | | | | |
| **Approved by:** doc. RNDr. Radoslav Halko, PhD. | | | | | |

# COURSE DESCRIPTION

| | |
|---|---|
| **Academic year:** 2025/2026 | |
| **University:** Comenius University Bratislava | |
| **Faculty:** Faculty of Natural Sciences | |

| **Course ID:**<br>PriF.KOrCh/N-bCXX-046/22 | **Course title:**<br>Toxicology |
|---|---|

**Educational activities:**
  **Type of activities:** lecture / seminar
  **Number of hours:**
   **per week:** 1 / 1  **per level/semester:** 13 / 13
  **Form of the course:** on-site learning

**Number of credits:** 2

**Recommended semester:** 6.

**Educational level:** I.

**Prerequisites:**

**Course requirements:**

**Learning outcomes:**

**Class syllabus:**

**Recommended literature:**

**Languages necessary to complete the course:**

**Notes:**

**Past grade distribution**
 Total number of evaluated students: 51

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 70,59 | 11,76 | 11,76 | 0,0 | 3,92 | 1,96 |

**Lecturers:** Mgr. Henrieta Stankovičová, PhD., RNDr. Katarína Stebelová, PhD., Ing. Tomáš Čarný, PhD.

**Last change:** 07.11.2022

**Approved by:** doc. RNDr. Radoslav Halko, PhD.