CONTENT

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QASU/16	**Course name:** Algorithms and data structures

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 4.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 63

A	B	C	D	E	FX
0.0	1.59	12.7	34.92	46.03	4.76

Provides: RNDr. Rastislav Krivoš-Belluš, PhD.

Date of last modification: 25.02.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ QKIN0/16	**Course name:** Database systems

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course: 1.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 95

A	B	C	D	E	FX
53.68	22.11	12.63	6.32	0.0	5.26

Provides: prof. RNDr. Stanislav Krajči, PhD.

Date of last modification:

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/QOZP/16	**Course name:** Defence of thesis

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

Number of ECTS credits: 1

Recommended semester/trimester of the course:

Course level: N

Prerequisities:

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

Learning outcomes:
The final thesis demonstrates mastery of the basics of theory and professional terminology of the field of study, acquisition of knowledge, skills and competencies in accordance with the declared profile of the graduate of the study program, as well as the ability to apply them creatively in solving selected field problems. The student demonstrates the ability of independent professional work in terms of content, formal and ethical. Further details on the final thesis are determined by Directive no. 1/2011 on the basic requirements of final theses and the Study Regulations of UPJŠ in Košice.

Brief outline of the course:
1. Elaboration of the final thesis in accordance with the instructions of the supervisor.
2. Presentation of the results of the final thesis before the examination commission.
3. Answering questions related to the topic of the final thesis within the discussion.

Recommended literature:
The recommended literature is determined individually in accordance with the topic of the final thesis.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 54

A	B	C	D	E	FX
33.33	38.89	18.52	9.26	0.0	0.0

Provides:
Date of last modification: 15.11.2022
Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ QTPS/16	**Course name:** Development of a pedagogical software

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course: 4.

Course level: N

Prerequisities:

Conditions for course completion:
A minimum of 50% of the mark for intermediate assignments

Learning outcomes:
Identify types of pedagogical software.
Gain an overview of the criteria for evaluating the quality of pedagogical software. Evaluate pedagogical software.
Describe the pedagogical software development life cycle. Design and create pedagogical software.

Brief outline of the course:
1. Types of pedagogical software.
2. Educational software quality criteria, evaluation of educational software.
3. The use of office suite software, multimedia editors and development environments in education, software for the creation of concept maps, software for electronic voting, the creation of questionnaires and didactic tests.
4. The use of office suite software, multimedia editors and development environments in education, software for the creation of concept maps, software for electronic voting, the creation of questionnaires and didactic tests.
5. Life cycle of educational software, development environments.
6. Creation of own interactive educational software.
7. Creating of own interactive educational software.
8. Creation of own interactive educational software.
9. Creation of own interactive educational software.
10. Specifics of distance education, creation of materials for distance education.
11. Creation, implementation and evaluation of e-learning courses with methodological manual.
12. Creation, implementation and evaluation of e-learning courses with methodological manual.

Recommended literature:
HRUŠECKÁ, Andrea. Digitálne technológie pre učiteľa 1: Digitálna gramotnosť učiteľa : ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika. Bratislava: Štátny pedagogický ústav, 2009. ISBN 978-80-89225-95-8. Dostupné také z: https://www.statpedu.sk/files/sk/o-organizacii/projekty/projekt-dvui/publikacie/digitalne_technologie_pre_ucitela1.pdf

KALAŠ, Ivan. Digitálne technológie a zásahy do vyučovania: moderná škola : ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika. Bratislava: Štátny pedagogický ústav, 2010. ISBN 978-80-8118-032-3. Dostupné také z: https://www.statpedu.sk/files/sk/o-organizacii/projekty/projekt-dvui/publikacie/dt_a_zasady_do_vyucovania.pdf
HOMOLA, Martin, Zuzana KUBINCOVÁ, Ján GUNIŠ, Martin CÁPAY, Martin MAGDIN a Ľubomír ŠNAJDER. Ďalšie vzdelávanie učiteľov základných škôl astredných škôl vpredmete informatika: Web, Multimédiá. Bratislava: Štátny pedagogický ústav, 2010. ISBN 978-80-8118-051-4. Dostupné také z: https://www.statpedu.sk/files/sk/o-organizacii/projekty/projekt-dvui/publikacie/web_multimedia.pdf
Guniš, J., Michaličková, V., Cápay, M., & Šnajder, Ľ. (2020). Riešenie problémov a programovanie.
Bratislava: Centrum vedecko-technických informácií SR.

Course language:
Slovak language, knowledge of English language is only required to read some of the documentation for software products.

Notes:

Course assessment
Total number of assessed students: 66

A	B	C	D	E	FX
6.06	16.67	19.7	28.79	22.73	6.06

Provides: PaedDr. Ján Guniš, PhD., univerzitný docent

Date of last modification: 10.02.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QDIN1/16	**Course name:** Didactics of informatics 1

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: Per study period: 12s / 12s
Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course: 3.

Course level: N

Prerequisities:

Conditions for course completion:
Conditions for ongoing evaluation:
1. Proposal of a thematic plan for teaching informatics at secondary or elementary school.
2. Creation of a concept map, dictionary of basic concepts and specific educational objectives for selected topic of school informatics.
3. Creating a worksheet with selected formative assessment tools.
4. Proposal for the preparation of a lesson with a 5E inquiry cycle.
Conditions for successful completion of the course:
Obtaining at least 50% of points for ongoing assignments.

Learning outcomes:
The student will gain an overview of the objectives, content, modern didactic methods and tools of teaching school informatics; create a inquiry-based methodology of teaching a selected topic of school informatics; become familiar with the methodology of teaching selected topics from the thematic area of Representations and Tools.

Brief outline of the course:
1. Objectives and content of teaching informatics in primary and secondary schools. State educational program. Informatics textbooks.
2. Maturita on informatics. Examples of school educational programs. Designing own thematic plan.
3. Logical structure of the curriculum, conceptual mapping. Determination of specific educational objectives and creation of a concept map for a selected topic of school informatics (RBT).
4. Activating methods of teaching school informatics (discussion and situational methods).
5. Activating methods of teaching school informatics (staging methods, educational games, scientific humor).
6. Activating methods of teaching school informatics (problem teaching, peer learning).
7. Activating methods of teaching school informatics (project teaching, flipped learning).
8. Inquiry-based learning, inquiry cycle, inquiry skills, levels of inquiry, 5E learning cycle.
9. Formative assessment, cognitive and metacognitive tools. Creating a worksheet with selected formative assessment tools.

10. Methodology of teaching selected topics in the field of Representation and tools (coding, compression, encryption).
11. Methodology of teaching selected topics in the field of Representation and tools (data analysis and visualization).
12. Creating preparation for a lesson with a 5E learning cycle.

Recommended literature:

HAZZAN, Orit, Tami LAPIDOT and Noa RAGONIS, 2011. Guide to teaching computer science: an activity-based approach. New York: Springer. ISBN 9780857294425.
LAU, William, 2017. Teaching Computing in Secondary Schools: A Practical Handbook [online]. Taylor & Francis Group, 211 p. [cited 2021-7-10]. ISBN 9781315298191. Available from: https://ebookcentral.proquest.com/lib/upjs-ebooks/detail.action?docID=5056529
ČAPEK, Robert, 2015. Moderní didaktika: lexikon výukových a hodnoticích metod. Praha: Grada. Pedagogika (Grada). ISBN 978-80-247-3450-7.
LUKÁČ, Stanislav, Ľubomír ŠNAJDER, Ján GUNIŠ and Zuzana JEŠKOVÁ, 2016. Bádateľsky orientované vyučovanie matematiky a informatiky na stredných školách [online]. Košice: Prírodovedecká fakulta UPJŠ v Košiciach [cited 2021-7-10]. ISBN 978-80-8152-471-4. Available from: https://unibook.upjs.sk/img/cms/2016/pf/bov.pdf
SPENDLOVE, David, 2015. 100 Ideas for Secondary Teachers: Assessment for Learning [online]. Bloomsbury Publishing, 129 p. [cited 2021-7-9]. ISBN 9781472911018. Available from:: https://ebookcentral.proquest.com/lib/upjs-ebooks/detail.action?docID=1990785
GANAJOVÁ, Mária, Beáta BRESTENSKÁ, Ján GUNIŠ, et al., 2021. Formatívne hodnotenie vo výučbe prírodných vied, matematiky a informatiky. Košice: Univerzita Pavla Jozefa Šafárika v Košiciach. ISBN 978-80-8152-973-3.
GUNIŠ, Ján, Miloslava SUDOLSKÁ and Ľubomír ŠNAJDER, 2009. Ďalšie vzdelávanie učiteľov základných a stredných škôl v predmete informatika: Aktivizujúce metódy vo výučbe školskej informatiky. Bratislava: Štátny pedagogický ústav, 40 p. ISBN 978-80-89225-96-5. Also available from: https://www.statpedu.sk/files/sk/o-organizacii/projekty/projekt-dvui/publikacie/aktivizujuce_metody.pdf
GUNIŠ, Ján and Ľubomír ŠNAJDER, 2010. Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika: Metodika výučby tematickej oblasti Informácie okolo nás. Bratislava: Štátny pedagogický ústav, 40 p. ISBN 978-80-8118-030-9. Also available from: https://www.statpedu.sk/files/sk/o-organizacii/projekty/projekt-dvui/publikacie/metodika_informacie_okolo_nas.pdf

Course language:
Slovak and partly English due to selected programs and information sources

Notes:
By default, teaching is carried out face to face. If this is not possible (eg due to a pandemic), teaching is provided at a distance through video conferencing programs and LMS.

Course assessment
Total number of assessed students: 74

A	B	C	D	E	FX
35.14	24.32	25.68	12.16	1.35	1.35

Provides: doc. RNDr. Ľubomír Šnajder, PhD.

Date of last modification: 03.08.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ QDIN2/16	**Course name:** Didactics of informatics 2

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: Per study period: 12s / 12s
Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course: 4.

Course level: N

Prerequisities:

Conditions for course completion:
Conditions for ongoing evaluation:
1. Elaboration of the assignments and commented author's solutions of the tasks (motivational, systemization, 2 preparatory).
2. Assessment of administered didactic test.
Conditions for the final evaluation:
1. Development and presentation of a graded system of tasks with a didactic test for teaching a selected topic of school informatics.
Conditions for successful completion of the course:
Obtaining at least 50% of points for ongoing and final assignments.

Learning outcomes:
The student can select and explain the essential concepts for the selected topic of school informatics; create cognitive objectives, graded collection of tasks with a didactic test for teaching the selected topic of school informatics; analyze and evaluate the solutions of student tasks and identify their misconceptions; get acquainted with the methodology of teaching selected topics in the areas of Communication and Collaboration, Software and Hardware, Information Society.

Brief outline of the course:
1. Educational task, its forms, and parameters. A graded system of tasks.
2. Creation of a graded system of tasks for teaching a selected topic of school informatics.
3.-4. Assessment of students' learning outcomes in school informatics. Didactic tests.
5. Assessment of student projects. Student portfolio.
6. Conceptual process in school informatics.
7. Informatics concepts in informatics competitions (iBobor).
8. Informatics concepts in activities outside the computer (Computer Science Unplugged).
9. Methodology of teaching selected topics in the field of Communication and Cooperation (communication and collaboration tools).
10.-11. Methodology of teaching selected topics in the field of hardware and software (kits with sensors and actuators).
12. Methodology of teaching selected topics in the field of Information Society (information security and cybersecurity).

Recommended literature:

HAZZAN, Orit, Tami LAPIDOT and Noa RAGONIS, 2011. Guide to teaching computer science: an activity-based approach. New York: Springer. ISBN 9780857294425.
LAU, William, 2017. Teaching Computing in Secondary Schools: A Practical Handbook [online]. Taylor & Francis Group, 211 p. [cited 2021-7-10]. ISBN 9781315298191. Available from: https://ebookcentral.proquest.com/lib/upjs-ebooks/detail.action?docID=5056529
COMPUTER SCIENCE EDUCATION RESEARCH GROUP AT THE UNIVERSITY OF CANTERBURY, NEW ZEALAND. Computer Science Field Guide: An online interactive resource for high school students learning about computer science [online]. [cited 2021-7-10]. Available from: https://www.csfieldguide.org.nz/en/
COMPUTER SCIENCE EDUCATION RESEARCH GROUP AT THE UNIVERSITY OF CANTERBURY, NEW ZEALAND. Computer Science without a computer [online]. [cited 2021-7-10]. Available from: https://csunplugged.org/en/
QUEEN MARY, UNIVERSITY OF LONDON. Computer Science For Fun: A magazine where the digital world meets the real world [online]. [cited 2021-7-10]. Available from: http://www.cs4fn.org/
GUNIŠ, Ján and Ľubomír ŠNAJDER, 2009. Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika: Tvorba úloh a hodnotenie žiakov v predmete informatika. Bratislava: Štátny pedagogický ústav, 40 p. ISBN 978-80-8118-012-5. Also available from: https://www.statpedu.sk/files/sk/o-organizacii/projekty/projekt-dvui/publikacie/tvorba_uloh_a_hodnotenie.pdf
GUNIŠ, Ján and Ľubomír ŠNAJDER, 2010. Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika: Metodika výučby tematickej oblasti Komunikácia prostredníctvom IKT. Bratislava: Štátny pedagogický ústav, 32 p. ISBN 978–80–8118–036-1. Also available from: https://www.statpedu.sk/files/sk/o-organizacii/projekty/projekt-dvui/publikacie/metodika_komunikacia_prostrednictvom_ikt.pdf
GUNIŠ, Ján and Ľubomír ŠNAJDER. Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika: Metodika výučby oblastí Princípy fungovania IKT a Informačná spoločnosť. Bratislava: Štátny pedagogický ústav, 32 p. ISBN 978–80–8118–045-3. Also available from: https://www.statpedu.sk/files/sk/o-organizacii/projekty/projekt-dvui/publikacie/metodika_informacna_spolocnost.pdf

Course language:
Slovak and partly English due to selected programs and information sources

Notes:
By default, teaching is carried out face to face. If this is not possible (eg due to a pandemic), teaching is provided at a distance through video conferencing programs and LMS.

Course assessment
Total number of assessed students: 64

A	B	C	D	E	FX
53.13	26.56	17.19	1.56	0.0	1.56

Provides: doc. RNDr. Ľubomír Šnajder, PhD.

Date of last modification: 03.08.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QDP/16	**Course name:** Didactics of programming for secondary and primary schools

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: Per study period: 12s / 12s
Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course: 5.

Course level: N

Prerequisities:

Conditions for course completion:
Conditions for ongoing evaluation:
1. Creation of an assignment and an commented author's solution of of a selected algorithmic problem.
2. Creation of an assignment and an commented author's solution of the STEAM task using several problem solving strategies.
3. Proposal of a pair of maturita assignments with solutions and methodological comments.
4. Creation of educational objectives and a collection of solved and commented tasks for a selected topic of programming in Python.
Conditions for successful completion of the course:
Obtaining at least 50% of points for ongoing assignments.

Learning outcomes:
The student can define specific learning objectives for a selected topic of teaching programming; create assignments and sample solutions to STEAM problems using different problem-solving strategies; analyze and evaluate student problem solutions and identify their misconceptions; design a methodology for teaching a selected topic in programming.

Brief outline of the course:
1. Educational standards in programming in secondary and primary schools. Graduation in informatics.
2. Programming competitions.
3. Algorithmic thinking. Algorithmic games.
4. Computational thinking. Problem solving strategies.
5. Data structures around us, algorithms over data structures.
6. Teaching selected algorithms and problem solving strategies (recursion).
7. Basic concepts and misconceptions of programming.
8. Teaching programming in Scratch.
9. Teaching programming in AppInventor.
10. Teaching programming in Python.
11. Programming of mathematical models of selected phenomena/systems.
12. Specifics of computer arithmetic.

Recommended literature:

BEECHER, Karl, 2017. Computational thinking: A beginner's guide to problem-solving and programming. © BCS Learning & Development, 308 p. ISBN 978-1-78017-36-41.
COMPUTING AT SCHOOL. Computational Thinking Concepts and Approaches Barefoot [online]. [cited 2021-7-12]. Available from: https://www.barefootcomputing.org/concept-approaches/computational-thinking-concepts-and-approaches
FINCHER, Sally and Marian PETRE, 2004. Computer science education research. New York: Taylor & Francis. ISBN 9789026519697.
GUTSCHANK, Jörg et al. 2019. coding in STEM Education [online]. Berlin: Science on Stage Deutschland e.V., 76 p. [cited 2021-7-10]. ISBN 978-3-942524-58-2. Available from: https://www.science-on-stage.eu/sites/default/files/material/coding_in_stem_education_en_2nd_edition.pdf
BRIGGS, Jason R., 2013. Python for kids: a playful introduction to programming. San Francisco: No Starch Press. ISBN 1593274076.
BLAHO, Andrej, 2016. Programovanie v Pythone 1 (prednášky k predmetu Programovanie (1) 1-AIN-130/13) [online]. Bratislava: Knižničné a edičné centrum FMFI UK, 322 p. [cited 2021-7-10]. ISBN 978-80-8147-067-7. Available from: http://python.input.sk/
ŠNAJDER, Ľubomír and Ján GUNIŠ, 2014. Tvorba úloh pre programátorské súťaže [online]. 1. Košice: Prírodovedecká fakulta UPJŠ v Košiciach, 79 p. [cited 2021-7-10]. ISBN 978-80-8152-139-3. Available from: https://unibook.upjs.sk/img/cms/2014/pf/tvorba-uloh-preprog-sutaze.pdf
GUNIŠ, Ján and Ľubomír ŠNAJDER, 2021. Programovanie v Pythone 1. Košice: Prírodovedecká fakulta UPJŠ v Košiciach, 170 p. ISBN 978-80-8152-969-6. Also available from: https://unibook.upjs.sk/img/cms/2021/pf/programovanie-v-pythone-1.pdf
GUNIŠ, Ján, Viera MICHALIČKOVÁ, Martin CÁPAY and Ľubomír ŠNAJDER, 2020. Riešenie problémov a programovanie [online]. Bratislava: Centrum vedecko-technických informácií SR [cited 2021-7-10]. ISBN 9788089965625. Available from: https://registracia.itakademia.sk/media/themes/nip-rpp.pdf
ŠNAJDER, Ľubomír, Gabriela LOVÁSZOVÁ, Viera MICHALIČKOVÁ and Ján GUNIŠ, 2020. Programovanie mobilných zariadení [online]. Bratislava: Centrum vedecko-technických informácií SR, 300 p. [cited 2020-11-30]. ISBN 978-80-89965-63-2. Available from: https://registracia.itakademia.sk/media/themes/nip-pmz.pdf

Course language:

Slovak and partly English due to selected programs and information sources

Notes:

By default, teaching is carried out face to face. If this is not possible (eg due to a pandemic), teaching is provided at a distance through video conferencing programs and LMS.

Course assessment

Total number of assessed students: 62

A	B	C	D	E	FX
6.45	20.97	24.19	32.26	12.9	3.23

Provides: doc. RNDr. Ľubomír Šnajder, PhD., PaedDr. Ján Guniš, PhD., univerzitný docent

Date of last modification: 04.08.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/QDG/20	**Course name:** Digital education of teachers

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course: 1.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 57

A	B	C	D	E	FX
54.39	28.07	8.77	1.75	7.02	0.0

Provides: RNDr. Slavka Blichová, doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 12.07.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ QDG2/16	**Course name:** Digital education of teachers

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course:

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 40

A	B	C	D	E	FX
92.5	2.5	0.0	0.0	0.0	5.0

Provides: RNDr. Slavka Blichová, RNDr. Michaela Vočková

Date of last modification: 01.03.2016

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QZP/17	**Course name:** Final thesis seminar

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 12s
Course method: present

Number of ECTS credits: 3

Recommended semester/trimester of the course: 5.

Course level: N

Prerequisities:

Conditions for course completion:
Conditions for ongoing evaluation:
1. Presentation and discussion of the ongoing results of own final thesis.
2. Discussion with ideas and recommendations to improve colleagues' final theses.
Conditions for successful completion of the course:
Fulfillment of all ongoing and final assignments.

Learning outcomes:
The student gets an idea of the structure of the final thesis and its life cycle, orientates in information sources on didactics of informatics. The student, while presenting the ongoing results of his/her final thesis, receives recommendations and ideas for its finalization.

Brief outline of the course:
1. Final theses of RŠI focused on the teaching of informatics (thesis structure, thesis life cycle). Analysis of selected final theses of RŠI (CRZP).
2. Overview of information resources (informatics curricula, available publication databases, journals and conference proceedings, educational projects, textbooks).
3. -12. Presentation and discussion of the ongoing results of the final thesis.

Recommended literature:
MEŠKO, Dušan, Dušan KATUŠČÁK and Ján FINDRA, 2013. Akademická príručka: Chcete byť úspešní na vysokej škole? 3. vydanie. Osveta, 495 p. ISBN 9788080633929.
KATUŠČÁK, Dušan, 2013. Ako písať záverečné a kvalifikačné práce. Enigma, 162 p. ISBN 8089132454.
BAČÍKOVÁ, Mária, Anna JANOVSKÁ and Oľga OROSOVÁ, 2019. Základy metodológie pedagogicko-psychologického výskumu: Sprievodca pre študentov učiteľstva [online]. 2. doplnené vydanie. Košice: Univerzita Pavla Jozefa Šafárika v Košiciach, 195 p. [cited 2021-7-29]. ISBN 978-80-8152-805-7. Available from: https://unibook.upjs.sk/sk/filozoficka-fakulta/1266-zaklady-metodologie-pedagogicko-psychologickeho-vyskumu-sprievodca-pre-studentovucitelstva
UNIVERZITA MATEJA BELA V BANSKEJ BYSTRICI, TECHNICKÁ UNIVERZITA V LIBERCI, 2021. Zborníky medzinárodnej konferencie DidInfo (od roku 2011) [online]. [cited 2021-7-30]. Available from:: http://www.didinfo.net/minule-rocniky

CENTRUM VEDECKO-TECHNICKÝCH INFORMÁCIÍ SR. Centrálny register záverečných a kvalifikačných prác [online]. [cited 2021-7-30]. Available from: https://cms.crzp.sk/

Course language:
Slovak and partly English due to selected information sources

Notes:
By default, teaching is carried out face to face. If this is not possible (eg due to a pandemic), teaching is provided at a distance through video conferencing programs and LMS.

Course assessment
Total number of assessed students: 62

abs	n
95.16	4.84

Provides: doc. RNDr. Ľubomír Šnajder, PhD.

Date of last modification: 24.08.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/QXE/16	**Course name:** Informatics and didactic of informatics

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

Number of ECTS credits: 1

Recommended semester/trimester of the course:

Course level: N

Prerequisities:

Conditions for course completion:
Appropriate knowledge and competencies from the selected subjects of the study program, demonstrating the ability to synthesize the acquired knowledge and procedures and apply them to the problems of computer science.

Learning outcomes:
Verification of acquired student competencies in accordance with the graduate profile.

Brief outline of the course:
1. Didactics of informatics
2. Didactics of programming
3. Algorithms and data structures
4. Principles of computers and the Internet
5. Database systems
6. Information security

Recommended literature:
Information sources recommended within individual subjects.

Course language:
Slovak language

Notes:

Course assessment
Total number of assessed students: 54

A	B	C	D	E	FX
38.89	18.52	20.37	11.11	11.11	0.0

Provides:

Date of last modification: 15.11.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QIB/20	**Course name:** Information security
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week: Per study period:** 12s / 12s **Course method:** present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course: 3.	
Course level: N	
Prerequisities:	
Conditions for course completion: Continuous assessment (50%) - solving theoretical and practical tasks. Final evaluation (50%) - presentation of 2 lessons from various areas of information security.	
Learning outcomes: The result of the education is an understanding of the basic concepts of information security, be able to encrypt, decrypt a file and email message, sign a document and email message and verify the validity of the signature, set security of the operating system, including protection against malicious code (malware), identify and remove malware, create and securely use passwords and other credentials, set security settings in the web browsers, verify website security, understand the concept of cybercrime and privacy.	
Brief outline of the course: 1. Introduction to information security, 2. Basics of cryptology, 3. Security of the operating system and access control, 4. Malicious programs (malware) and protection against them, 5. Document security, encrypted email communication, 6. Electronic communication with the government, 7. Web browsing security, 8. Secure email communication, 9. Protection of personal data, 10. Data backup, 11. Social engineering, 12. Computer crime.	
Recommended literature: 1. MARTIN, Andrew, Awais RASHID, Steve SCHNEIDER a Howard CHIVERS. CyBOK: The Cyber Security Body of Knowledge. The National Cyber Security Centre, 2021, 2. ANDRESS, Jason, Awais RASHID, Steve SCHNEIDER a Howard CHIVERS. Foundations of Information Security: A Straightforward Introduction. 1. No Starch Press, 2019. ISBN 978-1718500044, 3. PELTIER, Thomas, Awais RASHID, Steve SCHNEIDER a Howard CHIVERS. Information Security Fundamentals. 2. Boca Raton: Auerbach Publications, 2013. ISBN 978-1138436893.	
Course language: Slovak	
Notes:	

Course assessment Total number of assessed students: 49					
A	B	C	D	E	FX
40.82	32.65	10.2	8.16	4.08	4.08
Provides: doc. RNDr. JUDr. Pavol Sokol, PhD.					
Date of last modification: 26.09.2021					
Approved:					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QIOT/20	**Course name:** Internet of Things

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 12s
Course method: present

Number of ECTS credits: 4

Recommended semester/trimester of the course: 5.

Course level: N

Prerequisities:

Conditions for course completion:
At least 50% of the mark for the final practical assignment

Learning outcomes:
Design and implement simple STEAM projects using microprocessor building blocks, sensors, actuators and their intercommunication. Programming in MakeCode online environment.

Brief outline of the course:
1. BBC micro:bit microprocessor board and its features.
2. MakeCode development environment.
3. Sensors, actuators, connection and communication with them.
4. Intercommunication of microprocessor boards.
5. Design and implementation of a custom STEAM project.
6. Design and implementation of a custom STEAM project.

Recommended literature:
1. SENEVIRATNE, Pradeeka. Beginning BBC micro:bit: A Practical Introduction to micro:bit Development. Mulleriyawa, Sri Lanka: Apress, 2018. ISBN 978-1-4842-3359-7.
2. BBC micro:bit MicroPython documentation [online]. 2018 [cit. 2020-05-28]. Dostupné z: https://microbit-micropython.readthedocs.io/en/v1.0.1/
3. Projects micro:bit [online]. United Kingdom: Micro:bit Educational Foundation, 2018 [cit. 2020-05-28]. Dostupné z: https://microbit.org/projects/

Course language:
Slovak language, knowledge of English language is necessary only for reading MicroPython documentation.

Notes:

Course assessment
Total number of assessed students: 35

A	B	C	D	E	FX
74.29	8.57	14.29	0.0	2.86	0.0

Provides: PaedDr. Ján Guniš, PhD., univerzitný docent

Date of last modification: 31.08.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ QMAT/16	**Course name:** Introduction to mathematics for informatics

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 9

Recommended semester/trimester of the course: 1.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 99

A	B	C	D	E	FX
28.28	19.19	26.26	12.12	5.05	9.09

Provides: prof. RNDr. Stanislav Krajči, PhD.

Date of last modification: 01.03.2016

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QOS/22	**Course name:** Operating systems

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: Per study period: 12s / 12s
Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course: 3.

Course level: N

Prerequisities:

Conditions for course completion:
The condition for passing the course is: 1. Homeworks (40% of the total number of points), 3. Written final theoretical exam (30% of the total number of points), 4. Written final practical exam (30% of the total number of points).

Learning outcomes:
The result of the education is an understanding of the basic concepts of operating systems and the acquisition of practical skills using the command line of the Linux operating system.

Brief outline of the course:
1. Introduction to operating systems, 2. Structure of operating systems, 3. Command-line of Linux operating system, 4. Working with directory structure and files in Linux operating system, 5. Allocation of system resources and process management, 6. Process management of Windows and Linux operating systems, 7. Memory management, 8. Software management in the Linux operating system, 9. Permissions, users, groups, 10. Settings of the permissions, users, groups in the Windows and Linux operating systems, 11. Management of the I/O - disks and file systems, 10. Management of file systems in the Linux and Windows operating systems, 12. Management of the I/O - network interfaces, 13. Settings of the network interfaces in the Linux operating system.

Recommended literature:
1. SILBERSCHATZ, Abraham a Peter GALVIN. Operating System Concepts. 10. Hoboken: Wiley, 2018. ISBN 978-0128114155, 2. Linux - Dokumentační projekt [online]. 4. Praha: Computer Press, 2007 [cit. 2021-9-22]. Dostupné z: https://i.iinfo.cz/files/root/k/LDP_4.pdf, 3. LPIC-1 Exam 101. LPI [online]. Canada: The Linux Professional Institute, 2021 [cit. 2021-9-22]. Dostupné z: https://learning.lpi.org/en/learning-materials/101-500/, 4. LPIC-1 Exam 102. LPI [online]. Canada: The Linux Professional Institute, 2021 [cit. 2021-9-22]. Dostupné z: https://learning.lpi.org/en/learning-materials/102-500/

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 39

A	B	C	D	E	FX
30.77	28.21	20.51	15.38	0.0	5.13

Provides: doc. RNDr. JUDr. Pavol Sokol, PhD., RNDr. Tomáš Bajtoš

Date of last modification: 10.02.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QPP/20	**Course name:** Pedagogical experience

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 5d
Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course: 5.

Course level: N

Prerequisities:

Conditions for course completion:
Conditions for ongoing evaluation:
1. Observations in 4 lessons of the subject of informatics.
2. Independent leading of 20 lessons of the subject informatics.
Conditions for the final evaluation:
1. Submission of 4 observation records from lessons.
2. Submission of 20 lesson projects of preparation for lessons.
3. Submission of a list of observations and own lesson of the trainee.
4. Submission of an evaluation of the trainee's teaching practice.
5. Submission of a report on the pedagogical practice.
6. Submission of a feedback sheet from the pedagogical practice.
Conditions for successful completion of the course:
Fulfillment of all ongoing and final assignments.

Learning outcomes:
Under the professional supervision of an experienced teacher trainer, the student acquires practical pedagogical skills in teaching the subject of informatics. He/She gets acquainted with school life, out of-class and after-school activities activities.

Brief outline of the course:
Observations of teacher trainer lessons, consultations of lesson preparations, preparation of teaching aids, leading own lessons, methodological and scientific analysis of lessons, active participation in out-of-class and after-school activities.

Recommended literature:
KOSOVÁ, Beata, Alena TOMENGOVÁ et al, 2015. Profesijná praktická príprava budúcich učiteľov [online]. Banská Bystrica: Vydavateľstvo Belianum, Univerzita Mateja Bela, Banská Bystrica, 226 p. [cited 2021-7-28]. ISBN 978-80-557-0860-7. Available from: https://publikacie.umb.sk/publication/publicationFileDownload.php?ID=18667
OROSOVÁ, Renáta and Zuzana BOBEROVÁ, 2016. Pregraduálna príprava učiteľov: Organizácia pedagogickej praxe na UPJŠ [online]. Košice: Univerzita Pavla Jozefa Šafárika v Košiciach, 142 p. [cited 2021-7-28]. ISBN 978-80-8152-460-8. Available from: https://

unibook.upjs.sk/sk/pedagogika/342-pregradualna-priprava-ucitelov-organizacia-pedagogickej-praxe-na-upjs
BOBEROVÁ, Zuzana, 2017. Začínajúci učiteľ a školská legislatíva I. [online]. Košice: Univerzita Pavla Jozefa Šafárika v Košiciach, 104 p. [cited 2021-7-28]. ISBN 978-80-8152-490-5.
Available from: https://unibook.upjs.sk/sk/pedagogika/398-zacinajuci-ucitel-a-skolska-legislativa-i
Current informatics textbooks for primary and secondary schools in the Slovak Republic

Course language:
Slovak

Notes:
A student can be recognized in this subject if he/she proves his/her teaching experience in the subject of informatics of at least 20 hours and submits his/her sample preparations for at least 3 lessons of informatics with a certificate from the school principal.

Course assessment
Total number of assessed students: 38

abs	n
97.37	2.63

Provides: doc. RNDr. Ľubomír Šnajder, PhD.

Date of last modification: 04.08.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/QPPI/22	**Course name:** Principles of computers and the Internet

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 2.

Course level: N

Prerequisities:

Conditions for course completion:
Conditions for the final evaluation:
final test

Learning outcomes:
Students will get an overview of the history and design principles of von Neumann-type computers. They will master binary coding of integers and real numbers, basic arithmetic and logical operations with them. They will understand basic character encodings and will be able to implement simple computer elements using combinational and sequential logic circuits. They will know the principles of memory implementation, arithmetic-logic unit, understand the mechanism of processing machine instructions. Students will know the memory hierarchy, understand the functionality of its individual levels and the transfer of data between them. They will understand how the processor communicates with I / O devices, its interrupt mechanism, and direct memory access. They will understand the function of the controller and how the communication is controled. They will know the input-output devices used in computers with their construction principles and methods of use.
Students will get an overview of the structure and tasks of the layers of the current Internet. They will know the most important protocols on the Internet: HTTP, SMTP, UDP, TCP, IPv4, IPv6, DHCP, ICMP, ARP. They will understand the functions of domain services, the use of client-server and peer-to-peer architectures, the principles of confirmed data transfer. They will understand how a routing table is used and the different ways to fill it. They will get an overview of Ethernet 802.3 and 802.11 technology and the functionality of switches.

Brief outline of the course:
1. Von Neumann type computers, history of computer science. Coding of integers and real numbers, basic operations. Implementation of basic functional and control elements of a computer using combinational and sequential logic circuits.
2. Memory cell, organization of memory matrix, types of memories. Processor architecture at the level of digital logic, machine cycle, instruction cycle, types of machine instructions.
3. I / O gateways, interrupt mechanism, direct memory access. Functions of controllers, drivers and their integration into the kernel of the operating system. Portability of programs. External and peripheral memories, principles and ways of use. Graphic adapters, monitors, printers, scanners.

4. Introduction to computer networks, ISO / OSI reference model and TCP / IP family of protocols, application protocols, Web and HTTP, e-mail and SMTP, POP3, IMAP, Peer-to-peer applications, introduction to computer network security,
5. Transport layer: UDP and TCP protocols. Network layer: IP addresses, IPv4 and IPv6 protocols, routing table, DHCP protocol, NAT
6. Network interface layer: Ethernet technology, repeater, switch, CSMA / CD, WiFi and CSMA / CA.

Recommended literature:

1. W. Stallings: Computer Organization and Architecture, Prentice Hall, 2002
2. KUROSE, James F. a Keith W. ROSS. Computer networking: a top-down approach. Seventh edition. Essex: Pearson, [2017]. ISBN 978-1-292-15359-9.
3. TANENBAUM, Andrew S. - FEAMSTER Nick - WETHERALL David J. Compuetr Networks, 6th Edition, Pearson, [2021]. ISBN 978-0-135-40798-1

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 51

A	B	C	D	E	FX
35.29	23.53	27.45	3.92	5.88	3.92

Provides: RNDr. Juraj Šebej, PhD., RNDr. Peter Gurský, PhD.

Date of last modification: 10.02.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/QPPI/20	**Course name:** Principles of computers and the Internet

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 3.

Course level: N

Prerequisities:

Conditions for course completion:
Conditions for the final evaluation:
final test

Learning outcomes:
Students will get an overview of the history and design principles of von Neumann-type computers. They will master binary coding of integers and real numbers, basic arithmetic and logical operations with them. They will understand basic character encodings and will be able to implement simple computer elements using combinational and sequential logic circuits. They will know the principles of memory implementation, arithmetic-logic unit, understand the mechanism of processing machine instructions. Students will know the memory hierarchy, understand the functionality of its individual levels and the transfer of data between them. They will understand how the processor communicates with I / O devices, its interrupt mechanism, and direct memory access. They will understand the function of the controller and how the communication is controled. They will know the input-output devices used in computers with their construction principles and methods of use.
Students will get an overview of the structure and tasks of the layers of the current Internet. They will know the most important protocols on the Internet: HTTP, SMTP, UDP, TCP, IPv4, IPv6, DHCP, ICMP, ARP. They will understand the functions of domain services, the use of client-server and peer-to-peer architectures, the principles of confirmed data transfer. They will understand how a routing table is used and the different ways to fill it. They will get an overview of Ethernet 802.3 and 802.11 technology and the functionality of switches.

Brief outline of the course:
1. Von Neumann type computers, history of computer science. Coding of integers and real numbers, basic operations. Implementation of basic functional and control elements of a computer using combinational and sequential logic circuits.
2. Memory cell, organization of memory matrix, types of memories. Processor architecture at the level of digital logic, machine cycle, instruction cycle, types of machine instructions.
3. I / O gateways, interrupt mechanism, direct memory access. Functions of controllers, drivers and their integration into the kernel of the operating system. Portability of programs. External and peripheral memories, principles and ways of use. Graphic adapters, monitors, printers, scanners.

4. Introduction to computer networks, ISO / OSI reference model and TCP / IP family of protocols, application protocols, Web and HTTP, e-mail and SMTP, POP3, IMAP, Peer-to-peer applications, introduction to computer network security,
5. Transport layer: UDP and TCP protocols. Network layer: IP addresses, IPv4 and IPv6 protocols, routing table, DHCP protocol, NAT
6. Network interface layer: Ethernet technology, repeater, switch, CSMA / CD, WiFi and CSMA / CA.

Recommended literature:

1. W. Stallings: Computer Organization and Architecture, Prentice Hall, 2002
2. KUROSE, James F. a Keith W. ROSS. Computer networking: a top-down approach. Seventh edition. Essex: Pearson, [2017]. ISBN 978-1-292-15359-9.
3. TANENBAUM, Andrew S. - FEAMSTER Nick - WETHERALL David J. Compuetr Networks, 6th Edition, Pearson, [2021]. ISBN 978-0-135-40798-1

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 38

A	B	C	D	E	FX
36.84	28.95	23.68	5.26	5.26	0.0

Provides: RNDr. Juraj Šebej, PhD., RNDr. Peter Gurský, PhD.

Date of last modification: 17.11.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QPR1/16	**Course name:** Programming L1

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: Per study period: 12s / 12s
Course method: present

Number of ECTS credits: 9

Recommended semester/trimester of the course: 1.

Course level: N

Prerequisities:

Conditions for course completion:
Conditions for ongoing evaluation:
1. Ongoing practical assignment at the computer (turtle graphics).
2. Ongoing practical assignment at the computer (calculations).
3. Own interactive game or educational tool.
Conditions for the final evaluation:
1. Final practical assignments at the computer (calculations, working with texts and lists).
Conditions for successful completion of the course:
Obtaining at least 50% of points for ongoing and final assignments.

Learning outcomes:
By programming stories, pictures, animations, music, games, educational tools in the Scratch environment, the student acquires basic knowledge and skills in programming (use of events, loops, branching, assignment, calling procedures with parameters, broadcasting messages, sprites cloning, list data type).

Brief outline of the course:
1. Entrance test and questionnaire. Working in the Scratch cloud (registration, analysis of finished projects, storing and publishing projects in the studio).
2.-3. Creating stories and jokes (commands to change the position, shape and animation of characters, playing sounds, infinite loop, broadcasting messages and processing them).
4.-6. Drawing in turtle and Cartesian graphics (decomposing and finding patterns in pictures, pen commands, finite loop, procedures without and with parameters).
7. Working with melodies (finding patterns in melodies, shortening them using loops and procedures with parameters, using the branching command)
8.-9. Calculations using standard functions, branching and loops.
10.-11. Working with texts and lists (interpreter for simple language , text encryption)
12. Creating interactive games and educational programs (exploiting of keyboard, mouse, microphone, webcam, Makey-Makey board; use of clones).

Recommended literature:
RESNICK, Mitchel, 2017. Lifelong Kindergarten: Cultivating Creativity through Projects, Passion, Peers, and Play. The MIT Press, 208 s. ISBN 978-0262037297.

RESNICK, Mitchel. The Next Generation of Scratch Teaches More Than Coding [online]. EdSurge, 3. 1. 2019 [cited 2020-7-3]. Available from: https://www.edsurge.com/news/2019-01-03-mitch-resnick-the-next-generation-of-scratch-teaches-more-than-coding
ScratchEd [online]. Creative Computing Lab, Harvard Graduate School of Education [cited 2020-7-3]. Available from: http://scratched.gse.harvard.edu/
JAROŠ, Ľuboš, 2017. Scratch starter: Programovanie pre deti. Check IT, 171 p. ISBN 9788097267605.
KALAŠ, Ivan a Karolína MIKOVÁ, 2020. Základy programování ve Scratch pro 5. ročník základní školy [online]. Jihočeská univerzita v Českých Budějovicích, Pedagogická fakulta [cited 2021-8-3]. ISBN 978-80-7394-782-8. Available from: https://imysleni.cz/ucebnice/zaklady-programovani-ve-scratchi-pro-5-rocnik-zakladni-skoly
VANÍČEK, Jiří, Ingrid NAGYOVÁ a Monika TOMCSÁNYIOVÁ, 2020. Programování ve Scratch pro 2. stupeň základní školy [online]. Jihočeská univerzita v Českých Budějovicích, Pedagogická fakulta [cited 2021-8-3]. ISBN 978-80-7394-783-5. Available from://imysleni.cz/ucebnice/programovani-ve-scratchi-pro-2-stupen-zakladni-skoly
ČERNOCHOVÁ, Miroslava, Petra VAŇKOVÁ a Jiří ŠTÍPEK, 2020. Programování ve Scratch pro pokročilé - projekty pro 2. stupeň základní školy [online]. Univerzita Karlova, Pedagogická fakulta [cited 2021-8-3]. ISBN 978-80-7603-085-5. Available from: https://imysleni.cz/ucebnice/programovani-ve-scratchi-ii-projekty-pro-2-stupen-zakladni-skoly

Course language:
Slovak and partly English due to selected programs and information sources

Notes:
By default, teaching is carried out face to face. If this is not possible (eg due to a pandemic), teaching is provided at a distance through video conferencing programs and LMS.

Course assessment
Total number of assessed students: 100

A	B	C	D	E	FX
24.0	19.0	24.0	18.0	9.0	6.0

Provides: doc. RNDr. Ľubomír Šnajder, PhD.

Date of last modification: 03.08.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QPR2/16	**Course name:** Programming L2
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week: Per study period:** 12s / 12s **Course method:** present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course: 2.	
Course level: N	
Prerequisities:	
Conditions for course completion: A minimum of 50 % marks in the continuous assessment and in the practical test at the end of the semester	
Learning outcomes: Fundamental Python programming skills Fundamental Python programming practices and approaches Design, implement algorithms and verify the correctness of algorithms that solve simple problems.	
Brief outline of the course: 1. Introduction to Python, development environment, console, variable. 2. Turtle graphics, functions without parameters and return value. 3. The for loop and the range function. 4. Function with parameter and return value. 5. Intermediate writing 1, Boolean expressions and the if branching statement. 6. Strings. 7. Algorithms on strings. 8. Exception generation and trapping. 9. Exception generation and trapping. 10. Intermediate paper 2, lists. 11. Algorithms on lists. 12. Loop with condition.	
Recommended literature: Guniš, J., Šnajder, Ľ., Gunišová, V. & Tkáčová, Z. (2021). Programovanie v Pythone: Zbierka inovatívnych metodík pre stredné školy. Bratislava: Centrum vedecko-technických informácií SR. PILGRIM, Mark. Dive into Python 3. 2. United States of America: Apress, 2004. ISBN 978-1430224150. Dostupné také z: https://diveintopython3.net/ PAYNE, Bryson. Teach your kids to code: a parent-friendly guide to Python programming. San Francisco: No Starch Press, 2015. ISBN 1593276141.	
Course language:	

Slovak language, knowledge of English language is only required to read documentation of Python.

Notes:
Prerequisite: L1 Programming - Scratch

Course assessment
Total number of assessed students: 86

A	B	C	D	E	FX
2.33	9.3	12.79	32.56	31.4	11.63

Provides: PaedDr. Ján Guniš, PhD., univerzitný docent

Date of last modification: 10.02.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QPR3/16	**Course name:** Programming L3

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: Per study period: 12s / 12s
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 3.

Course level: N

Prerequisities:

Conditions for course completion:
A minimum of 50 % marks in the continuous assessment and in the practical test at the end of the semester

Learning outcomes:
Solve problems requiring linear, hierarchical and recursive decomposition.
Effectively use data structures (list, string) to solve problems
Use and define custom classes, OOP basics in creating complex applications.
Design and implement algorithms on data structures.
Design and implement recursive algorithms.

Brief outline of the course:
1. Repetition (creating and modifying lists, algorithms with strings and lists), stepping and debugging programs.
2. Multiple lists of related data, nested data structures.
3. Algorithms (searching, organizing, analyzing data).
4. Use of randomness, data generation by criteria, generating data for testing.
5. Working with files, writing and reading data.
6. Data serialization and deserialization. Protocols for serialization and deserialization.
7. Introduction to object-oriented programming - designing custom classes.
8. Object oriented programming - special methods, designing classes to manage other objects.
9. Object oriented programming - solving problems using object oriented programming.
10. Creating graphical interface of programs.
11. Recursion - recursive images.
12. Recursion - recursive problem solving.

Recommended literature:
PILGRIM, Mark. Dive into Python 3. 2. United States of America: Apress, 2004. ISBN 978-1430224150. Dostupné také z: https://diveintopython3.net/
DIERBACH, Charles. Introduction to computer science using Python: a computational problem-solving focus. Hoboken, NJ: John Wiley, 2013. ISBN 9780470555156.
Guniš, J., Michaličková, V., Cápay, M., & Šnajder, Ľ. (2020). Riešenie problémov a programovanie.

Bratislava: Centrum vedecko-technických informácií SR.
SHIPMAN, John W. Tkinter 8.5 reference: a GUI for. Socorro, NM 87801: New Mexico Tech Computer Center, 2013. Dostupné z: http://www.nmt.edu/tcc/help/pubs/tkinter/tkinter.pdf

Course language:
Slovak language, knowledge of English language is only required to read documentation of Python.

Notes:

Course assessment
Total number of assessed students: 78

A	B	C	D	E	FX
7.69	7.69	16.67	20.51	39.74	7.69

Provides: PaedDr. Ján Guniš, PhD., univerzitný docent

Date of last modification: 30.08.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QKIN1/16	**Course name:** Selected topics in informatics

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 2.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 78

A	B	C	D	E	FX
66.67	12.82	8.97	6.41	5.13	0.0

Provides: prof. RNDr. Stanislav Krajči, PhD.

Date of last modification: 08.03.2016

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QKIN2/16	**Course name:** Selected topics in informatics

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course: 5.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 60

A	B	C	D	E	FX
41.67	33.33	18.33	3.33	0.0	3.33

Provides: prof. RNDr. Stanislav Krajči, PhD.

Date of last modification: 08.03.2016

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/QZPR/20	**Course name:** Thesis in informatics

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 5.

Course level: N

Prerequisities:

Conditions for course completion:
To be awarded the credits, students are required to participate regularly in consultations according to the supervisor's instructions, continuously read the recommended literature and work on own final thesis, the written draft of which will be submitted by a student for final assessment according to the supervisor's instructions.

Learning outcomes:
Students are able to manage preparation and writing of own final thesis in terms of is structure, time schedule and format in line with valid standards. Under supervision of the supervisor students make initial research of sources, realization of thesis goals and writing of the thesis.

Brief outline of the course:
The final thesis (its place and importance in university education), time schedule of preparation of final thesis, main parts of final thesis, format of final thesis, principles of quotation and bibliography references. The seminar is scheduled in the form of individual consultations between the supervisor and a student, according to the supervisor's instructions. The content of the seminar depends on selected topic of the final thesis, condition of its preparation and individual needs or agreement between the supervisor and a student.

Recommended literature:
The recommended literature is determined individually in accordance with the topic of the final thesis.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 32

abs	n
100.0	0.0

Provides:

Date of last modification: 15.11.2022
Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ QWS/18	**Course name:** Website design

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course: 2.

Course level: N

Prerequisities:

Conditions for course completion:
50% of the mark for continuous assignments and discussion contributions

Learning outcomes:
Create accessible and usable websites that meet (X)HTML and CSS standards. Apply rules for the layout of web page content. Maintain a website and use basic web promotion practices.

Brief outline of the course:
1. - (X)HTML - markup language for describing the structure and content of HTML documents.
2. - (X)HTML - markup language for describing the structure and content of HTML documents.
3. - (X)HTML - markup language for describing the structure and content of HTML documents.
4. - (X)HTML - markup language for describing the structure and content of HTML documents.
5. - CSS - a markup language for describing how (X)HTML documents are displayed.
6. - CSS - a markup language for describing how (X)HTML documents are displayed.
7. - Page layout - the layout of the content of a web page.
8. - Page layout - the layout of the content of a web page.
9. - Web page accessibility.
10. - Web page accessibility.
11. - Usability of web pages.
12. - Usability of web pages.

Recommended literature:
TITTEL, Ed a Jeff NOBLE. HTML, XHTML & CSS for dummies. 7th ed. Hoboken, NJ: Wiley, c2011. --For dummies. ISBN 0470916591.
FIELDING, Jonathan. Beginning responsive web design with HTML5 and CSS3 / Jonathan Fielding. New York, New York: Apress, 2014. Expert's voice in Web development. ISBN 9781430266945.
KRUG, Steve. Nenuťte uživatele přemýšlet!: praktický průvodce testováním a opravou chybpoužitelnost webu. Vyd. 1. Brno: Computer Press, 2010, 165 s. ISBN 978-80-251-2923-4.
Vyhláška Úradu podpredsedu vlády Slovenskej republiky pre investície a informatizáciu zo16. marca 2020 o štandardoch pre informačné technológie verejnej správy. In: . Bratislava:Ministerstvo spravodlivosti Slovenskej republiky, 2020, ročník 2020, číslo 78. Dostupné z:https://www.slov-lex.sk/static/pdf/2020/78/ZZ_2020_78_20210623.pdf

Course language:
Slovak language, knowledge of English is required only for reading documentation and web standards.

Notes:

Course assessment
Total number of assessed students: 84

A	B	C	D	E	FX
5.95	25.0	28.57	25.0	7.14	8.33

Provides: PaedDr. Ján Guniš, PhD., univerzitný docent

Date of last modification: 10.02.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/QPWS/20	**Course name:** Website programming

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of ECTS credits: 7

Recommended semester/trimester of the course: 4.

Course level: N

Prerequisities:

Conditions for course completion:
Conditions for the final evaluation: active attendace at seminars, final project

Learning outcomes:
Creating a dynamically generated website in PHP with authentication, multiple subpages and adaptive menus using client-side scripting in JavaScript, form processing, saving and reading form data using a MySQL database.

Brief outline of the course:
1. PHP - dynamic content and menu creation
2. PHP - user login and logout
3. PHP - storing user in the database, user registration
4. PHP - database model for recording a test survey and displaying stored data
5. PHP - form for test survey, filtering of displayed data
6. Javascript - introduction to the language, dynamic change of DOM model, AJAX calls
7. Javascript - input validation in forms, controlling password strength using the zxcvbn library

Recommended literature:
SUEHRING, Steve a Janet VALADE. PHP, MySQL, JavaScript & HTML5 all-in-one for dummies. Hoboken, NJ: John Wiley, 2013. For dummies. ISBN 978-1-118-21370-4.

Course language:
Slovak

Notes:
Content prerequisities: basic programming, understandig HTTP protocol, foundations of HTML and CSS, SQL language

Course assessment
Total number of assessed students: 40

A	B	C	D	E	FX
35.0	25.0	27.5	10.0	0.0	2.5

Provides: RNDr. Peter Gurský, PhD.

Date of last modification: 23.11.2021
Approved: