CONTENS

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ APO/22	**Name:** Computer Architecture

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 2 / 0 / 1 **For the study period:** 26 / 0 / 13
 Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 4.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 The course ends with a written exam, for which students can get 40% of the total number of points. During the semester, students pass two written examinations, for which they can receive 30% of the total number of points and 30% of the semester project.
 In addition to contact teaching, students prepare for exercises, prepare for written examinations, work on their semester project and prepare for the exam for a total of 98 hours.
 It is necessary to get at least 90 points to get an A rating, at least 80 points for a B rating, at least 70 points for a C rating, at least 60 points for a D rating and at least 50 points for an E rating. Credits will not be awarded to a student who earns less than 50 points.

Results of education:
 Education results - knowledge:
 After completing the subject, the student:
 • has deeper knowledge of computer architecture and the principles of computer operation,
 • knows different types of memories, the principles of their operation and the possibilities of application in each,
 • knows the system of IRQ and DMA interruptions, controls program access to I/O.
 Learning outcomes - skills:
 After completing the subject, the student:
 • can analyze and solve more complex problems of the architecture of computer systems,
 • can correctly use the IRQ and DMA options in relation to the hardware,
 • can ensure the cooperation of the basic parts of computers, taking into account the current trends and areas of their applications,
 • is able to apply acquired knowledge in solving practical tasks.
 Education results - competences:
 After completing the subject, the student:
 • knows how to work efficiently and implement acquired theoretical knowledge,
 • has an active and responsible approach to completing tasks,
 • shows independence in solving more complex problems.

Brief syllabus:
 Computational model, programming language, architectures.

The meaning of the term computer architecture and the meaning of its individual parts.
Computer memory, registers.
Data types, mathematical operations, operand types, instruction formats, addressing.
User controlled state characteristics.
Arithmetic-logic unit, execution of instructions (instruction cycle).
Types of buses, principle of operation, serial and parallel buses (FSB, PCI, PCIe, HT, QPI), their characteristics, data transfers, transfer speeds, character systems.
Program access to I/O, I/O operations performed in the memory unit, DMA, I/O channel. System Interrupt - IRQ.
Working principles of DRAM, SRAM, ROM and EEPROM memories.
Virtual computer - construction, principles of operation.
Intel, AMD, IBM and ARM processors, their architectures, development and development trends.
Multicore processors - development, reasons for introduction, limitations in use.

Literature:
CSERNY, L. : Mikroszámítógépek. Budapest : LSI Oktatóközpont, 2003. 330 p. ISBN 963 577 188 6.
SIMA D. – FOUNTAIN, T. – KACSUK, P.: Korszerű számítógép-architektúrák tervezési tér megközelítésben. Bicske : SZAK Kiadó, 1998, 809 p. ISBN 963 9131 09 1.
TANNENBAUM, A. S.: Számítógéparchitektúrák. Budapest : Panem Kiadó, 2001, 720 p. ISBN 963 545 282 9.
BENYÓ B.: Számítógép architektúrája. Szécsényi István Egyetem. Győr. 2006. http://jegyzet.sze.hu/letolt.php?dwn=1szamitogepekar
Iványi Antal: Informatikai algoritmusok I. ELTE. Budapest. 2005. http://compalg.inf.elte.hu/~tony/Elektronikus/Informatikai/Infalg1H.xml

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of the student's workload:
31% of the workload - direct teaching
21% of the workload - preparation for lectures and exercises
19% of the workload - work on semester project
29% of the workload - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 8

A	B	C	D	E	FX
0.0	0.0	12.5	50.0	37.5	0.0

Teacher: prof. András Molnár, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ BS1/22	**Name:** Bachelor Thesis Seminar 1

Types, range and methods of educational activities:
  Form of study: Lecture / Seminar / Practical
  Recommended extent of course (in hours):
  Per week: 0 / 0 / 1 **For the study period:** 0 / 0 / 13
  Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 5.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
During the semester students' independent active work will be evaluated, and during the exercises students will consult on partial results of their independent research activities. The final grade (max. 100 points) will be awarded to students on the basis of a presentation of the results of their own research work.
A grade of A requires at least 90 points, a grade of B requires at least 80 points, a grade of C requires at least 70 points, a grade of D requires at least 60 points and a grade of E requires at least 50 points. Credit will not be awarded to a student who scores less than 50 points.

Results of education:
Learning outcomes - knowledge:
Upon completion of the course the student will:
- knows the most important methods, forms and outputs of scientific work,
- knows how to characterize the individual parts of a bachelor thesis
- knows the procedures of the bachelor's thesis development
- is aware of scientific ethics in writing a bachelor thesis.
Learning Outcomes - Skills:
Upon completion of the course, the student will:
- is able to gather background information on the topic of the bachelor thesis,
- is prepared to plan and carry out research independently,
- is able to present the results of own research activities in the professional community.
Learning outcomes - competences:
Independence and creativity in the preparation of the bachelor thesis.

Brief syllabus:
Science as a part of human culture, scientists and researchers.
Institutional provision and management of scientific work.
The most important forms of scientific work. Methods and methodology of scientific research.
Writing professional and scientific articles and papers.
Specific features of the work of the community of scientists, evaluation of scientific work and qualifications.
Scientific and technical information, basics of scientific ethics, plagiarism.

Determination of the objectives of the bachelor's thesis.
Structure of the bachelor's thesis and its formal regulation (internal rules of the university).
Preparation of the work plan for the bachelor project.
Preparation of the time schedule.
Organisation and implementation of the work, planning of research experiments and their implementation.
Processing, interpretation of the results of independent scientific work.
Presentation of the results of independent scientific work.

Literature:
1. ISO STN 690: Dokumentácia -Bibliogarafické odkazy – Obsah, forma a štruktúra. 1998.
2. KATUŠČÁK, D.: Ako písať záverečné a kvalifikačné práce. Nitra : Enigma, 2008, 164 s. ISBN 978-80-89132-45-4.
3. KIMLIČKA, Š.: Ako citovať a vytvárať zoznamy bibliografických odkazov : podľa
noriem ISO 690 pre „klasické" aj elektronické zdroje. Bratislava : Stimul, 2002, 82 s. ISBN 978-0-889-82-57-X.
4. Smernica rektora č. 2/2021 o úprave, registrácii, sprístupnení a archivácii záverečných prác na Univerzite J. Selyeho.

Language, knowledge of which is necessary to complete a course:
Hungarian language

Notes:
Student workload:
52% of the workload - direct teaching
48% of the workload - preparation for exercises

Evaluation of subjects
Total number of evaluated students: 3

A	B	C	D	E	FX
33.33	0.0	33.33	0.0	0.0	33.33

Teacher: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ BS2/22	**Name:** Bachelor Thesis Seminar 2

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 0 / 1 / 0 **For the study period:** 0 / 13 / 0
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 6.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
During the semester, the independent active work of the students is evaluated, and as part of the exercises, the students consult on the partial results of the independent research activity. Students receive a final evaluation (max. 100 points) based on the presentation of the results of their own research work.
A minimum of 90 points, B minimum of 80 points, C minimum of 70 points, D minimum of 60 points and E minimum of 50 points are required. A student with less than 50 points will not receive credit.

Results of education:
Educational results - knowledge:
After completing the subject, the student:
• knows the basic principles of preparing and implementing your own project,
• knows the tools of project creation and research.
• knows the basic principles of copyright, the relevant STN standards and the customs in the activities of the professional community.
Learning outcomes - skills:
After completing the subject, the student:
• can write and cite an abstract, basic thesis outline
• able to conduct own research and analyze data,
• is able to present the results of his own research activities in the professional community.
• knows how to prepare and successfully defend the basic thesis.
Educational results - competences:
• Independence and creativity when preparing the thesis.

Brief syllabus:
Creating a bachelor project.
The structure of the basic thesis and the preparation of individual chapters of the basic thesis.
Specification of the assignment.
The current state of the problem (analysis).
Study and selection of applied methods and implementation tools.
Description of implementation and creation of implementation.

Evaluation of results (research or effectiveness).
Possibilities for further development of the application.
Summary, conclusion.
Citation styles (related ISO and STN standards).
The progress of the defense and opinions about the opinion of the opponent.
Preparation for the defense of the thesis.

Literature:
1. ISO STN 690: Dokumentácia -Bibliogarafické odkazy – Obsah, forma a štruktúra. 1998.
2. KATUŠČÁK, D.: Ako písať záverečné a kvalifikačné práce. Nitra : Enigma, 2008, 164 s. ISBN 978-80-89132-45-4.
3. KIMLIČKA, Š.: Ako citovať a vytvárať zoznamy bibliografických odkazov : podľa noriem ISO 690 pre „klasické" aj elektronické zdroje. Bratislava : Stimul, 2002, 82 s. ISBN 978-0-889-82-57-X.
4. Smernica rektora č. 2/2021 o úprave, registrácii, sprístupnení a archivácii záverečných prác na Univerzite J. Selyeho.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of student workload:
52% load - direct teaching
48% load - preparation for seminars

Evaluation of subjects

Total number of evaluated students: 1

A	B	C	D	E	FX
0.0	100.0	0.0	0.0	0.0	0.0

Teacher: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KJP/AIdb/ CJAI 1/22	**Name:** English language 1

Types, range and methods of educational activities:
 Form of study: Seminar
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 2.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 During the semester, students attend seminars. They are also required to prepare and give
 a presentation in small groups for 30% of the total points available. They write a written
 assessment for 70% of the total points available at the end of the semester.
 A minimum of 90% of the total score is required for an "A" grade, 80% for a "B" grade, 70% for
 a "C" grade, 60% for a "D" grade, and 50% for an "E" grade. Students will not receive credits if
 they score below 50% on the end-of-semester assessment.

Results of education:
 Knowledge:
 The grammatical knowledge necessary for fluent communication in a foreign language expands.
 According to the course syllabus, the student acquires knowledge required for successful
 communication in a foreign language at work in the subject areas. The student develops and
 possesses the professional vocabulary, peculiarities, forms, methods and tools for effective
 communication in a foreign language.
 Skills:
 The student develops language skills and can use a professional foreign language at the B1 level
 (CEFR).
 The student develops the ability to use written and oral communication tools effectively.
 The student understands written professional text in the subject areas of the syllabus in the
 foreign language.
 The student will understand professional speech in the thematic areas according to the course's
 syllabus in the foreign language.
 The student will conduct a conversation in a foreign language on topics and communicative
 functions covered in the course syllabus.
 The student develops skills in preparing and presenting reports in a foreign language.
 The graduate can work in teams.
 Competences:
 The student participates independently and responsibly in professional forums within and outside
 the organisation in a foreign language. The students express themself responsibly on professional
 topics in a foreign language.

Brief syllabus:
1. IT jobs and duties – vocabulary extension
2. Discussion: Talking about what IT companies do – IT businesses and products
3. Conversation and reading comprehension: current and the latest trends in IT (based on articles in magazines, journals and on the Internet)
4. Grammar: Present Simple and Continuous
5. Grammar: Questions in Present Tenses
6. Discussing IT workplace rules
7. Modal verbs in phrases like How about….., Perhaps…….. for making suggestions and disagreeing
8. Conversation and reading comprehension: current and the latest trends in IT (based on articles in magazines, journals and on the Internet)
9. The language of meetings – agreeing and disagreeing
10. The language of meetings – making suggestions
11. Vocabulary extension: Job advertisements in IT and applying for a job
12. Presentation of course assignments
13. Test

Literature:
1. HILL, D.: English for information technology 2. Pearson Education Limited, 2012. 80s. ISBN 9781408269909
2. Aktuálne články o najnovších trendoch v IT z odborných časopisov a z internetu
3. MURPHY, R. English Grammar in Use 5th Edition. Cambridge University Press, 2019. 390 s. ISBN 978-1-108-45765-1
4. MASCULL, B. 2018. Business Vocabulary in Use: Intermediate. 3rd ed. Cambridge University Press, 2018. 176 s. ISBN 131662997X
5. COTTON, D. – FALVEY, D. – KENT, S. Market Leader: Pre-intermediate Business English Course Book 3rd Edition Extra. Pearson Education Limited, 2016. 176 s. 978-1-2921-3479-6
6. DUDÁS, T. – KULCSÁR, ZS. – PISON, E. – SÁNTA, SZ. – SIMON, M. Angol-magyar-német-szlovák tematikus gazdasági szótár. (Anglicko-maďarsko-nemecko-slovenský tematický ekonomický slovník) Komárno: Pont Intézet, 2007. 181 s. ISSN 1336-135X

Language, knowledge of which is necessary to complete a course:
English

Notes:
Workload distribution:
active participation in seminars: 52%
preparation for seminars, independent study: 10%
preparation for written assessment: 8%
preparation and giving a presentation: 30%

Evaluation of subjects
Total number of evaluated students: 133

A	B	C	D	E	FX
30.83	19.55	20.3	13.53	13.53	2.26

Teacher: Mgr. Endre Hevesi, PhD., Mgr. Zsuzsanna Tóth, PhD.

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KJP/AIdb/ CJAI 2/22	**Name:** English language 2

Types, range and methods of educational activities:
 Form of study: Seminar
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 4.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
During the semester, students attend seminars. They are also required to prepare and give
a presentation in small groups for 30% of the total points available. They write a written
assessment for 70% of the total points available at the end of the semester.
A minimum of 90% of the total score is required for an "A" grade, 80% for a "B" grade, 70% for
a "C" grade, 60% for a "D" grade, and 50% for an "E" grade. Students will not receive credits if
they score below 50% on the end-of-semester assessment.

Results of education:
Knowledge:
The grammatical knowledge necessary for fluent communication in a foreign language expands.
According to the course syllabus, the student acquires knowledge required for successful
communication in a foreign language at work in the subject areas. The student develops and
possesses the professional vocabulary, peculiarities, forms, methods and tools for effective
communication in a foreign language.
Skills:
The student develops language skills and can use a professional foreign language at the B1 level
(CEFR).
The student develops the ability to use written and oral communication tools effectively.
The student understands written professional text in the subject areas of the syllabus in the
foreign language.
The student will understand professional speech in the thematic areas according to the course's
syllabus in the foreign language.
The student will conduct a conversation in a foreign language on topics and communicative
functions covered in the course syllabus.
The student develops skills in preparing and presenting reports in a foreign language.
The graduate can work in teams.
Competences:
The student participates independently and responsibly in professional forums within and outside
the organisation in a foreign language. The students express themself responsibly on professional
topics in a foreign language.

Brief syllabus:
1. Internet browsing – vocabulary extension
2. Guided conversation: Description of browsing problems, vocabulary expansion: websites and their parts
3. Conversation and reading comprehension: current and the latest trends in IT (based on articles in magazines, journals and on the Internet)
4. Present Simple vs Present Continuous
5. Computer networks: description of networks
6. Explaining the advantages of mobile devices
7. Grammar: conditional sentences
8. Guided conversation and reading comprehension: current and the latest trends in IT (based on articles in magazines, journals and on the Internet)
9. Grammar: the use of definite and indefinite articles
10. Business correspondence: the basic rules of writing e-mails and their structure
11. Writing of concrete e-mails
12. Presentation of course assignments
13. Test

Literature:
1. HILL, D.: English for information technology 2. Pearson Education Limited, 2012. 80s. ISBN 9781408269909
2. Aktuálne články o najnovších trendoch v IT z odborných časopisov a z internetu
3. MURPHY, R. English Grammar in Use 5th Edition. Cambridge University Press, 2019. 390 s. ISBN 978-1-108-45765-1
4. MASCULL, B. 2018. Business Vocabulary in Use: Intermediate. 3rd ed. Cambridge University Press, 2018. 176 s. ISBN 131662997X
5. COTTON, D. – FALVEY, D. – KENT, S. Market Leader: Pre-intermediate Business English Course Book 3rd Edition Extra. Pearson Education Limited, 2016. 176 s. 978-1-2921-3479-6
6. DUDÁS, T. – KULCSÁR, ZS. – PISON, E. – SÁNTA, SZ. – SIMON, M. Angol-magyar-német-szlovák tematikus gazdasági szótár. (Anglicko-maďarsko-nemecko-slovenský tematický ekonomický slovník) Komárno: Pont Intézet, 2007. 181 s. ISSN 1336-135X

Language, knowledge of which is necessary to complete a course:
English

Notes:
Workload distribution:
active participation in seminars: 52%
preparation for seminars, independent study: 10%
preparation for written assessment: 8%
preparation and giving a presentation: 30%

Evaluation of subjects
Total number of evaluated students: 66

A	B	C	D	E	FX
54.55	19.7	15.15	1.52	7.58	1.52

Teacher: Mgr. Endre Hevesi, PhD., Mgr. Zsuzsanna Tóth, PhD.

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KJP/AIdb/ CJAI 3/22	**Name:** English language 3

Types, range and methods of educational activities:
 Form of study: Seminar
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 6.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 During the semester, students attend seminars. They are also required to prepare and give
 a presentation in small groups for 30% of the total points available. They write a written
 assessment for 70% of the total points available at the end of the semester.
 A minimum of 90% of the total score is required for an "A" grade, 80% for a "B" grade, 70% for
 a "C" grade, 60% for a "D" grade, and 50% for an "E" grade. Students will not receive credits if
 they score below 50% on the end-of-semester assessment.

Results of education:
 Knowledge:
 The grammatical knowledge necessary for fluent communication in a foreign language expands.
 According to the course syllabus, the student acquires knowledge required for successful
 communication in a foreign language at work in the subject areas. The student develops and
 possesses the professional vocabulary, peculiarities, forms, methods and tools for effective
 communication in a foreign language.
 Skills:
 The student develops language skills and can use a professional foreign language at the B1 level
 (CEFR).
 The student develops the ability to use written and oral communication tools effectively.
 The student understands written professional text in the subject areas of the syllabus in the
 foreign language.
 The student will understand professional speech in the thematic areas according to the course's
 syllabus in the foreign language.
 The student will conduct a conversation in a foreign language on topics and communicative
 functions covered in the course syllabus.
 The student develops skills in preparing and presenting reports in a foreign language.
 The graduate can work in teams.
 Competences:
 The student participates independently and responsibly in professional forums within and outside
 the organisation in a foreign language. The students express themself responsibly on professional
 topics in a foreign language.

Brief syllabus:
1. Vocabulary extension: describing software requirements
2. User requirements: the use of should, have to, need to
3. Guided conversation and reading comprehension: current and the latest trends in IT (based on articles in magazines, journals and on the Internet)
4. Vocabulary extension: webdesign
5. Website architecture – guided conversation
6. Grammar: The passive voice
7. Speaking: description of website structure
8. Guided conversation and reading comprehension: current and the latest trends in IT (based on articles in magazines, journals and on the Internet)
9. Software development: describing of programming steps
10. Vocabulary extension: software development code
11. The use of make and cause while describing programs
12. Presentation of course assignments
13. Test

Literature:
1. HILL, D.: English for information technology 2. Pearson Education Limited, 2012. 80s. ISBN 9781408269909
2. Aktuálne články o najnovších trendoch v IT z odborných časopisov a z internetu
3. MURPHY, R. English Grammar in Use 5th Edition. Cambridge University Press, 2019. 390 s. ISBN 978-1-108-45765-1
4. MASCULL, B. 2018. Business Vocabulary in Use: Intermediate. 3rd ed. Cambridge University Press, 2018. 176 s. ISBN 131662997X
5. COTTON, D. – FALVEY, D. – KENT, S. Market Leader: Pre-intermediate Business English Course Book 3rd Edition Extra. Pearson Education Limited, 2016. 176 s. 978-1-2921-3479-6
6. DUDÁS, T. – KULCSÁR, ZS. – PISON, E. – SÁNTA, SZ. – SIMON, M. Angol-magyar-német-szlovák tematikus gazdasági szótár. (Anglicko-maďarsko-nemecko-slovenský tematický ekonomický slovník) Komárno: Pont Intézet, 2007. 181 s. ISSN 1336-135X

Language, knowledge of which is necessary to complete a course:
English

Notes:
Workload distribution:
active participation in seminars: 52%
preparation for seminars, independent study: 10%
preparation for written assessment: 8%
preparation and giving a presentation: 30%

Evaluation of subjects
Total number of evaluated students: 43

A	B	C	D	E	FX
41.86	20.93	25.58	9.3	2.33	0.0

Teacher: Mgr. Endre Hevesi, PhD., Mgr. Zsuzsanna Tóth, PhD., Mgr. Zsuzsa Sovinsky

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ DBA/22	**Name:** Database Application Development

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 0 / 0 / 2 **For the study period:** 0 / 0 / 26
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 4.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 During the semester, students solve practical problems for which they can get 50 points. At the end of the semester, students will complete a term project for which they may receive 50 points. To obtain grade „A" students have to obtain minimum 90% of the total score, to obtain grade „B" students have to obtain 80% of the total score, to obtain grade „C" students have to obtain 70% of the total score, to obtain grade „D" students have to obtain 60% of the total score, to obtain grade „E" students have to obtain 50% of the total score. There is no credit for the subject if a student obtains less than 50%.

Results of education:
 Knowledge:
 Upon successful completion of the course, students will get to know the principles and creation of dynamic websites. Students will learn to control the Visual Studio CODE development environment, .Net (core), SQLite and use these environments to create simple information systems. They also will get information about the possibilities of their use, their advantages and disadvantages, as well as about professional terminology in this field.
 Skills:
 Students will be able to create a web application with a connection to a database system. Students will be able to establish a connection between a client and a server using standard REST commands (GET, PUT, WebSocket). Students will learn common application patterns such as login, user management, remembering login in the browser. Students will be able to design independently web application architecture, implement the server and client parts as well as implement communication protocols between components.
 Competencies:
 The student is able to create interactive web applications. The student can use gained skills as a web developer, as a developer of a complete web solution (full-stack developer), as a developer of web database solutions, administrative pages or company websites. The student can also use his skills as a system developer to visualize information, to create information aggregations and to represent information.

Brief syllabus:

- Design pattern model-display-control. Working with the .NET System (Core). Creating a basic web, webapi and mvc project. Creating a simple page.
- Request information from the client to the server using a GET request. Query parameters and usage examples.
- Request information from the client from the server using a POST request. Query parameters and usage examples.
- Checking the client from the server. Propagation of information and events from the server to the client. Communication system using long polling.
- Checking the client from the server. Communication using WebSocket.
- Checking the client from the server. Communication using SignalR.
- Upload files. Sending files to the server.
- Saving information on the client side using cookies.
- SQLite as a nested database.
- Connection of the .Net (Core) system with the SQLite database.
- Creating a web link using control object annotation.
- JSon web communication container format.
- Sending objects between client and server in JSON format.

Literature:
Rob Miles (2019). C# Programming. Yellow Book "Cheese" Edition 8.1
Svetlin Nakov et al (2013). Fundamentals of Computer Programming with C#. Sofia ISBN 978-954-400-773-7
Samuele Resca (2019). Hands-On RESTful Web Services with ASP.NET Core 3: Design production-ready, testable, and flexible RESTful APIs for web applications and microservices. ASIN : B07MXLQR34

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Student Load Sharing:
35% of the workload - direct teaching
30% of the workload - preparation for exercises
35% of the workload – work on the semester project

Evaluation of subjects
Total number of evaluated students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Teacher: László Marák, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University	
Name of the faculty: Faculty of Economics and Informatics	
Code: KINF/AIdb/ DBS/22	Name: Database Information Systems

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 1 / 0 / 2 **For the study period:** 13 / 0 / 26
 Methods of study: present

Number of credits: 6

Recommended semester/trimester of study: 4.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 During the semester, students write two written papers, which are evaluated as a percentage. Students must achieve a score of at least 50% for both written papers in order to take the exam. During the semester, students work independently on a semester assignment or project (database management assignment). The combined exam consists of a written and oral part. To pass the exam, students must achieve at least 50% in the oral exam. The students are classified based on the obtained average, which includes the continuous performance of the semester, the work of the semester project and the result of the exam.
 A grade is at least 90 points, B grade is at least 80 points, C grade is at least 70 points, D grade is at least 60 points and E grade is at least 50 points. A student who scores less than 50 points cannot receive credit.

Results of education:
 Educational results - knowledge:
 After completing the subject, the student:
 • knows terms related to databases and their management.
 • knows the characteristics of different database systems, the design of relational databases, the SQL language, the principles of creating forms and reports.
 Learning outcomes - skills:
 After completing the subject, the student:
 • knows how to manage, use, query and create database systems.
 Educational results - competences:
 After completing the subject, the student:
 • able to solve data management tasks using a database management system, formulate queries, prepare reports and forms.

Brief syllabus:
 1. Basic concepts of database management, SQL language.
 2. Relational data model, one-table SQL query.
 3. Diagram of Entity-relationships, one-table complex queries in SQL.
 4. Conversion of the diagram of relations into a relational database scheme, SQL query aggregation.
 5. Normal forms, functional dependencies, multi-table SQL queries.

6. Decomposition into normal form, SQL queries using subqueries.
7. Creating databases, handling null values in SQL.
8. Updating data in SQL.
9. Management of access privilages and transactions.
10. Use of a database management system, data entry.
11. Use of a database management system, querying data.
12. Use of a database management system, creating forms.
13. Use of a database management system, creating reports.

Literature:
1. BALÁZS, P. – NÉMETH, G.: Adatbázisok. [Digitális Tankönyvtár]. Online dostupné: https://dtk.tankonyvtar.hu/xmlui/bitstream/handle/123456789/13212/adatbazisok.pdf
2. BÁRTFAI, B. – BUDAVÁRI, O.: Adatbázis-kezelés. BBS-INFO Kft., 2002. - 138 s. - ISBN 9630034441.
3. RESCA, S. (2019). Hands-On RESTful Web Services with ASP.NET Core 3: Design production-ready, testable, and flexible RESTful APIs for web applications and microservices. ASIN ‏ : ‎ B07MXLQR34
4. KOLOSZÁR, L. – TÓTH, Zs.: Adatbázis-kezelés. Nyugat-magyarországi Egyetem, 2012.
5. https://baranyilaszlozsolt.com/pciskola/Adatbazis_80.o.pdf

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of student workload:
31% of the load - direct teaching
21% of the load - preparation for lectures and exercises
19% of the load - work on a semester project
29% of the load - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 7

A	B	C	D	E	FX
28.57	0.0	28.57	42.86	0.0	0.0

Teacher: Dr. habil. Attila Elemér Kiss, CSc.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ DEI/22	**Name:** History of Informatics and ICT

Types, range and methods of educational activities:
 Form of study: Seminar
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 1.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 Over the course of the semester, students study the history of computing and computer science
 from relevant book sources and the Internet. There are 2 quizzes during the semester that each
 student must take. The course ends with an exam. Grading is determined by the average of the 2
 tests, each of which a student must pass at least 50% to be admitted to the exam.
 The student is classified according to the average obtained in the tests (50%) and the exam
 (50%). A score of at least 90% is required for a grade of A, at least 80% for a grade of B, at least
 70% for a grade of C, at least 60% for a grade of D, and at least 50% for a grade of E. Credit will
 not be awarded for a course if the student is not at least 50% successful.

Results of education:
 Knowledge: Students will know the tools and methods used to store and organize data in
 the development of computer science and computing. They know the history of computing,
 computers and computer science. Students know the basic principles of operation and basic
 concepts of not only computers but also their peripherals. They know the personalities who have
 contributed substantially to the development of computer science, computing and information
 and communication technologies not only on a global but also on a national scale.
 Skills: Upon successful completion of the course, students will be prepared to recognize and use
 the methods and tools they have learned and will be able to learn about new developments. They
 will be able to work independently, study the literature, present results and critically evaluate
 them.
 Competences: Upon successful completion of the course, students will be prepared to use the
 methods and tools they have learned. They understand the links between the development of the
 underlying fields of computer science and computing itself.

Brief syllabus:
 1. The development of counting from antiquity to the Middle Ages (tools used).
 2. Demonstration of mechanical devices supporting the performance of the four basic operations
 (modern era).
 3. Demonstration of mechanical devices supporting the performance of the four basic operations
 (recent era).
 4. The transmission system invented by Charles Babbage.

5. Computing tools developed in the early 20th century.
6. Electromechanical devices used during World War II. 7. The first computer developed by John von Neumann.
8. The computer generation.
9. Punch plate, punch tape, method of entering all data. 10. Magnetic data storage, magnetic tape, HDD, optical data storage.
11. Development of processors, increasing computing capacity.
12. Data display modes (cathode ray tube monitors, needle printers, dot matrix and serial printers)

Literature:
1. STOFFA, V. a kol.: Az informatika alapjai I. (Základy informatiky I.) 1. vyd. Komárno : Univerzita J. Selyeho, 2007. 369 s. ISBN 978-80-89234-29-5
2. STOFFOVÁ, V. a kol. Informatika, informačné technológie a výpočtová technika. Terminologický a výkladový slovník. Nitra : FPV UKF, 2001. 230 s. ISBN 80-8050-450-4.
3. ZELENÝ, J. – MANNOVÁ, B. Historie výpočetní techniky. Praha : Scientia, 2006. 184 s. ISBN 80-86960-04-8.
4. STOFFA, V.: Információs és kommunikációs technológiák a gyakorlatban I. Komárno 2008, Valeur, 321 str. ISBN 978 80 89234 69 1.
5. STOFFA, V.: Informačné a komunikačné technológie v praxi I. Komárno 2008, Valeur, 321 str. ISBN 978 80 89234 69 1.
6. KATONA GYULA Y. : A számítástudomány alapjai. Typotex Elektronikus Kiadó Kft., 2002, 192 s. ISBN 963 9326 24 0.
7. ZWETLER, O. – NEČAS, C. Dejiny věd a techniky I. Brno : MU, 1992. 97 s. ISBN 80-210-0401-0.
8. DLUHOŠ, J. – VALA, M. Vybrané kapitoly z dejín techniky. Ostrava : PdF OU, 1996. 61 s. ISBN 80-7042-112-6.
9. HOUDEK, F. Objevy a vynálezy tisíciletí. Praha : NLN, 2002. 456 s. ISBN 80-7106-475-0.
10. PATURI, F. Kronika techniky. Bratislava : Fortuna Print, 1993. 654 s. ISBN 80-7153-065-4.
11. REID, S. Vynálezy a objevy. Ostrava : Blesk, 1994. 128 s. ISBN 80-85606-52-6.
12. ZEITHAMMER, K. Vývoj techniky. 2. vyd. Praha : ČVUT, 1998. 274 s. ISBN 80-01-01725-7.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of students' workload:
52% of the workload - direct teaching,
48% of the workload - preparation for seminars.

Evaluation of subjects
Total number of evaluated students: 10

A	B	C	D	E	FX
0.0	10.0	30.0	20.0	20.0	20.0

Teacher: PaedDr. Márk Csóka, Dr. habil. Dr. Gábor Kiss, PhD.

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KMAT/AIdb/ DM1/22	**Name:** Discrete Mathematics 1 - Set theory, combinatorics, Boolean algebra

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar
 Recommended extent of course (in hours):
 Per week: 1 / 2 **For the study period:** 13 / 26
 Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 2.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
There will be two written examinations of 20 points each during the semester. The course will end with an exam, which can score 60 points. A minimum of 90 points is required for a grade of A, a minimum of 80 points for a grade of B, a minimum of 70 points for a grade of C, a minimum of 60 points for a grade of D, and a minimum of 50 points for a grade of E. Credit will not be awarded to a student who achieves less than 50 points.

Results of education:
After successful completing of the course, the student knows the basic knowledge of set theory, combinatorics, mathematical logic and Boolean algebra.
Knowledge:
- Knows the abstract concepts related to the topics mentioned in the course information sheet, the requirements for their definition and the relationships between them. Recognizes the general schemes and concepts involved in applied problems.
- Knows the principles and basic methods of mathematical proof.
- Knows how to illustrate concepts using relevant examples.
Skills:
- Can formulate logical, true mathematical propositions with precise specification of their conditions and main consequences.
- Can abstract from the concrete form of problems, can formulate them in abstract, general form for the purpose of analysis and solution.
- Can construct mathematical models of simpler practical problems and search for and elaborate relevant mathematical tools and procedures for their solution.
Competences:
- Is able to independently expand his/her mathematical knowledge, acquire new mathematical knowledge.
- Demonstrates a high degree of independence in solving problems in areas of mathematics - Works effectively as an individual, member or leader of a small team.

Brief syllabus:
 - Introduction to Discrete Mathematics, Peano's axioms, principle of mathematical induction.
 - Set theory - basic concepts, operations with sets.

- Relations and mappings, product of mappings, equivalence relation.
- Cardinality of sets, finite and infinite sets, countable sets.
- Combinatorics - combinations and variations (with and without repetition)
- Permutations (with and without repetition), combinatorial identities. - Binomial and polynomial theorem.
- Principle of inclusion and exclusion, Dirichlet theorem.
- Expressions and operations on them, tautologies.
- Boolean algebra - functions of two-valued logic, realization of functions by formulas.
- Equivalence of formulas, properties of elementary functions, principle of duality
- Decomposition of Boolean functions by variables, total disjunctive normal form.
- Functional completeness and closedness, most important closed classes, completeness theorem.
- Minimization of Boolean functions.

Literature:
• JABLONSKIJ, S. V.: Úvod do diskrétnej matematiky. Bratislava : Alfa, 1984., 278 s.
• JABLONSKIJ, S. V. a kol.: Diszkrét matematika a számítástudományban. Budapest : Műszaki Könyvkiadó, 1980. 354 s. ISBN 978-963-1025-99-3
• SZENDREI, Á.: Diszkrét matematika. Szeged : Polygon, 1998. 380 s. ISSN 1417-0590.
• LOVÁSZ, L.: Kombinatorikai problémák és feladatok. Budapest : Typotex, 2008. 670 s. ISBN 978-963-9664-93-7.
• LOVÁSZ, L. – VESZTERGOMBI, K. – PELIKÁN, J.: Diszkrét matematika. Budapest : Typotex, 2006. 292 s. ISBN 978-963-9664-02-9.
• NÉMETH, K. M.: Diszkrét matematikai feladatok. Budapest : Polygon, 2005. 218 s. ISSN 0013584

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:
Distribution of student workload:
32% of the workload - direct teaching,
18% of the workload - preparation for lectures and exercises,
26% of the workload - preparation for examinations,
24% of the workload - preparation for examinations.

Evaluation of subjects
Total number of evaluated students: 76

A	B	C	D	E	FX
13.16	7.89	18.42	11.84	22.37	26.32

Teacher: prof. László Szalay, DSc., Mgr. Szilárd Svitek

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KMAT/AIdb/ DM2/22	**Name:** Discrete Mathematics 2 - Graph Algorithms

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 2 / 0 / 2 **For the study period:** 26 / 0 / 26
 Methods of study: present

Number of credits: 6

Recommended semester/trimester of study: 4.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
Continuous assessment during the semester: 50% of the total grade. There will be two written examinations of 15 points each during the semester. During the semester, students work independently on a semester project (implementation of a graph algorithm); a total of 20 points can be earned for submitting the finished software (electronically and with documentation). Students must earn at least 50% on the midterm grade. Exam: 50% of the total grade. The course will be completed by a written examination in which 50 points may be received. A score of at least 50% on the exam is required to pass. The overall grade is the sum of the scores from the midterm assessment and the final exam. A minimum of 90 points is required for an A grade, a minimum of 80 points for a B grade, a minimum of 70 points for a C grade, a minimum of 60 points for a D grade and a minimum of 50 points for an E grade. Credit will not be awarded to a student who achieves less than 50 points.

Results of education:
Learning outcomes
Knowledge:
- After completing the course the student knows the basic structures of graph theory,
- knows the basic graph algorithms. Learning Outcomes
Skills:
- The student is able to apply the acquired knowledge in solving practical problems,
- is able to implement basic graph algorithms.
Competences:
- The student can work effectively independently,
- has an active and responsible approach to completing tasks within the course.

Brief syllabus:
- Introduction to graph theory, basic concepts
- Graph representations
- neighborhood list, edge list, neighborhood matrix, incidence matrix.
- Traces, moves and paths in graphs
- Eulerian paths and Eulerian circuits.
- Browsing graphs - breadth and depth search.

- Hamiltonian graphs, the role of the trade traveller.
- Equality and isomorphism of graphs.
- Trees, Prüfer code, binary trees, binary tree search algorithms (forward, center and backward search)
- Skeletons, minimum skeleton search algorithms
- Kruskal's algorithm and Prim's algorithm.
- Shortest path search algorithms
- Dijkstra's algorithm, Bellman-Ford algorithm.
- Algorithm for finding shortest paths between all pairs of vertices
- Floyd's algorithm.
- Bipartite graphs, maximum-weight matching problems, Hungarian matching method.
- Flows in graphs, maximum flow search algorithms (Ford-Fulkerson algorithm, Edmonds-Karp algorithm)
- Planar graphs and graph coloring

Literature:
• KÁTAI, Z.: Gráfelméleti algoritmusok. Cluj-Napoca : Scientia Kiadó, 2008. 248 s. ISBN 978-973-7953-95-7.
• HAJNAL, P.: Gráfelmélet. Szeged : Bolyai Intézet, 2003, 308 s. ISBN 000-2465.
• FRIEDL, K – RECSKI, A. – SIMONYI, G.: Gráfelméleti feladatok. Budapest : Typotex, 2006, 300 s. ISBN 963-9664-01-4.
• PALÚCH, S.: Algoritmická teória grafov. Žilina : Žilinská univerzita v Žiline, 2008. 274 s. Dostupné na: https://frcatel.fri.uniza.sk/users/paluch/grafy.pdf
• MILKOVÁ, E.: Teorie grafů a grafové algoritmy. Hradec Králové : Gaudeamus, 2013. 123 s. ISBN 978-80-7435-267-6.
• SAHA RAY, S.: Graph theory with algorithms and its applications : In applied science and technology New Delhi : Springer, 2013. 214 s. ISBN 978-81-322-0749-8.

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:
Distribution of student workload:
35% of the workload - direct teaching,
15% of the workload - preparation for lectures and exercises,
25% of the workload - work on programming assignments,
25% of the workload - exam preparation.

Evaluation of subjects
Total number of evaluated students: 7

A	B	C	D	E	FX
0.0	0.0	14.29	28.57	57.14	0.0

Teacher: prof. László Szalay, DSc., RNDr. Štefan Gubo, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KEK/AIdb/ EK1/22	**Name:** Economics 1

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar
 Recommended extent of course (in hours):
 Per week: 1 / 1 **For the study period:** 13 / 13
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 1.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 Successful completion of the final written test at the end of the semester. To obtain evaluation A is necessary at least 90% of the maximum score of the final review, to obtain evaluation B at least 80%, for the assessment of at least 70% C, D for the assessment of at least 60%, and the evaluation E at least 50% of the maximum points. Credit won't be granted to a student who did not receive at least 50% of the maximum of score on the written test.

Results of education:
 Knowledge:
 He has mastered the basic theories and characteristics of the micro and macro levels of organization of the economy, he has the basic methods of information gathering, mathematical and statistical analysis
 Knows the basic concepts, theories, facts, national economic and international contexts of economics in relation to relevant economic actors, functions and processes.
 He has a basic professional vocabulary in economics in the language of the study program and in at least one foreign language.
 Skill:
 Using the theories and methods learned, it explores, systematizes and analyzes facts and fundamental contexts, formulates independent conclusions and critical remarks, makes decision-making proposals and makes decisions.
 Able to determine the complex consequences of economic processes and organizational events.
 Can apply economic problem solving techniques, problem solving methods, their application conditions and limitations.
 Competence:
 Under general professional supervision, he / she performs and organizes the tasks specified in the job description independently.
 It is responsible for its analyzes, conclusions and decisions.
 In an economic organization, in an economic position, it organizes, manages and controls economic activity according to its qualifications.

Brief syllabus:
 The basics of microeconomic theory

2. The state as a market balance factor - demand, supply, market balance
3. The theoretical basics of consumption, consumer preferences
4. General characteristics of the utility functions, maximum utility
5. The consumer's optimal choice - changes in income, changes in unit prices, consumer surplus
6. Price elasticity, income elasticity, cross-price elasticity
7. The basics of supply theory - companies
8. Costs, revenues, profits of companies
9. Enterprises and market structures - perfect competition
10. The company's offerings - supply curve
11. Monopoly, oligopoly
12 Taxation – consumption, production of goods and services
13. Support – consumption, production of goods and services

Literature:

KORCSMÁROS, E. – GÓDÁNY, ZS. – ZSIGMOND, T. Közgazdaságtan I. – Mikroökonómia, Univerzita J. Selyeho, Fakulta ekonómie a informatiky, 2021, ISBN XXXXXX

KORCSMÁROS, E. - SERES HUSZÁRIK, E. - GÓDÁNY, ZS. Közgazdaságtan praktikum Univerzita J. Selyeho - Ekonomická fakulta, Komárno, 2019, ISBN 978-80-8122-297-9

LISÝ, J. a kol. Ekonomický rast a ekonomický cyklus (Teoretické a praktické problémy). Bratislava: Iura Edition, 2011. 273 s. ISBN 978-80-8078-405-8

JUREČKA, V. Mikroekonomie. Praha: Grada Publishing, 2010. 360. s. ISBN 978-80-247-3259-6

FENDEKOVÁ, E. a kol. Zbierka príkladov z mikroekonómie. Bratislava: Iura Edition, 2009. 200 s. ISBN 978-80-8078-242-9

FENDEK, M. – FENDEKOVÁ, E. Mikroekonomická analýza. Bratislava: Iura Edition, 2008. 575 s. ISBN 978-80-8078-180-4

VARIAN, H. L. Mikroökonómia középfokon. Budapest: Akadémia Kiadó, 2005. 745 s. ISBN 963-05-8308-9

Language, knowledge of which is necessary to complete a course:
Hungarian and Slovak language

Notes:
Student workload distribution:
60% load - lectures, seminar work and exam preparation
40% load - solving individual tasks, practicing the acquired knowledge, studying the literature

Evaluation of subjects
Total number of evaluated students: 115

A	B	C	D	E	FX
9.57	11.3	6.96	24.35	20.0	27.83

Teacher: PhDr. Enikő Kahler Korcsmáros, PhD.

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics

Code: KEK/AIdb/ EK2/22	**Name:** Economics 2

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar
 Recommended extent of course (in hours):
 Per week: 1 / 1 **For the study period:** 13 / 13
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 2.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 Successful completion of the final written test at the end of the semester. To obtain evaluation A is necessary at least 90% of the maximum score of the final review, to obtain evaluation B at least 80%, for the assessment of at least 70% C, D for the assessment of at least 60%, and the evaluation E at least 50% of the maximum points. Credit won't be granted to a student who receive 49% or less from the maximum of score on the written test.

Results of education:
 Knowledge:
 He has mastered the basic theories and characteristics of the micro and macro levels of organization of the economy, he has the basic methods of information gathering, mathematical and statistical analysis
 Knows the basic concepts, theories, facts, national economic and international contexts of economics in relation to relevant economic actors, functions and processes.
 He has a basic professional vocabulary in economics in the language of the study program and in at least one foreign language.
 Skill:
 Using the theories and methods learned, it explores, systematizes and analyzes facts and fundamental contexts, formulates independent conclusions and critical remarks, makes decision-making proposals and makes decisions.
 Able to determine the complex consequences of economic processes and organizational events.
 Can apply economic problem solving techniques, problem solving methods, their application conditions and limitations.
 Competence:
 Under general professional supervision, he / she performs and organizes the tasks specified in the job description independently.
 It is responsible for its analyzes, conclusions and decisions.
 In an economic organization, in an economic position, it organizes, manages and controls economic activity according to its qualifications.

Brief syllabus:
 1. Basic concepts of macroeconomic theory. Alternative approaches to macroeconomics.

2. Possibilities and methods of measuring economic performance. Determination and calculation of GDP.
3. The function of production, the demand and supply of labor. Intertemporal approach, production, income distribution, interest rate.
4. Theory of economic growth. Long-term growth: Solow model
5. Employment, unemployment - labor market, causes and forms of unemployment, unemployment rate and its correlations. Unemployment trends in Slovakia.
6. The concept, role and forms of money, inflation. Alternative theories of money supply and demand.
Money multiplier.
7. Monetary policy. Money market equilibrium. Baumol-Tobin model.
8. Aggregate demand. AD-AS model.
9. The impact of monetary and fiscal policy on aggregate demand and an overview of aggregate supply and theoretical concepts.
10. IS-LM model.
11. Different models of aggregate supply.
12. Inflation and unemployment. Phillips curve and its interpretation.
13. Keynes model. Savings and use of investments. Consumption function, consumption theories.

Literature:
KORCSMÁROS, E. - SERES HUSZÁRIK, E. - GÓDÁNY, ZS. Közgazdaságtan praktikum
Univerzita J. Selyeho - Ekonomická fakulta, Komárno, 2019, ISBN 978-80-8122-297-9
LISÝ, J. a kol. Ekonomický rast a ekonomický cyklus (Teoretické a praktické problémy).
Bratislava: Iura Edition, 2011. 273 s. ISBN 978-80-8078-405-8
JUREČKA, V. Makroekonomie. Praha: Grada Publishing, 2010. 332. s. ISBN
978-80-247-3258-9
LISÝ, J. a kol. Ekonómia v novej ekonomike. Bratislava: Iura Edition, 2005. 622 s. ISBN
80-8078-063-3
TÁNCOŠOVÁ, J. a kol. Ekonómia v novej ekonomike (Metodická pomôcka na semináre).
Bratislava: Iura Edition, 2005. 80 s. ISBN 80-8078-064-1
MISZ, J. Makroökonómia feladatgyűjtemény. Budapest: Panem Kiadó, 2004. 188 s. ISBN
963-545-434-1
MANKIW, N. G. Makroökonómia. Budapest: Osiris Kiadó, 2002. 566 s. ISBN 9633794188

Language, knowledge of which is necessary to complete a course:
Slovak language and Hungarian language

Notes:
Student workload distribution:
60% load - lectures, seminar work and exam preparation
40% load - solving individual tasks, practicing the acquired knowledge, studying the literature

Evaluation of subjects
Total number of evaluated students: 234

A	B	C	D	E	FX
20.94	20.51	14.1	19.66	10.68	14.1

Teacher: PhDr. Enikő Kahler Korcsmáros, PhD.

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University	
Name of the faculty: Faculty of Economics and Informatics	
Code: KINF/AIdb/ GED/22	**Name:** Computer Graphics - Graphics Editors

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 0 / 0 / 2 **For the study period:** 0 / 0 / 26
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 3.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 During the semester, students' activity on the laboratory exercises is evaluated (with maximum score of 25 points). During the semester, students independently work on 3 semester projects (Gimp, Inkscape and Blender), for which a total of 75 points can be obtained. The output of each project should be a tutorial. At the end of the semester, the students submit the finished tutorials in the form of a video together with documentations in text files, and these are evaluated.
 To receive grade A in the course, student must obtain at least 90 points, for grade B at least 80 points, for grade C at least 70 points, for grade D at least 60 points and for grade E at least 50 points. Credits will not be given to a student who obtain less than 50 points.

Results of education:
 After completing the subject, the student:
 Knowledge:
 • has practical knowledge of raster graphics, vector graphics and 3D graphics.
 Skills:
 • is able to use raster, vector and 3D graphics editors at an advanced level,
 • is able to edit digital photography, work with tools, layers, filters, adjustments and effects,
 • is able to edit, create 3D models and animations,
 • is able to edit video files.
 • knows the rules of creation of documentations for semester projects.
 Competencies:
 • is able to work independently and efficiently with graphics editors.

Brief syllabus:
 Basic terms of Computer graphics – vector and raster graphics, graphics file formats.
 Computer graphics tools.
 Raster graphics, overview of raster graphics editors (Paint.NET, Gimp).
 Color models of RGB, CMYK. Color coding. Creation of a color palette.
 Raster image creation and processing.
 Working with adjustments and effects. Installing new plugins.
 Digital photo editing.
 Vector graphics, overview of vector graphics editors (Inkscape).

Vector image creation and processing.
3D graphics, overview of 3D graphics editors (Blender).
3D graphics creation and processing.
Creation and processing of animations.
Processing of video recordings.

Literature:
TAKÁČ, O.: A számítógépes grafika. Komárno : Univerzita J. Selyeho, 2016. 370 p. ISBN 978-80-8122-182-8.
SZIRMAY-KALOS, L.: Számítógépes grafika. Budapest : ComputerBooks. 2003, 334 p. ISBN 978-963-6182-08-6.
NĚMEC, P.: GIMP 2.8 : Uživatelská příručka pro začínající grafiky. Brno : Computer Press, 2013. 272 p. ISBN 978-80-251-3815-1.
ŠIMČÍK, P.: Inkscape : Praktický průvodce tvorbou vektorové grafiky. Brno : Computer Press, 2013. 296 p. ISBN 978-80-251-3813-7.
POKORNÝ, P.: Blender : naučte se 3D grafiku. Praha : BEN - technická literatúra, 2009. 286 p. ISBN 978-80-7300-244-2.
BELAN, A.: Blender - malý úvod do 3D modelovania a animácie. Bratislava, 2008. Link: http://www.smnd.sk/anino/moje/blender/Blender.pdf
Paint.NET, https://forums.getpaint.net/
Gimp, https://www.gimp.org/tutorials/
Inkscape, https://inkscape.org/forums/
Blender, Blender 3.0 Reference Manual, Link: https://docs.blender.org/manual/en/latest/index.html

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of the student's workload:
35% of the workload - direct teaching
30% of the workload - preparation for laboratory exercises
35% of the workload - work on the semester projects

Evaluation of subjects
Total number of evaluated students: 6

A	B	C	D	E	FX
0.0	100.0	0.0	0.0	0.0	0.0

Teacher: RNDr. Štefan Gubo, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University

Name of the faculty: Faculty of Economics and Informatics

Code: KEK/AIdb/ HOP/22	**Name:** Economic Law

Types, range and methods of educational activities: **Form of study:** Lecture / Seminar   **Recommended extent of course (in hours):**   **Per week:** 2 / 0 **For the study period:** 26 / 0   **Methods of study:** present

Number of credits: 3

Recommended semester/trimester of study: 4.

Level of study: I.

Prerequisites:

Conditions for passing the subject: Successfully written written assessment at the end of the semester worth 100 points. To obtain the A rating, the maximum score that can be obtained is min. 90% must be achieved, min. 80% for grade B and min. 70%, at least 60% for grade D and at least 50% for grade E. Credits for a subject will not be awarded to a student who achieves less than 50% of the maximum score that can be obtained.

Results of education: Knowledge: Knows the basic concepts, theories, facts, national economic and international contexts of economics in relation to relevant economic actors, functions and processes.   He has a basic professional vocabulary in economics in the language of the study program and in at least one foreign language.   He is aware of the principles and methods for setting up organizations and institutions, and for shaping and changing their organizational behavior.   Skill: It follows and interprets the world economic and international business processes, changes in economic policy, related policies and legislation, their effects, and takes them into account in its analyzes, proposals and decisions.   Able to collaborate with other disciplines.   He presents the professional proposal and position professionally formulated conceptually and theoretically, orally and in writing, in the language of the study program and in a foreign language, according to the rules of professional communication.   Competence: It is responsible for its analyzes, conclusions and decisions.   It is responsible for complying with professional, legal and ethical standards and regulations related to work and conduct.   He gives lectures and conducts discussions independently. Participates independently and responsibly in the work of professional forums inside and outside the business organization.

Brief syllabus:

1. The concept, subject matter, sources of law, internal system and systematization of commercial law; the relationship between commercial law and civil law.
2. Legal forms of legal persons (entrepreneurs).
3. The Commercial Register; the list of contractors.
4. Limited Liability Company.
5. The general partnership.
6. The joint stock company.
7. The cooperative.
8. General regulation of commercial obligations.
9. The concept of breach of contract and limitation.
10. The contract of sale.
11. The Contractor Contract.
12.Contract (contract type contracts).
13. The contract of carriage and the contract of carriage.

Literature:
1. OVEČKOVÁ, O. a kol. Obchodný zákonník, komentár, Bratislava: IuraEdition, 2005, 2192 s. ISBN 9788080784348
2. KUBÍČEK, P. - MAMOJKA, M. a kol. Obchodné spoločnosti, Bratislava: MANZ aVO PF UK, 1999, 179 s. ISBN 80-85719-25-8
3. KUBÍČEK, P. Teória obchodného práva, Bratislava: VO PF UK, 2004, 106 s. ISBN80-7160-186-1
4. ŽITŇANSKÁ, L. Ochrana menšinových akcionárov v práve obchodných spoločností,Bratislava: Iura Edition, 2000, 218 s. ISBN 80-88715-84-9

Language, knowledge of which is necessary to complete a course:
Slovak Language

Notes:

Evaluation of subjects
Total number of evaluated students: 144

A	B	C	D	E	FX
19.44	9.72	22.22	24.31	21.53	2.78

Teacher: JUDr. Ing. Gabriel Katona, PhD.

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ INB/22	**Name:** Information Security

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 2 / 0 / 1 **For the study period:** 26 / 0 / 13
 Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 6.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
Continuous assessment during the semester: 60% of the total assessment. At the end of the semester students write exam for which a maximum of 30 points can be obtained. Students work independently on a semester project during the semester, for the submission and presentation of which a total of 30 points can be earned.
Exam: 40% of the total assessment. The subject ends with a written exam for which 40 points can be obtained. At least 50% of the exam evaluation is required to pass the exam.
In addition to contact teaching, students prepare for practical lessons, written exams, work on their semester projects, and prepare for the exam.
The cumulative assessment consists of the sum of the points of the continuous assessment and the final exam. A minimum of 90 points, B minimum of 80 points, C minimum of 70 points, D minimum of 60 points and E minimum of 50 points are required. A student who collects less than 50 points will not receive credit.

Results of education:
Educational results – knowledge:
After completing the subject, the student:
• acquires the basic concepts and principles of information security,
• knows the concepts of information security,
• knows the security issues of operating systems and web applications,
• knows the issue of network security, especially with regard to attacks and security mechanisms,
• knows basic cryptographic algorithms and protocols.
Educational outcomes – skills:
• student is able to present security problems and propose solution procedures,
• student is able to assess the security of operated computer systems and networks,
• student knows the rules for the correct preparation of the documentation required for practical tasks.
Educational results – competences:
• student can work effectively independently,
• student has an active and responsible attitude towards the completion of subject tasks.

Brief syllabus:

Introduction to information security. The importance and basic issues of information security.
Concepts of information security, CIA, AAA, TRV, TLA. Principles of information security.
Security during the operation of the systems.
Malware. Software security. Basic principles of secure programming.
Security of operating systems.
Security of browsers and web applications.
Security of mobile platforms and cloud systems.
Network security threats. Firewalls and network attack detection systems.
Cryptographic algorithms and protocols.
Secure communication protocols. Protection of privacy. Risk management and information security guidelines.

Literature:
THOMAS, T.: Hálózati biztonság. Budapest : Panem kft., 2006. 407 p. ISBN 978-963-545-425-2.
TANENBAUM, A. S.: Modern Operating Systems. Upper Saddle River, NJ : Pearson Prentice-Hall, 2009. 1076 p. ISBN 978-0-13-813459-4.
KATZ, J. – LINDELL, Y.: Introduction to Modern Cryptography. London : A Chapmqan & Hall Book, 2014. 583 p. ISBN 978-1-4665-7026-9.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
The student load distribution:
31% of the load - direct teaching,
21% of the load - preparation for lectures and exercises,
21% of the load - work on a semester project,
27% of the load - preparation for the exam.

Evaluation of subjects
Total number of evaluated students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Teacher: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University	
Name of the faculty: Faculty of Economics and Informatics	
Code: KINF/AIdb/ IOT/22	**Name:** Introduction to IoT Systems and Cloud Computing

Types, range and methods of educational activities:
Form of study: Lecture / Seminar / Practical **Recommended extent of course (in hours):** **Per week:** 1 / 0 / 1 **For the study period:** 13 / 0 / 13 **Methods of study:** present

Number of credits: 4
Recommended semester/trimester of study: 5.
Level of study: I.
Prerequisites:

Conditions for passing the subject:
During the semester, there will be two written examinations of 25 points each. During the semester, students work independently on a semester project, for which they can receive a total of 50 points. Students must obtain at least 50% from both written examinations, and at least 50% from the evaluation of the semester project. In addition to contact teaching, students prepare for exercises, prepare for written examinations and work on their semester projects. It is necessary to get at least 90 points to get an A rating, at least 80 points for a B rating, at least 70 points for a C rating, at least 60 points for a D rating and at least 50 points for an E rating. Credits will not be awarded to a student who earns less than 50 points.

Results of education:
Education outcomes – knowledges: After completing the subject, the student: • knows the principles of cloud technologies, • knows the basic pillars of cloud services, • knows the structure and characteristics of cloud architectures, • knows the principles and techniques of virtualization, • principles and means of developing cloud systems, • knows the means of testing cloud systems, • knows IoT and basic concepts, • knows available sensors and other IoT devices, • knows IoT communication protocols, • knows the security issues of IoT and cloud systems. Education outcomes - skills: • can create cloud services on available cloud platforms, • can configure the created cloud services, • can create and run own cloud services, • can create and use virtual servers, • can ensure data transfer between IoT devices and cloud services. Education outcomes - competences: • can use virtualization techniques.

• can use cloud services.
• can program IoT devices and integrate them into cloud systems.

Brief syllabus:
Basics of cloud technologies and their characteristics.
Cloud service models.
Cloud computing architectures.
Services of various cloud service providers.
Principles and techniques of virtualization.
Development and testing in the cloud environment.
Introduction to IoT systems.
IoT architectures.
IoT devices and basic properties of selected sensors.
IoT communication protocols.
The use of cloud technologies in the field of IoT.
Case studies - Smart Home, Smart Industry, Smart Robotics.

Literature:
DOMBI, J. – KERTÉSZ, A.: Innovatív felhő technológiák. Szeged : Szegedi Tudományegyetem, 2015. 142 s. ISBN 978-963-12-2787-1.
BUYYA, R. – VECCHIOLA, Ch. – SELVI, S. T.: Mastering Cloud Computing : Foundations and Applications Programming. Waltham : Elsevier, 2013. 452 s. ISBN 978-0-12-411454-8.
SZÉNÁSI, S.: Highway Safety of Smart Cities. In: Armentano, R. – Bhadoria, R. S. – Chatterjee, P. – Deka, G. C. (eds.) The Internet of Things : Foundation for Smart Cities, eHealth, and Ubiquitous Computing. Boca Raton, FL : CRC Press, 2017. pp. 243-272.
FINTA, I. – FARKAS, L. – SZÉNÁSI, S. – SERGYÁN, Sz.: A Method for Virtual Extension of LZW Compression Dictionary. In: 19th IEEE International Conference on Innovation on Cloud Internet and Networking : ICIN 2016, Paris : IEEE, 2016. pp. 184-188.
EMŐDI, M. – KOVÁCS, J. – LOVAS, R. – SZÉNÁSI, S.: Evaluation of GPU Virtualisation Approaches for Machine Learning Enhanced Debugging of Cloud Orchestration, In: Szakál, A. (ed.) 15th IEEE International Symposium on Applied Computational Intelligence and Informatics SACI 2021, Budapest : Óbudai Egyetem, IEEE, 2021. pp. 425-430.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Students' load distribution:
26% of the load - direct teaching
26% of the load - preparation for exercise classes
48% of the load - work on semestral project

Evaluation of subjects
Total number of evaluated students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Teacher: prof. Sándor Szénási, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KMAT/AIdb/ MA1/22	**Name:** Mathematics for computer scientists 1

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 1 / 1 / 1 **For the study period:** 13 / 13 / 13
 Methods of study: present

Number of credits: 6

Recommended semester/trimester of study: 1.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 The seminar will end with a written examination. The examination is normally divided into two parts during the semester according to the requirements, in which case the results of the individual examinations are averaged. The maximum score for the written examinations is 80 points. An additional 20 points may be earned for active work and preparation during the semester in the form of problem solving. The course is subject to the achievement of more than 50% of the achievable results during the semester.
 A grade of A requires 90-100%; a grade of B requires 80-89%; a grade of C requires 70-79%; a grade of D requires 60-69%; and a grade of E requires 50-59% of the total points.
 If this condition is not met, an examination will be held in the examination period, consisting of a written and a subsequent oral part. Admission to the oral examination is conditional on achieving more than 50% of the marks in the written part of the examination, otherwise the examination will be graded as a fail (Fx) on the given date.

Results of education:
 Learning outcomes - knowledge:
 - Knows the abstract concepts related to the topics covered in the course outline, the requirements for defining them, and the relationships between them;
 - knows the basic conceptual and methodological apparatus of linear algebra and knows the basic properties of algebraic structures;
 - can apply the basic methods of linear algebra in solving problems of everyday practice;
 - knows and can apply knowledge of complex numbers in solving various types of equations;
 - knows and can apply algorithms for finding roots of polynomials; can answer basic questions related to the characterisation of polynomials;
 - can apply knowledge in the representation of linear spaces.
 Learning Outcomes - Skills:
 - Can analyze, algorithmatize, and solve problems in linear algebra and solve complex questions related to linear spaces using linear algebra algorithms and procedures;
 - can comprehensively analyse the basic characteristics of vector spaces and subspaces; can transform the basis of a vector space;
 - is able to characterize linear space representations and find the matrix of the representation as well as the inverse of the representation;

- knows the Horner algorithm and can use it to decompose polynomials;
- can formulate logical, true mathematical statements with precise specification of their conditions and main consequences within the framework of linear algebra;
- is able to draw qualitative conclusions from quantitative data;
- has a working knowledge of selected research methods and applies them in the search for new research and working methods.

Learning outcomes - competences:
- Demonstrates a high degree of independence in choosing methods for solving problems in linear algebra, in finding roots of polynomials;
- applies algorithmic thinking in problem solving; can apply learned problem solving algorithms;
- understands the basic characteristics of linear spaces and linear mappings;
- can apply knowledge in graphical processing of space;
- is able to justify methods of solving linear algebra problems;
- is open to acquiring further knowledge in higher mathematics;
- is characterised by creative thinking, independence in planning his/her own education, autonomy and responsibility in decision-making in relation to the problems of the field of study of applied computer science.

Brief syllabus:
Complex numbers
- Polynomials, Horner's algorithm
- Matrices, basic types and operations with matrices
- Determinants, properties. Determinant calculation
- Vectors in plane and space, vector space over R, subspace
- Linear dependence and independence, space generator
- Base, dimension, coordinates in a given base
- Transformation of coordinates from one basis to another basis, and its applications: independence, coordinates, rank matrix
- Systems of linear equations and their solutions using basis transformation algorithms
- Inverse matrix and its determination using the basis transformation algorithm, equations with matrices
- Linear mappings, definition, definition and properties
- Eigenvalue and eigenvector of a linear representation
- Scalar product, Euclidean space, orthonormal basis. Gram-Schmidt orthogonalization procedure

Literature:
• Katriňák, T. a kol.: Algebra a teoretická aritmetika 1. Bratislava : UK Bratislava, 1995, s. 351. ISBN 80-223-0986-9.
• SZENDREI, J.: Algebra és számelmélet. Budapest : Nemzeti tankönyvkiadó, 2001, s. 475. ISBN 963 19 2401 7.
• Fried, E.: Algebra I.: Elemi és lineáris algebra. Budapest : Nemzeti Tankönyvkiadó, 2000, s.334. ISBN 963 19 11764.
• Árki, Z.: Lineáris algebra. - 1. vyd. - Komárno : Univerzita J. Selyeho, 2017. - 118 s. ISBN 978-80-8122-217-7.

Language, knowledge of which is necessary to complete a course:

Notes:
Student Load Sharing:
32% of the workload - direct teaching
18% of the workload - preparation for lectures and exercises

26% of the workload - preparation for examinations
24% of the workload - exam preparation

Evaluation of subjects
Total number of evaluated students: 77

A	B	C	D	E	FX
3.9	6.49	10.39	22.08	33.77	23.38

Teacher: prof. László Szalay, DSc., RNDr. Zuzana Árki, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University

Name of the faculty: Faculty of Economics and Informatics

Code: KMAT/AIdb/ MA2/22	**Name:** Mathematics for computer scientists 2

Types, range and methods of educational activities: **Form of study:** Lecture / Seminar / Practical **Recommended extent of course (in hours):** **Per week:** 2 / 1 / 1 **For the study period:** 26 / 13 / 13 **Methods of study:** present

Number of credits: 6

Recommended semester/trimester of study: 2.

Level of study: I.

Prerequisites:

Conditions for passing the subject: A total of 20 points can be earned for continuous problem solving in WeBWorK system. There will be a written exam in the exam period, where a maximum of 80 points can be scored; the points earned by solving the WeBWorK examples on an ongoing basis will count towards the overall grade. A minimum of 90 points is required for an A grade, a minimum of 80 points for a B grade, a minimum of 70 points for a C grade, a minimum of 60 points for a D grade and a minimum of 50 points for an E grade.

Results of education: Learning outcomes - knowledge: Upon successful completion of the course, students will be proficient in the basic concepts and tools of differential calculus of real functions of one variable. Learning Outcomes - Skills: Students will master the basic mathematical apparatus of differential calculus required to take courses in theoretical computer science. Learning outcomes - competences: Students able to solve basic differential calculus problems and also on a computer in the CAS environment of MATLAB or using other appropriate free software.

Brief syllabus: - Real numbers, numerical sets, methods of mathematical proofs - Numerical sequences and their limits. - Theorems about limits, number e. - Function of one numerical variable, basic concepts, graph of a function. - Some elementary functions. Limit of a function, rules for calculating limits. Limit of left and right. – Limits at infinity. - Continuity of a function from left and right, continuity at a point and on an interval. - Some properties of continuous functions on a closed interval - Differential calculus of a function of one real variable (derivative at a point, rules for calculating derivatives) - Differential, higher order derivatives, Rolle's and Lagrange's theorem.

- Investigation of the progress of a function using derivatives, extremes of a function.
– Function investigations.

Literature:
1. Kubáček, Z.: Matematika pre informatikov. Dostupné na internete:
<http://www.iam.fmph.uniba.sk/skripta/kubacek_inf/>
2. Leindler, L.: Analízis. Budapest : Nemzeti Tankönyvkiadó, 1995, s. 434.
3. Dancs, I.: Bevezetés a matematikai analízisbe I. Budapest : Aula, 1992, s. 328. ISBN 0007064.
4. THOMAS, G. B.: Thomas-féle KALKULUS I. Budapest : Typotex, 2011, s. 351. ISBN 978 963 279 576
5. Győri, I., Pituk, M.: Kalkulus informatikusoknak I. Budapest: Typotex, 2011, s. 62. ISBN 978-963-279-504-1

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:
Student Load Sharing:
35% of the workload - direct teaching
15% of the workload - preparation for lectures and exercises
26% of the workload - preparation of homework assignments
24% of the workload - exam preparation

Evaluation of subjects
Total number of evaluated students: 69

A	B	C	D	E	FX
5.8	8.7	8.7	17.39	30.43	28.99

Teacher: doc. RNDr. József Bukor, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KMAT/AIdb/ MA3/22	**Name:** Mathematics for computer scientists 3

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 1 / 2 / 0 **For the study period:** 13 / 26 / 0
 Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 3.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
There will be one written exam for 70 points during the semester. Seminars on an ongoing basis will allow a total of 30 points for solving problems in the webwork system. A minimum of 90 points is required for a grade of A, a minimum of 80 points for a grade of B, a minimum of 70 points for a grade of C, a minimum of 60 points for a grade of D, and a minimum of 50 points for a grade of E.

Results of education:
After successful completing the course, students will master the basic terminology of integral calculus, they will also acquire the basic statements of the indefinite and definite Riemann integral, infinite number and functional series. They know and can apply basic methods for solving separable and special differential equations. After completing the course, the student will acquire:
Knowledge:
- Knows the abstract concepts related to the topics covered in the course syllabus, the requirements for defining them, and the relationships among them. Recognizes the general schemes and concepts involved in applied problems.
- Knows the methodology of developing mathematical models or analytical frameworks for investigating cognitive processes in mathematics and ways of supporting these processes. - Knows the principles and basic methods of mathematical proof.
- Knows how to illustrate concepts using appropriate examples.
Skills:
- Can formulate logical, true mathematical statements with precise specification of their conditions and main consequences.
- Can abstract from the concrete form of problems, can formulate them in abstract, general form for the purpose of analysis and solution.
- Can construct mathematical models of simple practical problems and search for and elaborate appropriate mathematical tools and procedures for their solution.
Competences:
- The student is able to independently expand his/her mathematical knowledge, acquire new mathematical knowledge.

- Demonstrates a high degree of independence in solving problems in areas of mathematics and works effectively as an individual, member or leader of a small team

Brief syllabus:
- The primitive function and the indefinite integral, basic methods of calculation.
- The definite Riemann integral of functions of one real variable.
- Newton-Leibniz formula.
- Numerical integration.
- Numerical series and criteria of their convergence.
- Uniform convergence of functional series and their derivation and integration member by member.
- Power and Taylor series, radius and interval of convergence.
- Some calculations using series
- Ordinary differential equations - basic concepts
- Separable differential equations.
- Special forms of differential equations.

Literature:
1. THOMAS, B. G.: Thomas-féle kalkulus 2. Budapest : Typotex 2010, s. 360. ISBN 978 963 279 159.
2. THOMAS, B. G.: Thomas-féle kalkulus 3. Budapest : Typotex 2011. ISBN 978 963 279 438 9.
3. NEUBRUNN, T.: Matematická analýza II. Bratislava : Univerzita Komenského, 1992, s. 166. ISBN 80 223 0051 9.
4. Leindler, L.: Analízis. Budapest : Nemzeti Tankönyvkiadó, 1995, s. 434.
5. Dancs, I.: Bevezetés a matematikai analízisbe I. Budapest : Aula, 1992, s. 688. ISBN 0007065.

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:
Distribution of student workload:
32% of the workload - direct teaching,
18% of the workload - preparation for lectures and exercises,
26% of the workload - preparation of homework,
24% of the workload - preparation for exams.

Evaluation of subjects
Total number of evaluated students: 6

A	B	C	D	E	FX
0.0	0.0	16.67	0.0	50.0	33.33

Teacher: doc. RNDr. Ferdinánd Filip, PhD., Mgr. Szilárd Svitek

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KM/AIdb/ MAN/22	**Name:** Management

Types, range and methods of educational activities:
 Form of study: Lecture
 Recommended extent of course (in hours):
 Per week: 2 **For the study period:** 26
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 3.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
During the semester the student is obliged to successfully complete the 100-point written test. To obtain grade „A" students have to obtain minimum 90% of the total score, to obtain grade „B" students have to obtain 80% of the total score, to obtain grade „C" students have to obtain 70% of the total score, to obtain grade „D" students have to obtain 60% of the total score, to obtain grade „E" students have to obtain 50% of the total score.

Results of education:
In order to achieve strategic objectives, companies have to adapt to changes which in the daily operational tasks are always different. After completion of the course the students become familiar with the process of project planning and execution, as well as see through management duties in theory and practice.

Brief syllabus:
1. Management and project management basics
2. Characteristics of the project process and its actors
3. Analysis of the project risk
4. Project planning basics
5. Analysis of the project planning process
6. Company time planning basics
7. Enterprise resource planning basics
8. Project cost analysis
9. Project control
10. Organizational project management solutions
11. Tools and decision-making methodology of the project strategy
12. Characteristics of the project proposal and evaluation, contracting process
13. Project success, project marketing

Literature:
1. SEDLÁK, M.: Základy manažmentu. Bratislava : IURA EDITION, 2009, s. 310. ISBN 978-808-0781-93-4.
2. MAJTÁN, M.: Projektový manažment. Bratislava : Sprint dva, 2009, s. 299. ISBN 978-808-9393-05-3.

3. KREMEŇOVÁ, I.: Projektový manažment. Bratislava : EDIS, 2009, s. 442. ISBN 978-805-5401-48-5.
4. CLELAND, D. – IRELAND, L.: Project Management: Strategic Design and Implementation. New York : McGraw-Hill Professional, 2007. ISBN 978-007-1471-60-2.
5. GÖRÖG, M.: A projektvezetés mestersége. (Majstrovstvo projektového riadenia). Budapest : AULA Kiadó, 2007, s. 376. ISBN 978-963-9478-5-72.
6. BENCSIK, A.: Menedzsment- és projekttechnikák. (Manažérske a projektové techniky). Veszprém : Pannon Kiadó, 2005, s. 438. ISBN 978-963-9495-68-9.
7. HENCZI L. – MURVAI L.: Projekttervezés és projektmenedzsment. (Projektové plánovanie a projektový manažment). Budapest : Saldó Kiadó Zrt., 2012, s. 184. ISBN 978-963-6384-09-8.

Language, knowledge of which is necessary to complete a course:
Hungarian language

Notes:
Distribution of the student's workload:
60% of the load - lectures and preparation on exam
40% of the load - independent tasks (literature processing)

Evaluation of subjects
Total number of evaluated students: 158

A	B	C	D	E	FX
36.08	12.66	22.15	11.39	13.92	3.8

Teacher: prof. Dr. József Poór, DSc., Dr. habil. Ing. Peter Karácsony, PhD.

Date of last update: 03.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ MIT/22	**Name:** Materials and Technologies for Informaticians

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 1 / 1 / 0 **For the study period:** 13 / 13 / 0
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 1.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 Students are required to actively participate in class. Students write a test from the subject in the last week of the semester. To obtain grade „A" students have to obtain minimum 90% of the total score, to obtain grade „B" students have to obtain 80% of the total score, to obtain grade „C" students have to obtain 70% of the total score, to obtain grade „D" students have to obtain 60% of the total score, to obtain grade „E" students have to obtain 50% of the total score. There is no credit for the subject if a student obtains less than 50%.

Results of education:
 Knowledge:
 Knowledge of materials used in ICT, their properties and parameters from the user's point of view.
 Skills:
 They will learn about materials used in ICT, their properties and parameters from the user's point of view, as well as modern technologies (nanotechnologies, laser technologies, plasma technologies, space technologies).
 Competencies:
 Learn about the materials used in ICT, their properties and parameters. Knowledge of modern technologies.

Brief syllabus:
 1. The importance of materials in the development of civilization, ICT materials in historical perspective.
 2. Electrical materials (conductive materials, semiconductors, electrical insulators, dielectrics)
 3. Electrotechnical materials (magnetic materials and special ICT materials - memory, recording, sensing and signal materials)
 4. Electrotechnical materials (liquid crystals, superconductors, electrically conductive polymers, fullerenes and fullerenes)
 5. Electrotechnical materials (reprographic materials, light-conducting materials, acoustic materials, optical materials, building materials)
 6. Laser technology and plasma technology

7. Microtechnology and Nanotechnology
8. Space Technology
9. Physical background of the processes used in ICT materials.
10. Main properties of individual materials and their user parameters.
11. Special aspects of ICT materials (safety, health, ecology, economics, energy, terminology, history, forecasting, etc.), development trends.
12. Test

Literature:
1. RAAB, M.: Materiály a člověk : (Netradiční úvod do současné materiálové vědy). 1. vyd. Praha : Encyklopedický dům, 1999. ISBN 80-86044-13-0
2. KUČEROVÁ, E.: Elektrotechnické materiály. 2. vyd. Plzeň : Západočeská univerzita, 2004.
3. ŠAVEL, J.: Materiály a technológie v elektronice a elektrotechnice. 1. vyd. Praha : BEN, 1999. ISBN 80-86056-75-9
4. PTÁČEK, L. et al.: Nauka o materiálu II. Brno : Cerm, 1999. ISBN 80-7204-130-4
5. SEMÁK, D. – BIRČÁK, J.: Chalkogénne polovodiče na záznam informácie. Prešov : FHPV PU, 1998. ISBN 80-88885-37-X
6. ANDERSON, J. C. et al.: Materials Science. London : Chapman and Hall, 1992.
7. MATH, I.: Tomorrow´s Technology. NewYork, Charles Scribner´s Sons, 1992. ISBN 0-684-19294-2
8. ROUS, B.: Materiály pro elektroniku a mikroelektroniku. 1. vyd. Praha : SNTL, 1991. ISBN 80-03- 00617-1
9. ASHBY, M. F. – JONES, D. R. H.: Engineering Materials : An Introduction to their Propertires and Applications. I - 1980. II – 1986.
10. BARABASZOVÁ, K.: Nanotechnologie a nanomateriály. 1. vyd. Ostrava : VŠB – TU, 2006. 158 s. ISBN 80-248-1210-X

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Student Load Sharing:
35% of the workload - direct teaching
30% of the workload - preparation for lectures and exercises
35% of the workload – preparation for examination

Evaluation of subjects
Total number of evaluated students: 66

A	B	C	D	E	FX
34.85	39.39	10.61	4.55	0.0	10.61

Teacher: prof. András Molnár, PhD., Mgr. Dávid Paksi

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KM/AIdb/ MRK/22	**Name:** Marketing

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar
 Recommended extent of course (in hours):
 Per week: 1 / 1 **For the study period:** 13 / 13
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 6.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
Exam: max. 100 points. To obtain grade „A" students have to obtain minimum 90% of the total score, to obtain grade „B" students have to obtain 80% of the total score, to obtain grade „C" students have to obtain 70% of the total score, to obtain grade „D" students have to obtain 60% of the total score, to obtain grade „E" students have to obtain 50% of the total score. There is no credit for the subject if a student obtains less than 50%.

Results of education:
The objective of the subject is to give a knowledge about the corporate market operations for the students. During the semester we will deal with the basic elements of marketing, market, individual and organizational behavior, the application of the marketing tools. It will show the operation of the marketing tools, especially the process of market research.

Brief syllabus:
1. Marketing theories, corporate marketing orientations
2. Market and market competition, segmentation, STP strategies
3. Consumer behavior as meta theory
4. Organizational buying behavior, relationship marketing
5. Brand and product. Fight for the consumers
6. Product policy, product developments, portfolio analysis, product life cycle
7. Product policy, pricing methods
8. Distribution system, logistic and the other functions
9. The participants of the distribution system, trends in retailing, personal selling
10. Advertisements and communication, forms of advertisement. The measure of efficiency of advertising
11. Marketing information system, market definitions
12. Marketing functions and marketing organizations
13. Marketing in international environment

Literature:
1. KITA, J. a kol.: Marketing. Bratislava : Iura Edition, 2005, s. 431. ISBN 808-078-0498.
2. NÍZKA, H.: Aplikovaný marketing. Bratislava : Iura Edition, 2007, s. 198. ISBN 978-80-8078-157-6.

3. HINORA, F. – SZÁNTÓ, SZ.: Minden, ami marketing. Budapest : Hinora Kommunikációs Ügynökség, 2010, s. 372. ISBN 978-963-069-1369.
4. BERNSCHÜTZ, M. – DEÉS, SZ. – KENÉZ, A.: Marketing esettanulmányok. Budapest : Akadémia Kiadó Zrt., 2013, s. 277. ISBN 978-963-059-3830.
5. SZILÁGYI, Z. – VERES, Z.: A marketing alapjai. Budapest : Perfekt, 2007, s. 316. ISBN 978-963-394-6022.

Language, knowledge of which is necessary to complete a course:
Hungarian and Slovakian language

Notes:

Evaluation of subjects
Total number of evaluated students: 109

A	B	C	D	E	FX
2.75	14.68	27.52	28.44	17.43	9.17

Teacher: prof. Dr. László Józsa, CSc., PhDr. Erika Seres Huszárik, PhD.

Date of last update: 03.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics

Code: KINF/AIdb/ OBP/22	**Name:** Bachelor Thesis and its defence

Types, range and methods of educational activities:
  Form of study:
  Recommended extent of course (in hours):
  Per week: For the study period:
  Methods of study: present

Number of credits: 14

Recommended semester/trimester of study: 5., 6..

Level of study: I.

Prerequisites: KINF/AIdb/PHW/22 and KMAT/AIdb/MA3/22KMAT/AIdb/MA2/22 and KMAT/ AIdb/MA1/22 and KMAT/AIdb/DM2/22 and KMAT/AIdb/DM1/22 and KINF/AIdb/OS2/22 and KINF/AIdb/OPX/22 and KINF/AIdb/BS2/22 and KINF/AIdb/UIS/22 and KINF/AIdb/PSI/22 and KINF/AIdb/PGG/22 and KINF/AIdb/OS1/22 and KINF/AIdb/BS1/22 and KINF/AIdb/PR4/22 and KINF/AIdb/DBS/22 and KINF/AIdb/APO/22 and KINF/AIdb/UMS/22 and KINF/AIdb/TWS/22 and KINF/AIdb/PR3/22 and KINF/AIdb/TEI/22 and KINF/AIdb/PR2/22 and KINF/AIdb/UDI/22 and KINF/AIdb/PR1/22 and

Conditions for passing the subject:
 Completion of all compulsory subjects and the minimum number of compulsory elective subjects prescribed by the relevant study program.
 Obtaining at least the minimum number of credits for the relevant
 degree of study. Elaborated bachelor's thesis, positive reviews from the supervisor and the opponent of the bachelor's thesis. Successful defense of the bachelor's thesis in front of the state examination committee.

Results of education:
 After completing the subject, the student:
 Knowledge:
 • knows the principles of preparing and implementing of own bachelor's project,
 • master the procedures for creating a bachelor's thesis.
 Skills:
 • is able to search for relevant literature, materials or other sources that relate to the solved problem, which allows to specify the problem in more detail in accordance with the current state of science and research,
 • is able to apply acquired theoretical knowledge in practice,
 • independently and creatively acquire and process new knowledge, analyze new solutions, create models,
 • is able to choose the right methods, procedures and solutions,
 • is able to realize and implement a reliable solution to the problem,
 • is able to present the solution and chosen methods, both orally and in writing,
 • is able to manage effectively own project and effectively use results of discussions with the supervisor and other experts from the field (and use current methods of communication).
 Competencies:

• demonstrates a high degree of independence when preparing the bachelor's thesis,
• can present technical problems wich occured during the realization of the project and can defend the chosen methods of their solution.

Brief syllabus:

Elaboration of a bachelor's thesis. During the work on the bachelor's thesis, it is necessary to respect the basic structure of the original scientific and professional thesis according to valid standards.
The final thesis should be of reasonable scope and difficulty according to the law (§ 51, paragraph 3). The bachelor's thesis is submitted in hardcover, has a prescribed formal and content requirements and also a uniform graphic editing in accordance with the Rector's Directive no. 2/2021 on final theses at J. Selye University.
Presentation of the bachelor's thesis.
Defense of the bachelor's thesis in the sense of obtained reviews and discussions on the thesis.

Literature:

KATUŠČÁK, D.: Ako písať záverečné a kvalifikačné práce. Nitra : Enigma, 2007. 164 p. ISBN 978-80-89132-45-4.
KIMLIČKA, Š.: Ako citovať : a vytvárať zoznamy bibliografických odkazov : podľa noriem ISO 690 pre klasické aj elektronické zdroje. Bratislava : Stimul, 2002. 82 p. ISBN 80-889-82-57-X.
Rector's Directive No. 2/2021 on final theses at J. Selye University.

Language, knowledge of which is necessary to complete a course:

Hungarian

Notes:

Evaluation of subjects

Total number of evaluated students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Teacher:

Date of last update: 04.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ OPX/22	**Name:** Professional Practice

Types, range and methods of educational activities:
 Form of study: Practical
 Recommended extent of course (in hours):
 Per week: For the study period: 80s
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 6.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 Certificate of completion of at least 3 weeks (minimum 80 hours) of professional practice.
 The website prax.ujs.sk is used to coordinate students' professional practice.

Results of education:
 Education outcomes - knowledges:
 After completing the subject, the student:
 • has an overview of the organizational structure of the institutions in which he completed his professional practice.
 Education outcomes - skills:
 • can get involved in the work process and can understand work processes,
 • can acquire work habits, take responsibility and work in a team,
 • can apply theoretical knowledge in practice.
 Education outcomes - competences:
 • is independent in fulfilling work duties,
 • is a valid member in teamwork.

Brief syllabus:
 • Active participation in professional practice in institutions and organizations of their choice or workplace offers.
 • Fulfilling work tasks in institutions and organizations.

Literature:
 According to the content of the job.

Language, knowledge of which is necessary to complete a course:
 Hungarian

Notes:
 Students' load distribution:
 100% of the load - participation in professional practice

Evaluation of subjects
 Total number of evaluated students: 4

a	n
100.0	0.0

Teacher: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University	
Name of the faculty: Faculty of Economics and Informatics	
Code: KINF/AIdb/ OS1/22	**Name:** Operating Systems 1

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 2 / 0 / 1 **For the study period:** 26 / 0 / 13
 Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 5.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
Continuous evaluation during the semester: 50% of the total grade. There will be a written examination at the end of the semester, in which a maximum of 30 points can be obtained. Students work independently on a term project during the semester; a total of 20 points can be earned for their submission and presentation. Students must earn at least 50% on the midterm grade to be eligible to take the exam.
Examination: 50% of the total mark. The course will be completed by a written examination, in which 50 points can be obtained. A score of at least 50% of the exam grade is required to pass the exam.
In addition to contact teaching, students prepare for practicals, prepare for a written review, work on their semester projects, and prepare for an exam.
The overall grade is the sum of the scores from the interim assessment and the final examination. To obtain grade „A" students have to obtain minimum 90% of the total score, to obtain grade „B" students have to obtain 80% of the total score, to obtain grade „C" students have to obtain 70% of the total score, to obtain grade „D" students have to obtain 60% of the total score, to obtain grade „E" students have to obtain 50% of the total score. There is no credit for the subject if a student obtains less than 50%.

Results of education:
Knowledge:
Upon completion of the course, the student will:
• has basic knowledge of operating systems,
• knows the architecture of operating systems, programming and user interface,
• knows the planning algorithms,
• knows the methods of detecting and solving the problem of stranding.
• knows the algorithms for memory allocation,
• knows how file systems work
• Knows the operation and management of entry/exit facilities.
Skills:
Upon completion of the course, the student will:
• is able to apply the acquired knowledge in solving practical tasks,
• is able to apply planning algorithms in solving problems,

• is able to apply tether detection methods in problem solving,
• is able to apply memory allocation algorithms to solve problems,
• knows the rules for the correct creation of documentation for practical assignments.
Competencies:
Upon completion of the course, the student will:
• can work effectively and implement the acquired theoretical knowledge,
• shows independence in solving more complex problems.

Brief syllabus:
Introduction to the subject Operating systems, basic concepts.
History of the development of operating systems and categorization of operating systems. Programming and user interface.
Process management, process states, threads.
Interprocess communication and synchronization.
Process scheduling, scheduling algorithms.
Resource management - resource allocation, resource allocation graph, stranding. Resource management - detecting and solving the stranding problem.
Operating memory management.
Virtual memory management, paging and segmentation.
Files and file systems, directory structure, access rights.
Input/output system, peripheral devices, device interface. Disk device management and structure.

Literature:
ADAMIS, G. – KNAPP, G.: Operációs rendszerek. Budapest : LSI Oktatóközpont, 2002, 278 s. ISBN 978-963-577-251-3.
CSERNY, L.: Mikroszámítógépek. Budapest : LSI Oktatóközpont, 2003, 330 s. ISBN 978-963-577-188-6.
KÓCZY, A. – KONDOROSI, K. et al.: Operációs rendszerek mérnöki megközelítésben. Budapest : Panem Kiadó, 2000. 180 s. ISBN 978-963-545250-0.
HAMBÁLKOVÁ, V.: Operačné systémy. Bratislava : Univerzita Komenského, 2015. 105 s. Link: http://www.dcs.fmph.uniba.sk/~bernat/os.ls2021/os-new.pdf
TANENBAUM, A. S.: Modern Operating Systems. Upper Saddle River, NJ : Pearson Prentice-Hall, 2009. 1076 s. ISBN 978-0-13-813459-4.
SILBERSCHATZ, A.: Operating System Concepts. New York, NY : John Wiley & Sons, 2004. 956 s. ISBN 978-0-47-125060-0.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Student Load Sharing:
31% of the workload - direct teaching
21% of the workload - preparation for lectures and exercises
19% of the workload - work on the semester project
29% of the workload - exam preparation

Evaluation of subjects
Total number of evaluated students: 5

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	20.0	80.0

Teacher: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Date of last update: 01.03.2022
Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University

Name of the faculty: Faculty of Economics and Informatics

Code: KINF/AIdb/ OS2/22	**Name:** Operating Systems 2

Types, range and methods of educational activities: **Form of study:** Lecture / Seminar / Practical **Recommended extent of course (in hours):** **Per week:** 2 / 0 / 1 **For the study period:** 26 / 0 / 13 **Methods of study:** present

Number of credits: 5

Recommended semester/trimester of study: 6.

Level of study: I.

Prerequisites:

Conditions for passing the subject: Continuous evaluation during the semester: 50% of the total grade. There will be a written examination at the end of the semester, in which a maximum of 30 points can be obtained. Students work independently on a term project during the semester; a total of 20 points can be earned for their submission and presentation. Students must earn at least 50% on the midterm grade to be eligible to take the exam. Examination: 50% of the total mark. The course will be completed by a written examination, in which 50 points can be obtained. A score of at least 50% of the exam grade is required to pass the exam. In addition to contact teaching, students prepare for practicals, prepare for a written review, work on their semester projects, and prepare for an exam. The overall grade is the sum of the scores from the interim assessment and the final examination. To obtain grade „A" students have to obtain minimum 90% of the total score, to obtain grade „B" students have to obtain 80% of the total score, to obtain grade „C" students have to obtain 70% of the total score, to obtain grade „D" students have to obtain 60% of the total score, to obtain grade „E" students have to obtain 50% of the total score. There is no credit for the subject if a student obtains less than 50%.

Results of education: Knowledge: Upon completion of the course, the student will: • has an in-depth knowledge of operating systems, • has an in-depth knowledge of the distribution and security of operating systems, • has a deeper knowledge of the LINUX operating system. Skills: Upon completion of the course, the student will: • can manage operating systems in complex computer systems applications, • can make appropriate use of the programming background of operating systems, • can implement different operating systems in the context of more difficult practice requirements. Competencies: Upon completion of the course, the student will:

• can work effectively and implement the acquired theoretical knowledge,
• can work independently to solve complex problems.

Brief syllabus:
Development and characteristics of operating systems and their distribution, (development of OS Linux).
Architecture of network operating systems and their comparison.
Linux OS security and distribution. Programming and user interface.
Advanced file and directory management.
User rights, working with files and directories.
Management and structure of disk devices, resources, processors and processes. Advanced RAM management.
Advanced virtual memory management, memory segmentation.
Sharing of network resources (hardware and software).
Linux office applications.
Variability and adaptability of the OS.

Literature:
KÓCZY, A. – KONDOROSI, K. et al.: Operációs rendszerek mérnöki megközelítésben.
Budapest : Panem Kiadó, 2000. 180 s. ISBN 978-963-545250-0.
SZEBERÉNYI, I. – KETLER, I. – SZIGETI, Sz.: UNIX - A rendszer használata : Könnyen is lehet. Budapest : Panem, 2004. 227 s. ISBN 978-963-545-397-3.
GIFT, N. – JONES, J. M.: Python for Unix and Linux System Administration. Cambridge : O'Reilly Media, 436 s. ISBN 978-0-596-51582-9.
NEMETH, E. – SNYDER, G. – HEIN, T. R. – WHALEY, B.: Unix and Linux System Administration Handbook. New York, NY : Prentice Hall, 2011. 1279 s. ISBN 978-0-13-148005-6.
TANENBAUM, A. S.: Modern Operating Systems. Upper Saddle River, NJ : Pearson Prentice-Hall, 2009. 1076 s. ISBN 978-0-13-813459-4.
SILBERSCHATZ, A.: Operating System Concepts. New York, NY : John Wiley & Sons, 2004. 956 s. ISBN 978-0-47-125060-0.
Another on-line sources: http://ftp.linux.cz/pub/linux

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Student Load Sharing:
31% of the workload - direct teaching
21% of the workload - preparation for lectures and exercises
19% of the workload - work on the semester project
29% of the workload - exam preparation

Evaluation of subjects
Total number of evaluated students: 1

A	B	C	D	E	FX
0.0	0.0	0.0	100.0	0.0	0.0

Teacher: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ PAP/22	**Name:** Parallel Programming

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 1 / 0 / 2 **For the study period:** 13 / 0 / 26
 Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 5.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
Continuous evaluation during the semester: 70% of the total evaluation. During the semester, there will be two written examinations of 20 points each. During the semester, students work independently on a semester project, for which they can receive a total of 30 points. Students must obtain at least 50% from both written examinations, and at least 50% from the evaluation of the semester project.
Exam: 30% of the total assessment. The subject will be completed by a written exam, on which 30 points can be obtained. To successfully pass the exam, it is necessary to obtain at least 50% of the exam evaluation.
In addition to contact teaching, students prepare for exercises, prepare for written examinations, work on their semester projects and prepare for the exam.
The overall assessment consists of the sum of points from the interim assessment and the final exam. It is necessary to get at least 90 points to get an A grade, at least 80 points for a B grade, at least 70 points for a C grade, at least 60 points for a D grade and at least 50 points for an E grade. Credits will not be awarded to a student who earns less than 50 points.

Results of education:
Education results - knowledge:
After completing the subject, the student:
• knows the historical development of parallel architectures and parallel programming,
• knows the basic properties of parallel tasks,
• knows the characteristic features of threads and processes, and the possibilities of their use,
• knows the characteristics of basic synchronization methods and the possibilities of their use,
• knows the risks of using parallel programs,
• knows the characteristic features of parallel data structures,
• knows parallel programming models.
Learning outcomes - skills:
• is able to run threads and processes in the C# language,
• is able to use synchronization methods in the C# language,
• is able to use parallel data structures,
• is able to recognize and implement basic parallel design patterns.
Education results - competences:

• can recognize whether the parallelization of a given task will be beneficial,
• can design and implement parallel algorithms.

Brief syllabus:
Principles of parallel programming.
Parallelism at the instruction level, data parallelism, task parallelism.
Starting threads.
Starting processes.
Communication.
Synchronization and serialization.
Lock.
Semaphore.
Monitor.
Thread-safe data structures.
Examples of parallel processing. Master-worker paradigm.
Reduction operations.
Parallel programming models.

Literature:
KOVÁCS, Gy.: Párhuzamos programozási eszközök és összetett alkalmazásaik. Budapest : Typotex, 2013. 322 s. ISBN 978-963-279-328-3.
KOVÁCS, Gy.: OpenCL. Budapest : Typotex Kiadó, 2013. 361 s. ISBN 978-963-279-332-0.
McCOOL, M. – ROBINSON, A. D. - REINDERS, J.: Structured Parallel Programming : Patterns for Efficient Computation. USA : Elsevier, 2012. 406 s. ISBN 978-0-12-415993-8.
PINTÉR, Á. – SZÉNÁSI, S.: Index Dependent Nested Loops Parallelization with an Even Distributed Number of Steps. Informatica vol. , 2021. pp. 493–506. Dostupné na: https://www.informatica.si/index.php/informatica/article/view/3130/1672
VARGA, T. – SZÉNÁSI, S.: Design and Implementation of Parallel List Data Structure using Graphics Accelerators. In: Szakál, A. (ed.) 20th IEEE Jubilee International Conference on Intelligent Engineering Systems : INES 2016, Budapest : IEEE Hungary Section, 2016. Article no.: 7555142, pp. 315-318.
SZÉNÁSI, S.: Difficulties and Solutions in the Field of Teaching Parallel Programming. In: Körtesi, P. (ed.) MAFIOK 2013 közlemények. Miskolc : Miskolci Egyetem, 2013. 6 s.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Students' load distribution:
31% of the load - direct teaching
21% of the load - preparation for lectures and exercises
27% of the load - work on a semester project
21% of the load - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Teacher: prof. Sándor Szénási, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University

Name of the faculty: Faculty of Economics and Informatics

Code: KEK/AIdb/ PFN/22	**Name:** Corporate finance

Types, range and methods of educational activities: **Form of study:** Lecture / Seminar **Recommended extent of course (in hours):** **Per week:** 1 / 1 **For the study period:** 13 / 13 **Methods of study:** present

Number of credits: 3

Recommended semester/trimester of study: 5.

Level of study: I.

Prerequisites:

Conditions for passing the subject: Successful completion of the final written test at the end of the semester. To obtain evaluation A is necessary at least 90% of the maximum score of the final review, to obtain evaluation B at least 80%, for the assessment of at least 70% C, D for the assessment of at least 60%, and the evaluation E at least 50% of the maximum points. Credit won't be granted to a student who receive 49% or less from the maximum of score on the written test.

Results of education: Knowledge: Knows the basic concepts, theories, facts, national economic and international contexts of economics in relation to relevant economic actors, functions and processes. Knows and understands the principles and methods of management, organization and operation of management processes, the methodology of the analysis of management processes, the methodological bases of decision preparation and decision support. Knows and mastered the basic concepts and contexts of finance and accounting, financial products and markets, parts of the report and the accounting processes that support it, the basics of financial and accounting thinking Skill: Using the theories and methods learned, it explores, systematizes and analyzes facts and fundamental contexts, formulates independent conclusions and critical remarks, makes decision-making proposals and makes decisions. Can apply economic problem solving techniques, problem solving methods, their application conditions and limitations. He presents the professional proposal and position professionally formulated conceptually and theoretically, orally and in writing, in the language of the study program and in a foreign language, according to the rules of professional communication. Competence: Under general professional supervision, he / she performs and organizes the tasks specified in the job description independently. It is responsible for its analyzes, conclusions and decisions.

It is responsible for complying with professional, legal and ethical standards and regulations related to work and conduct.

Brief syllabus:
1. General characteristics of money and currency
2. Introduction to Corporate Finance.
3. Time value of money, interest calculation methods, special cash flows (annuity, annuity)
4. Bonds and shares - their types and characteristics, share issue, price, dividend, business and financial risk, return and risk
5. Return on investment and risk, portfolio theories. Diversification, CAPM model, SML straight
6. Investment proposals and decision criteria (project evaluation methods)
7. Corporate cash flow (profitability index, cash flows related to the company's investments, operating and financial cash flow, direct and indirect cash flow, depreciation, profit before tax, profit after tax, annual cost equivalent)
8. Investment risk analysis (risk measurement and analysis) - sensitivity analysis, Monte Carlo simulation, options and their graphical illustration
9. Cost of capital (cost of corporate capital, cost of equity)
10. Long-term financial decisions - financial and capital structure of companies, definition of WACC
11. The impact of financial decisions on the efficiency of corporate operations
12. Dividend policy
13. Efficient market and dividend policy - equities, dividends, efficient market theory, definition and characterization of different levels of market efficiency, different dividend payment policies and their characterization

Literature:
1. KORCSMÁROS, E. Alapismeretek vállalati pénzügyből. Komárom: Selye János Egyetem. 2018. 212 s. ISBN 978-80-8122-248-1
2. GYULAI, L. Kis- és középvállalkozások üzletfinanszírozása. Budapest: Saldo. 2011. 168 s. ISBN 978-963-638-380-0
3. SOBEKOVÁ MAJKOVÁ, M. Ako financovať malé a stredné podniky. Bratislava: Iura Edition. 2011. 231 s. ISBN 978-80-8078-413-3
4. ZALAI, K. a kol. Finančno-ekonomická analýza podniku. Bratislava: Sprint dva. 2010. 446 s. ISBN 978-80-89393-15-2
5. FETISOVOVÁ, E. a kol.: Podnikové financie – praktické aplikácie a zbierka príkladov.Bratislava: Iura Edition, 2010. 180 s. ISBN 978-80-8078-367-9.
6. VLACHYNSKÝ, K. a kol.: Podnikové financie. Bratislava: Iura Edition. 2009. 524 s. ISBN978-80-8078-258-0
7. BREALY-MYERS Modern vállalati pénzügyek. Budapest: Panem. 2005. 1175 s. ISBN963-545-422-8
8. FETISOVOVÁ, E. – VLACHYNSKÝ, K. – SIROTKA, V. Financie malých a strednýchpodnikov. Bratislava: Iura Edition. 2004. 260 s. ISBN 80-89047-87-4
9. KOHN, M. Bank- és pénzügyek, pénzügyi piacok. Budapest: Osiris Kiadó. 2003. 1059 s. ISBN 963-389-435-2

Language, knowledge of which is necessary to complete a course:
Hungarian and Slovak language

Notes:
Student workload distribution:
60% load - lectures, seminar work and exam preparation

40% load - solving individual tasks, practicing the acquired knowledge, studying the literature

Evaluation of subjects
Total number of evaluated students: 125

A	B	C	D	E	FX
15.2	20.0	17.6	24.8	12.0	10.4

Teacher: PhDr. Enikő Kahler Korcsmáros, PhD.

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University	
Name of the faculty: Faculty of Economics and Informatics	
Code: KINF/AIdb/ PGG/22	**Name:** Computer Geometry and Graphics

Types, range and methods of educational activities:
  Form of study: Lecture / Seminar / Practical
  Recommended extent of course (in hours):
  Per week: 2 / 0 / 1 **For the study period:** 26 / 0 / 13
  Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 5.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
During the semester, students work in groups on their own project. For created projects students can get 60 points.
There are also two written examinations, each for 20-20 points during the semester.
At least 90% of the points must be obtained for the A rating, and at least 80% for the B rating, for grade C at least 70% points, for grade D at least 60% points and for rating E at least 50% points.
Credits will not be granted to a student who at the end of the semester did not collect 50% of points

Results of education:
Education results - knowledge:
The aim of the subject is to provide students with basic information about computer graphics. Students should understand the basic principles of creation, storage and transfer of image data and should be able to apply the principles of computer graphics in practice when working with images. The task is also to prepare graduates of the subject to handle end-user problems in the field of computer graphics.
Learning outcomes - skills:
After successfully completing the course, students will acquire basic knowledge and skills in the field of computer graphics. Students will be able to implement graphical algorithms. Students will able to use image processing libraries.
Education results - competences:
Students will get to know basic algorithms of computer geometry and image processing. Based on their experience, students will be able to propose approaches to solve problems related to computer geometry and computer vision.

Brief syllabus:
- Basic concepts of computer graphics.
- Analytical geometry - description of a set of points using equations, modeling of curves, modeling areas.
- Curves and surfaces in PG, Ferguson curve, Bezier curves and surfaces, B-spline curves.
- Curves and surfaces, transformations, Geometric transformations, projective geometry, homogeneous coordinates.

- Imaging methods: central and parallel projections, axonometry.
- Geometric and tessellation algorithms; algorithms for processing intrusions.
- Methods of removing invisible edges, shading, internal display of graphic objects.
- Characterization of raster images, their acquisition and display.
- Physical properties of colors, human perception of colors. Color resolution, bit depth.
- Raster graphics formats, methods of compression of raster images.
- Image processing – edge highlighting, noise suppression, etc.
- Stereograms, characterization of vector images.
- Fractals and their use in compression. Vector and meta-formats. General structure of graphic file.

Literature:
GAMBETTA, G.: Computer Graphics from Scratch. No Starch Press, 2021. ISBN: 9781718500761
SOBOTA, B. – MILIÁN, J.: Grafické formáty. České Budejovice : Kopp, 1996, 157 p. ISBN 80-85828-58-8.
CHAPMAN, N. - CHAPMAN, J.: Digital multimedia. John Wiley & Sons, Second Edition, 2003, 700 p. ISBN 0470858907.
BODNÁR, I. - NAGY, Z.: Számítógépes prezentáció és grafika. Budapest : PC-START STÚDIÓ, 1998, 186 p. ISBN 9630499371.
SZIRMAY - KALOS, L.: Háromdimenziós grafika, animáció és játékfejlesztés. Budapest : ComputerBooks, 2004, 486 p. ISBN 9636183031.
SZIRMAY - KALOS, L.: Számítógépes grafika. Budapest : ComputerBooks, 2003, 334 p. ISBN 963 618 208 6.
VARGA, M.: 3D grafika a modellezés és megjelenítés. Bicske : Szak, 2004, 200 p. ISBN 9789639131613.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of the student's workload:
31% of the load - direct teaching
19% of the load - preparation for lectures and exercises
29% of the load - work on a semester project
21% of the load - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 6

A	B	C	D	E	FX
0.0	0.0	0.0	50.0	16.67	33.33

Teacher: prof. József Zoltán Kató, DSc., László Marák, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ PHW/22	**Name:** Computer Hardware

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 2 / 0 / 1 **For the study period:** 26 / 0 / 13
 Methods of study: present

Number of credits: 6

Recommended semester/trimester of study: 1.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
Continuous evaluation during the semester: 50% of the total grade. There will be a written examination at the end of the semester, in which a maximum of 30 points can be obtained. Students work independently on a semester project during the semester; a total of 20 points can be earned for submitting and presenting the semester project.
Examination: 50% of the total grade. The course will end with a written examination, in which 50 points can be obtained. A score of at least 50% of the exam grade is required to pass the exam.
In addition to contact instruction, students will prepare for practicums, prepare for a written review, work on their term projects, and prepare for the exam.
The overall grade is the sum of the scores from the midterm and final exam. A grade of A requires a minimum of 90 points, a grade of B requires a minimum of 80 points, a grade of C requires a minimum of 70 points, a grade of D requires a minimum of 60 points, and a grade of E requires a minimum of 50 points. Credit will not be awarded to a student who obtains less than 50 points.

Results of education:
Learning outcomes - knowledge:
The student knows the basic principles of logic circuits. The student knows the basic logic operators and logic modules. The student knows the internal components of computers and the operation of basic components such as the arithmetic and logic unit, control unit and memory. The student knows the basic differences between different architectures.
Learning Outcomes - Skills:
The student is able to design simple logic circuits using simulation programs. The student is able to implement simple logic modules, memory modules, comparators and registers.
Learning Outcomes - Competencies:
The student is proficient in the theory of logic circuits, knows the internal components of computers, and knows the basic functions of the components. The student knows the differences between different architectures is aware of the advantages and disadvantages of each architecture.

Brief syllabus:
- Current, voltage, charged particles, electrical resistance, semiconductors and semiconductor components.

- Fundamentals of logic circuits, diodes and transistors
- Logic circuits. Binary logic operators.
- Electrical implementation of logic circuits
- Computer memory, D-Latch, Enabler, Register, Shift Register, Memory addressing
- Computer bus, bus communication
- Combination of logic gates, logic modules, addition module (ADD), comparison module (CMP)
- Arithmetic and logic unit
- Computer frequency, oscillator and timer, stepper
- Control unit and instructions
- Four basic types of instructions (arithmetic and logic instructions, instructions to manipulate the address of the current JMP instruction, comparison instructions, load and dump instructions)
- Alternative architectures for general-purpose GPGPUs
- Alternative architectures user-programmable FPGA arrays of logic members

Literature:
Scott, J. (2009). But how Do it Know?: The Basic Principles of Computers for Everyone. John C. Scott.
Justin Rajewski (2017). Learning FPGAs (2017). O'Reilly Media, Inc. ISBN: 9781491965498
Jason Sanders, Edward Kandrot (2010), CUDA by Example: An Introduction to General-Purpose GPU Programming. Addison-Wesley Professional. ISBN: 9780132180160

Language, knowledge of which is necessary to complete a course:
Hungarian language

Notes:
Student workload:
26% of the workload - direct teaching
24% of the workload - preparation for lectures and exercises
26% of the workload - work on the semester project
24% of the workload - exam preparation

Evaluation of subjects
Total number of evaluated students: 89

A	B	C	D	E	FX
38.2	24.72	6.74	15.73	3.37	11.24

Teacher: prof. András Molnár, PhD., László Marák, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ PPE/22	**Name:** Programming in Perl

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 0 / 0 / 2 **For the study period:** 0 / 0 / 26
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 3.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 In order to pass the course short programs must be presented. For a successful presentation
 10 points can be earned and the number of assignments for independent work will be 10. For
 assessment A should be obtained at least 90 points, for assessment B at least 80 points, for
 assessment C at least 70 points, for assessment D at least 60 points, for assessment E at least 50
 points.

Results of education:
 Educational outcomes - knowledges:
 The goal of the course is to teach students the basics of one of the most versatile scripting
 languages. It is expected that upon completion of the course, students will be able to understand
 programs that are written in Perl language and will be able to write their own simple Perl scripts.
 Educational outcomes - skills:
 They will be able to analyze, algorithmize, and solve problems.
 Educational outcomes - competencies:
 Demonstrates a high degree of independence in the development of programs and applications.

Brief syllabus:
 An Introduction to Perl.
 Instructions, expr.essions, conditionals and loops.
 Scalar variables, lists, arrays and hashes
 Functions, patter matching with regular expressions.
 Working with Files and I/O, managing Files and Directories.
 Doing More with Regular Expressions.
 Debugging Perl, using Perl for CGI Scripting.
 Modules and packages.

Literature:
 1. LEMAY, L.: Perl mesteri szinten. Budapest : Kiskapu Kft., 2003, 744 p. ISBN 963 9301 51 5.
 2. KYSELA, M.: Perl (Kapesní pruvodce programátora). Havlíčkuv Brod : Grada Publishing,
 2005. 134 p. ISBN 80 247 1170 2.
 3. BLANK – EDELMAN, D. N.: Perl rendszergazdáknak. Budapest : Kossuth Kiadó, 2003, 440
 p. ISBN 963 094 385 9.

4. CPAN – The Comprehensive Perl Archive Network. Link: http://
www.cpan.org/.
5. KRUMINS P.: Perl One-Liners. San Francisco: No Starch Press, 2014, 146 p. ISBN
978-1-59327-520-4

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Students' load distribution:
35% of the load - direct teaching
30% of the load - preparation for exercise classes
35% of the load - work on programming tasks

Evaluation of subjects
Total number of evaluated students: 4

A	B	C	D	E	FX
0.0	0.0	25.0	0.0	75.0	0.0

Teacher: doc. RNDr. József Bukor, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ PPR/22	**Name:** Programming of Processors - Assembly

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 2 / 0 / 1 **For the study period:** 26 / 0 / 13
 Methods of study: present

Number of credits: 4

Recommended semester/trimester of study: 4.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
Continuous assessment throughout the semester: 50% of the total assessment. The semester
ends with a written exam with a maximum of 30 points. Students will work independently on
a term project during the semester; a total of 20 points will be awarded for the submission and
presentation of the term project.
Exam: 50% of the total assessment. The course culminates in a written exam, which is worth 50
points. A minimum score of 50% is required to pass the exam.
In addition to the classroom training, students prepare for practicals, prepare for the written test,
work on their term projects and prepare for the exam.
The overall grade is the sum of the mid-term and final exam scores. Student must obtain at least
90 points for grade A, 80 points for grade B, 70 points for grade C, 60 points for grade D and 50
points for grade E. No credit may be awarded to a student who scores less than 50 points.

Results of education:
Knowledge: The students will be given an overview of the architecture of well-known processors
and will be familiar with the most important instructions of the Assembler language.
Skills: The students will be able to understand computer principles, be able to create programs
demonstrating basic computer principles, and be able to apply the knowledge acquired to solve
more complex problems.
Competences: The students are able to work effectively and independently; they has an active and
responsible attitude towards the subject.

Brief syllabus:
Basic concepts, overview of known processors.
Processor registers and instruction set.
Implementation of programs at machine code level, their relation to the operating system.
General characteristics of compilers.
Executable file structure (COM and EXE file structure)
Programming in Assembler. Subroutines and the stack.
Addressing. Arithmetic of integers.
Jumps, iterations.
Logical and bitwise operations. Tables, strings.

Creating simple sequential programs, input/output implementation operations.
Calculations, data conversion, simulations.
Linking assembler and higher level languages.

Literature:
AGÁRDI, G.: Gyakorlati Assembly. Budapest: LSI oktatóközpont, 2002. 212 s. ISBN 978-963-577-1177.
AGÁRDI, G.: Gyakorlati Assembly haladóknak. Budapest: LSI oktatóközpont, 2002. 208 s. ISBN 978-963-577-141X.
HORVÁTH, G.: Assembly védett módú programozás. Budapest: LSI Oktatóközpont, 2003. 240 s. ISBN 978-963-577-1991
TANNENBAUM, A. S.: Számítógéparchiktektúrák. Budapest : Panem, 2001. 720 s. ISBN 978-963-545-282-9.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of student workload:
39% of workload - direct teaching
22% of the workload - preparation for lectures and exercises
22% of the workload - work on the semester project
17% of the workload - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 4

A	B	C	D	E	FX
0.0	0.0	50.0	25.0	25.0	0.0

Teacher: prof. András Molnár, PhD., Mgr. Norbert Annuš

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ PPY/22	**Name:** Programming in Python

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 0 / 0 / 2 **For the study period:** 0 / 0 / 26
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 3.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 An independent final work of the student who develops his/her own project and demonstrates his/her knowledge based on the topics covered during the semester. The instructor evaluates the work from several aspects (implementation, code quality, etc.) depending on the topic. In order to obtain a grade of A, it is necessary to obtain at least 90%, to obtain a grade of B at least 80%, C-70%, D-60%, and to obtain a grade of E at least 50%.

Results of education:
 Learning Outcomes - Knowledge:
 The aim of the course is to teach students the basics of one of the most versatile languages.
 After completing the course, students are expected to be able to understand and write their own programs. They will be able to write their own simple Python scripts. Students will become familiar with Python data structures and syntax. Provided by also insight into looping, branching, and file management. They solve real-world problems using the language Python.
 Learning Outcomes - Skills:
 During the course, the students will gain insight into the use of a popular language. They will be able to check code quality, detect and fix bugs in code, and manage directories. The students will be able to check and correct code, manage files. Acquire idea of the tools (modules, algorithms, etc.) needed for the planned projects.
 Learning outcomes - competences:
 The students will be able to solve real-world problems using Python with the knowledge acquired during the course. They will learn Python with the knowledge gained in the course and will be able to create custom functions and automate certain computer tasks (e.g. data collection, visualization, etc.)

Brief syllabus:
 1. Introduction to the development environment
 2. Using simple variables, text output, input
 3. Cycles and branches, getting familiar with libraries
 4. Creating simple games
 5. Strings, string operations, string formatting
 6. File management, scanning files (txt, csv, json)

7. Using functions
8. Data analysis and insight into the use of more advanced libraries
9. Debugging, documentation, simple program creation
10. Python and the web - insight into web applications
11. Web scraping and web crawling with Python
12. Create visualizations with Python
13. Evaluation

Literature:
1. Learning Python / Mark Lutz. - 5. vyd. : O´Reilly Media, 2013. - 1541 s. - ISBN 978-1-449-35573-9.
2. Python for Data Analysis : Data Wrangling with Pandas, NumPy, and IPython / Wes McKinney. - 1. vyd. - Sebastopol : O'Reilly Media, 2013. - 452 s. - ISBN 978-1-449-31979-3.
3. Python Pocket Reference / Mark Lutz. - 5. vyd. - Sebastopol : O'Reilly Media, 2014. - 254 s. - ISBN 978-1-449-35701-6.
4. Automate the Boring Stuff with Python. https://automatetheboringstuff.com/
5. The Big Book of Small Python Projects. http://inventwithpython.com/bigbookpython/
6. Invent Your Own Computer Games with Python, 4th Edition. http://inventwithpython.com/invent4thed/
7. Think Python 2e. https://greenteapress.com/wp/think-python-2e/
8. Python Notes for Professionals book. https://goalkicker.com/PythonBook/
9. CS50's Web Programming with Python and JavaScript. https://cs50.harvard.edu/web/2020/
10. learnpython.org. https://www.learnpython.org/
11. Python Tutorial. https://www.w3schools.com/python/
12. Learn Python Programming. https://www.programiz.com/python-programming

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of student workload:
35% - direct teaching
30% - preparation for exercises
35% - work on the semester project

Evaluation of subjects
Total number of evaluated students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Teacher: PaedDr. Márk Csóka

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	
Name of the faculty: Faculty of Economics and Informatics	
Code: KINF/AIdb/ PR1/22	**Name:** Programming 1 - Algorithmization and Programming

Types, range and methods of educational activities:
Form of study: Lecture / Seminar / Practical
Recommended extent of course (in hours):
Per week: 2 / 0 / 2 **For the study period:** 26 / 0 / 26
Methods of study: present

Number of credits: 6

Recommended semester/trimester of study: 1.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
During the semester, students must pass at least two practical examinations, which are evaluated by percentage. Each student solves assigned programming tasks independently as part of homework and continuously submits a specified number of debugged programs that are evaluated. Students' activity during the practical classes is also monitored. Active students receive a certain bonus that is added to the student's score during the semester. Students from written practical examinations as well as submitted programs must obtain a minimum of 50% evaluation to be allowed to take the exam. The teacher who leads the practical classes will prepare the assessment of the students from the individual components of the ongoing training during the semester.
The exam is combined and consists of practical programming (solving assigned tasks) and verification of theoretical knowledge from algorithmization and programming. To be classified, students must be at least 50% successful in the exam. Students are classified according to the obtained average from the overall evaluation of the continuous training during the semester and the exam. To obtain an A classification, it is necessary to obtain an average of at least 90%, to obtain a B grade at least 80%, for a C grade at least 70%, for a D grade at least 60%, for an E grade at least 50%. Credits for the subject will not be awarded to a student who does not pass at least 50% of the individual parts.

Results of education:
Educational outcomes - knowledges:
After completing the course, the students have the necessary knowledge to create simple C programs, they know what an algorithm is, what a sequence, selection and iteration are, what a structured flowchart is made of. They know the algorithms for calculating the sum and average of array elements, the algorithm for finding the elements of an array, the algorithm for finding the maximum and minimum elements of an array and their indices, the algorithm for mirroring an array, etc. They know the necessary data types, control structures, standard libraries and their frequently used functions, the syntax and semantics of the C programming language. They can transcribe the flowchart into program code.
Educational outcomes - skills:
After completing the subject, students can analyze and solve simpler problems, they are able to develop algorithm as a series of logical steps, express it with a structured flowchart and rewrite it

into a program code. They are proficient in the chosen programming environment and have basic programming knowledge, effectively use standard control structures and elements of the chosen programming language.
Educational outcomes - competencies:
After completing the course, students can independently solve simple programming tasks, create algorithms and simple programs in the C programming language.

Brief syllabus:

1. Basic properties of algorithms, their creation and expression. Verbal and graphical expression of algorithms. Basic algorithmic structures and their usage.
2. Creation of algorithms and algorithmic procedures to solve various problems and tasks.
3. Compilation of source code in C language. Preprocessor. Object files. Creating an executable program.
4. Structure of the program in the C programming language. Syntax and semantics.
5. Basic data types (int, float, double, char), strings (char[]). An internal representation of the standard data types of the programming language. Variables and constants.
6. Standard libraries of the C programming language (stdio.h, math.h, stdlib.h, time.h, limits.h, etc.). Standard input and output. Standard functions, their syntax and semantics.
7. Control structures: sequence (block), selection (condition, switch) and iterations (for loop, while loop, do while loop).
8. Functions. Creating functions without parameters and with parameters. Hierarchization of the structure of the program code. Global and local variables.
9. Static one-dimensional arrays (vectors). Indexes of array elements. Basic algorithms on arrays (sum and average of elements, finding array elements, determining minimum and maximum, determining minimum and maximum indices, merging and intersecting arrays, exchanging elements, sorting array elements, etc.).
10. Pointers. Representation of pointers in computer memory. Different types of pointers in C (void*, int*, double*). Dynamic memory allocation using pointers.
11. Pointers and arrays. Dynamically created arrays.
12. Complex data types - data structure. Statically and dynamically created arrays of structures.

Literature:

1. PROKOP, J.: Algoritmy v jazyku C a C++. 3. aktualizované vyd. Praha : Grada Publishing, 2015. 200 s. ISBN 978-80-247-5467-3.
2. PERRY, G., MILLER, D.: C Programming : Absolute Beginner's Guide . 3. vyd. Harlow : Pearson Education, 2014. 337 s. ISBN 978-0-7897-5198-0.
3. IVÁNYI, A.: Informatikai algoritmusok I. 1. vyd. Budapest : ELTE Eötvös Kiadó, 2004. 816 s. ISBN 963 463 664 0.
4. IVÁNYI, A.: Informatikai algoritmusok II. 1. vyd. Budapest : ELTE Eötvös Kiadó, 2005. 750s. ISBN 963 463 775 2.
5. KNUTH, D. E.: The Art of Computer Programming Vol. 1 : Fundamental Algorithms. 3. vyd. New York : Addison-Wesley, 2015. 652 s. ISBN 978-0-201-89683-1.
6. KNUTH, D. E.: The Art of Computer Programming Vol. 3 : Sorting and Searching. 2. vyd. New York : Addison-Wesley, 2015. 782 s. ISBN 978-0-201-89685-5.
7. SPRAUL, V. A.: Think like a programmer : An Introduction to Creative Problem Solving. 1. vyd. San Francisco : No Strach Press, 2012. - 233 s. - ISBN 978-1-59327-4245.
8. STOFFA, V.: Algoritmizáció és programozás I. Komárno : Selye János Egyetem, 2005. 174 s. ISBN 80-969251-7-2.
9. STOFFA, V., CZAKÓ, K., VÉGH, L.: Programozás a gyakorlatban : Algoritmizáció és programozás II. 1. vyd. Komárno : Selye János Egyetem, 2015. 124 s. ISBN 978-80-8122-146-0.

10. SIROKI, L: C programozás kezdőknek. https://sites.google.com/site/sirokilaszlo/programozas/c-programozas-kezdoknek
11. HOROVČÁK, P., PODLUBNÝ, I.: Úvod do programovania v jazyku C. http://people.tuke.sk/igor.podlubny/C/index.htm
12. KRIVÁ, Z.: Základy programovania v jazyku C. Bratislava : STU, 2020. https://www.svf.stuba.sk/buxus/docs/dokumenty/skripta/Kriva_Z._-_ZAKLADY_PROGRAMOVANIA_V_JAZYKU_C.pdf
13. C Tutorial. https://www.tutorialspoint.com/cprogramming/index.htm
14. Learn C Programming. https://www.programiz.com/c-programming
15. VÉGH, L.: Interaktív animációk az algoritmusok és a programozás tanítására. https://anim.ide.sk/

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Students' load distribution:
35% of the load - direct teaching
17% of the load - preparation for lectures and exercise classes
24% of the load - work on programming tasks
24% of the load - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 65

A	B	C	D	E	FX
12.31	24.62	30.77	20.0	12.31	0.0

Teacher: prof. József Zoltán Kató, DSc., PaedDr. Ladislav Végh, PhD., PaedDr. Márk Csóka

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ PR2/22	**Name:** Programming 2 - Programming and Data Structures

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 1 / 0 / 2 **For the study period:** 13 / 0 / 26
 Methods of study: present

Number of credits: 6

Recommended semester/trimester of study: 2.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 During the semester, students must pass at least two practical examinations, which are evaluated by percentage. Each student solves assigned programming tasks independently as part of homework and continuously submits a specified number of debugged programs that are evaluated. Students' activity during the practical classes is also monitored. Active students receive a certain bonus that is added to the student's score during the semester. Students from written practical examinations as well as submitted programs must obtain a minimum of 50% evaluation to be allowed to take the exam. The teacher who leads the practical classes will prepare the assessment of the students from the individual components of the ongoing training during the semester.
 The exam is combined and consists of practical programming (solving assigned tasks) and verification of theoretical knowledge from algorithmization and programming. To be classified, students must be at least 50% successful in the exam. Students are classified according to the obtained average from the overall evaluation of the continuous training during the semester and the exam. To obtain an A classification, it is necessary to obtain an average of at least 90%, to obtain a B grade at least 80%, for a C grade at least 70%, for a D grade at least 60%, for an E grade at least 50%. Credits for the subject will not be awarded to a student who does not pass at least 50% of the individual parts.

Results of education:
 Educational outcomes - knowledges:
 After completing the course, students have the knowledge needed to create more complex programs in C programming language. They know various sorting algorithms and the differences between them, basic algorithms for working with matrices and multidimensional arrays. They know various programming techniques: recursion and backtracking. They know the method of working with files and know the necessary functions for this. They have knowledge of dynamic data structures: linear lists, cyclic lists, tree structures. They know different methods of creating software products.
 Educational outcomes - skills:
 After completing the course, students can analyze and solve more complex problems, they know how to compile a solution algorithm even for a more complex problem and rewrite the algorithm into program code in the C language. They skillfully use the chosen programming environment

and have more advanced programming skills, the use of recursion and backtracking, the effective use of dynamic data structures and different programming methods.
Educational outcomes - competencies:
After completing the course, students demonstrate independence in solving more complex programming problems, creating algorithms and more complex programs in the C programming language.

Brief syllabus:
1. Sorting as a suitable example for searching for an efficient algorithm: simple exchange sort, bubblesort, insertion sort, selection sort. Time computational complexity of sorting algorithms.
2. Programming technique: recursion. Solving simple recursion problems. Solving the Tower of Hanoi problem with recursion.
3. Sorting algorithms using recursion: quicksort, mergesort. Time computational complexity of sorting algorithms using recursion.
4. Two- and multidimensional fields. Basic algorithms on matrices (sum and average of elements, finding elements of a matrix, determining the minimum and maximum, determining the minimum and maximum indices, exchanging elements, sorting the matrix, working with rows and columns of the matrix, etc.). Using multidimensional arrays.
5. Programming technique: backtracking. The problem of eight queens.
6. Solving other backtracking tasks: Finding a path in a labyrinth, Moving a horse on a chessboard.
7. File as a useful tool for transferring data between programs and their environment. File structure, declaration, file type, file access, file operations. Standard functions for working with files. Methods of working with files.
8. Dynamic data types and structures: Concept of dynamic variable, their representation in computer memory. Examples of dynamic data structures: linear list, stack, queue, and their use in programming.
9. Implementation of standardized data structures (linear one-way list, linear two-way list, cyclic lists, tree structures, network structures). Using appropriate data structures to simplify problem solving.
10. Creation of software products. Top-down method, bottom-up method, functional programming, modular programming.
11. Creation of program systems. The procedure for creating a program to solve a problem: problem analysis, problem reformulation, decomposition, etc. Methods of creating program projects and their characteristics. Cooperation and management of the work of the programming team.
12. Solving complex programming problems and assignments.

Literature:
1. PROKOP, J.: Algoritmy v jazyku C a C++. 3. aktualizované vyd. Praha : Grada Publishing, 2015. 200 s. ISBN 978-80-247-5467-3.
2. PERRY, G., MILLER, D.: C Programming : Absolute Beginner's Guide . 3. vyd. Harlow : Pearson Education, 2014. 337 s. ISBN 978-0-7897-5198-0.
3. IVÁNYI, A.: Informatikai algoritmusok I. 1. vyd. Budapest : ELTE Eötvös Kiadó, 2004. 816 s. ISBN 963 463 664 0.
4. IVÁNYI, A.: Informatikai algoritmusok II. 1. vyd. Budapest : ELTE Eötvös Kiadó, 2005. 750s. ISBN 963 463 775 2.
5. KNUTH, D. E.: The Art of Computer Programming Vol. 1 : Fundamental Algorithms. 3. vyd. New York : Addison-Wesley, 2015. 652 s. ISBN 978-0-201-89683-1.
6. KNUTH, D. E.: The Art of Computer Programming Vol. 3 : Sorting and Searching. 2. vyd. New York : Addison-Wesley, 2015. 782 s. ISBN 978-0-201-89685-5.

7. SPRAUL, V. A.: Think like a programmer : An Introduction to Creative Problem Solving. 1. vyd. San Francisco : No Strach Press, 2012. - 233 s. - ISBN 978-1-59327-4245.

8. STOFFA, V.: Algoritmizáció és programozás I. Komárno : Selye János Egyetem, 2005. 174 s. ISBN 80-969251-7-2.

9. STOFFA, V., CZAKÓ, K., VÉGH, L.: Programozás a gyakorlatban : Algoritmizáció és programozás II. 1. vyd. Komárno : Selye János Egyetem, 2015. 124 s. ISBN 978-80-8122-146-0.

10. SIROKI, L: C programozás kezdőknek. https://sites.google.com/site/sirokilaszlo/programozas/c-programozas-kezdoknek

11. HOROVČÁK, P., PODLUBNÝ, I.: Úvod do programovania v jazyku C. http://people.tuke.sk/igor.podlubny/C/index.htm

12. KRIVÁ, Z.: Základy programovania v jazyku C. Bratislava : STU, 2020. https://www.svf.stuba.sk/buxus/docs/dokumenty/skripta/Kriva_Z._-_ZAKLADY_PROGRAMOVANIA_V_JAZYKU_C.pdf

13. C Tutorial. https://www.tutorialspoint.com/cprogramming/index.htm

14. Learn C Programming. https://www.programiz.com/c-programming

15. VÉGH, L.: Interaktív animációk az algoritmusok és a programozás tanítására. https://anim.ide.sk/

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Students' load distribution:
26% of the load - direct teaching
17% of the load - preparation for lectures and exercise classes
33% of the load - work on programming tasks
24% of the load - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 65

A	B	C	D	E	FX
33.85	40.0	12.31	12.31	1.54	0.0

Teacher: prof. József Zoltán Kató, DSc., PaedDr. Ladislav Végh, PhD., PaedDr. Márk Csóka

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ PR3/22	**Name:** Programming 3 - Programming under Windows OS

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 1 / 0 / 2 **For the study period:** 13 / 0 / 26
 Methods of study: present

Number of credits: 6

Recommended semester/trimester of study: 3.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
During the semester, each student must create one project (a complex application in the C# language under the Windows operating system) as part of their homework, which they must submit at the end of the semester. Each student must receive a minimum of 50% assessment in order to be allowed to take the exam. Students' activity during exercises is also monitored. Active students receive a certain bonus, which is added to the student's evaluation during the semester. The exam is combined and consists of practical programming (solving the assigned task) and verification of theoretical knowledge from object-oriented programming. In order to be classified, students must be at least 50% successful in the exam.
Students are classified according to the obtained average from the overall evaluation of the continuous training during the semester (submitted project + activity during the exercises) and the exam. To obtain an A classification, it is necessary to obtain an average of at least 90%, to obtain a B grade at least 80%, for a C grade at least 70%, for a D grade at least 60%, for an E grade at least 50% . Credits for the subject will not be awarded to a student who does not pass at least 50% of the individual parts.

Results of education:
Knowledge:
Students have the necessary knowledge to create an application with a graphical interface in the C# language. They know the object-oriented programming paradigm, different concepts of object-oriented programming, some standard classes of the C# language. They know the method of creating a complex application with a graphical interface under the Windows operating system.
Skills:
Students can analyze and solve more complex problems, they can create a complex application with a graphical interface in the C# language. They skillfully use the chosen programming environment and have more advanced skills in programming applications with a graphical interface under the Windows operating system.
Competencies:
Students demonstrate independence in solving more complex programming tasks, creating complex applications with a graphical interface under the Windows operating system in the C# programming language.

Brief syllabus:

1. Programming under the Windows operating system, overview of programming languages, visual, event-driven programming.

2. Programming in the C# language. Overview of C# data types and structures. Value data types (struct) and reference data types (class). Converting data, using the Convert static class. Basic C# components and events (Label, Button, TextBox, CheckBox, RadioButton, ListBox, etc.), component properties and events.

3. Object-oriented programming (OOP). Encapsulation, polymorphism, inheritance, class and object. Data (attributes) and methods. Constructor. Access to data and methods, visibility modifiers (public, private, protected).

4. Inheritance, polymorphism. Static and dynamic type, static and dynamic binding (early binding, late binding). Class hierarchy, object in C#. Compatibility and class conversion.

5. Overloaded methods, overloaded constructor. Examples of their use in C#.

6. Abstract class, abstract methods. Examples of using abstract classes.

7. Static classes, static methods and static data. Examples of using static classes.

8. Standard dialog boxes and their use in C# (ColorDialog, FontDialog, OpenFileDialog, SaveFileDialog).

9. Working with files. Streams in C#, classes Stream, BufferedStream, and FileStream. Reading and writing text files in C#, using methods File.ReadAllText, File.WriteAllText, and classes StreamReader, StreamWriter.

10. Graphics, drawing. Paint Event and Invalidate Method in C#. Classes and structures used in drawing: to define coordinates (Point, Rectangle), line and fill color (Pen, SolidBrush), drawing using methods of the Graphics class (DrawLine, DrawImage, DrawRectangle, FillRectangle, DrawEllipse, FillEllipse).

11. Comparison of usability of structure (struct) and class (class) in C# language. Defining and using the enumeration type (enum), creating and using interfaces (interface).

12. Genericity (generics) and generic collections in the C# language: classes List, LinkedList, Dictionary, SortedList, HashSet, SortedSet, Queue, Stack.

13. Exceptions, exception classes in C# (Exception, FormatException, IOException, FileNotFoundException). Handling exceptions with the try-catch-finally command, creating exceptions with the throw keyword. Defining and using custom exception classes.

Literature:

1. ANDERSON, T.: C# in Easy Steps. 1. vyd. Southam : Computer Step, 2004. 192 s. ISBN 1-84078-150-5.

2. HANÁK, J.: C# praktické príklady. 1. vyd. 290 s. ISBN 80-247-0988-0.

3. ARCHER, T.: Myslíme v jazyku C# = Knihovna programátora. 2. vyd. Praha : Grada Publishing, 2002. 308 s. ISBN 80-247-0301-7.

4. PETZOLD, CH.: Programování Microsoft Windows v jazyce C#. 1. vyd. Praha : SoftPress, 2003. 600 s. ISBN 80-86497-54-2.

5. KOTSIS, D., SZÉNÁSI, S.: Többnyelvű programozástechnika : Object Pascal, C++, C#, Java. 1. vyd. Budapest : Panem Könyvkiadó Kft., 2007. 580 s. ISBN 978 9 635454 72 3.

6. ILLÉS, Z. Programozás C# nyelven. Budapest, 2005. http://compalg.inf.elte.hu/~tony/Informatikai-Konyvtar/09-Programozas%20C-sharp%20nyelven/Programozas-Csharp-nyelven-Konyv.pdf

7. KOVÁCS, E., RADVÁNYI, T., KIRÁLY, R., HERNYÁK, Z.: C# feladatgyűjtemény. 2011. https://dtk.tankonyvtar.hu/xmlui/bitstream/handle/123456789/8447/0046_csharp_feladatgyujtemeny.pdf

8. C# Tutorial. https://www.tutorialspoint.com/csharp/index.htm

9. C# Tutorials. https://www.tutorialsteacher.com/csharp

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Students' load distribution:
26% of the load - direct teaching
17% of the load - preparation for lectures and exercises
33% of the load - work on a semester project
24% of the load - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 8

A	B	C	D	E	FX
0.0	25.0	25.0	12.5	25.0	12.5

Teacher: prof. József Zoltán Kató, DSc., PaedDr. Ladislav Végh, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ PR4/22	**Name:** Programming 4 - Object Oriented Programming

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 1 / 0 / 2 **For the study period:** 13 / 0 / 26
 Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 4.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 During the semester, students have to pass three written tests on the main topics, which are evaluated by percentage. Students should prepare for the examinations at home by solving practical assignments. Students must obtain a minimum of 50% in each written examination to be allowed to take the exam. The overall evaluation of the continuous training of each student is calculated from the averages of three written examinations.
 The exam consists of practical programming (solving the given task). In order to be classified, students must be at least 50% successful in the exam.
 Students are classified according to the obtained average from the overall evaluation of the continuous training during the semester and the exam. To obtain an A classification, it is necessary to obtain an average of at least 90%, to obtain a B grade at least 80%, for a C grade at least 70%, for a D grade at least 60%, for an E grade at least 50% . Credits for the subject will not be awarded to a student who does not pass at least 50% of the individual parts.

Results of education:
 Education results - knowledge:
 After completing the course, students have knowledge of object-oriented programming, they have knowledge of creating programs in the Java language. They know what generic types are and know the generic collections of the Java language.
 Learning outcomes - skills:
 After completing the course, students can create and use classes and objects, use interfaces, events, generic types in Java. They skillfully use the chosen programming environment and have skills in programming in the Java language, effective use of generic collections of the Java language.
 Education results - competences:
 After completing the subject, students demonstrate independence in solving complex programming tasks, creating object-oriented programming code in Java.

Brief syllabus:
 1. Basics of the Java programming language: data types, control structures, syntax and semantics language. Getting to know the development environment.

2. Using strings, using single and multidimensional arrays in Java, using the Random class to generate random numbers.

3. Solving simpler assignments to practice programming in the Java language.

4. Classes and objects, attributes and methods, constructor, visibility modifiers in Java.

5. Theory of class inheritance, its use, inheritance in the Java language.

6. Exceptions, Use of Exceptions in Java.

7. Interfaces, creating and using interfaces.

8. Polymorphism in the Java language.

9. Java Stream I/O. Working with files.

10. Generic types, creation and use of generic classes.

11. Java Collections, possibilities of their use.

12. Solving complex programming tasks in the Java language.

Literature:

1. CADENHEAD, R.: Tanuljuk meg a java programozási nyelvet 24 óra alatt. 1. vyd. Budapest : Kispapu, 2006. 527 s. ISBN 963 963707 6.

2. BURD, B.: Java. 2. vyd. Budapest : Panem Könyvek, 2017. - 503 s. - ISBN 978-615-5186-52-3.

3. KOTSIS D., SZÉNÁSI S.: Többnyelvű programozástechnika : Object Pascal, C++, C#, Java. 1. vyd. Budapest : Panem Könyvkiadó Kft., 2007. 580 s. ISBN 978 9 635454.

4. MCGRATH, M.: JAVA. 5. vyd. Leamington : In Easy Steps, 2014. 192 s. ISBN 978-1-84078-621-7.

5. SZÉNÁSI, S.: Java programozási nyelv oktatása C# alapokon. Informatika a felsőoktatásban 2008, Debrecen, Magyarország, 2008, pp. 1-7.

Language, knowledge of which is necessary to complete a course:

Hungarian

Notes:

Students' load distribution:

26% of the load - direct teaching

17% of the load - preparation for lectures and exercises

33% of the load - work on a semester project

24% of the load - preparation for the exam

Evaluation of subjects

Total number of evaluated students: 8

A	B	C	D	E	FX
12.5	50.0	37.5	0.0	0.0	0.0

Teacher: prof. Sándor Szénási, PhD., PaedDr. Ladislav Végh, PhD.

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University

Name of the faculty: Faculty of Economics and Informatics

Code: KINF/AIdb/ PSI/22	**Name:** Computer Networks

Types, range and methods of educational activities: **Form of study:** Lecture / Seminar / Practical **Recommended extent of course (in hours):** **Per week:** 2 / 0 / 1 **For the study period:** 26 / 0 / 13 **Methods of study:** present

Number of credits: 5

Recommended semester/trimester of study: 5.

Level of study: I.

Prerequisites:

Conditions for passing the subject: The course is completed by a written examination, for which students can obtain 50% of the total number of points. During the semester, students will take two written examinations for which they may earn 50% of the total points. In addition to contact teaching, students prepare for practicals, prepare for written examinations, and prepare for an examination for a total of 98 hours. A minimum of 90 points is required for an A grade, a minimum of 80 points for a B grade, a minimum of 70 points for a C grade, a minimum of 60 points for a D grade and a minimum of 50 points for an E grade. Credit will not be awarded to a student who scores less than 50 points.

Results of education: Knowledge: Upon completion of the course, the student will: has theoretical knowledge of computer networks, knows the different network models and transmission technologies, knows the individual network competences, Knows the basic network protocols and addressing. Skills: Upon completion of the course, the student will: is able to design and implement a local computer network in terms of configuration, is able to combine different network components and standards, is able to independently implement network protocols. Competences: Upon completion of the course, the student will: can work effectively and implement the acquired theoretical knowledge, shows independence in solving more complex problems.

Brief syllabus: Concept of network, basic parts of a network. Reasons for the introduction of computer networks and the resulting basic network services. Basic types of computer networks (typology, topology, architecture). LAN, (MAN, WAN). Basic components of computer networks. Internet network, origin and evolution. Methods of access. Transmission network technologies.

ISO-OSI model.
TCP/IP protocol.
Internet applications and protocols.
IP address theory, domain addresses, content creation. Basics of security in computer networks.

Literature:

ROUBEL, P.: Hardware pro úplné začátečníky. Brno : Computer Press, 2003. ISBN 978-8072267302

SOSINKY, B.: Počítačové sítě : Vše, co potřebujete vědět o správě sítí. Brno : Computer Press, 2010. ISBN 978-80-251-3363-7

STOFFOVÁ, V.: Az informatika alapjai II - A számítógépes hálózatok. (Základy informatiky II – Počítačové siete.). 1. vyd. Komárno : Univerzita J. Selyeho, 2010, s. 140. ISBN 978-80-89234

CSIZMADIA, J.: Számítógépes hálózatok architektúrája - Elektronikus tankönyv. Komárno. Selye János Egyetem, 2009.

GYÁNYI, S.: Informatika 2. Óbudai Egyetem. 2014. http://dtk.tankonyvtar.hu/xmlui/handle/123456789/12567

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of students' workload:
31% of the workload - direct teaching
31% of the workload - preparation for lectures and exercises
38% of the workload - exam preparation

Evaluation of subjects
Total number of evaluated students: 5

A	B	C	D	E	FX
20.0	20.0	0.0	20.0	40.0	0.0

Teacher: Dr. habil. Dr. Gábor Kiss, PhD., Ing. Ondrej Takáč, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics

Code: KMAT/AIdb/ PST/22	**Name:** Probability and statistics

Types, range and methods of educational activities: Form of study: Lecture / Seminar / Practical   Recommended extent of course (in hours):   Per week: 1 / 0 / 2 **For the study period:** 13 / 0 / 26   Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 6.

Level of study: I.

Prerequisites:

Conditions for passing the subject: The course is finished by a written exam.   The assessment results are calculated from interim tests (50%) and from the final written exam (50%).   For assessment A should be obtained at least 90 points, for assessment B at least 80 points, for assessment C at least 70 points, for assessment D at least 60 points, for assessment E at least 50 points.

Results of education: The goal is to present the basics of probability theory and statistics. The successful completion of the course gives basic knowledge from probability theory and an overview of statistical methods.   Knowledge: - He/she understands abstract notions in curriculum and knows the relations among them. The student recognizes general patterns and concepts in applied problems.   - The student is familiar with basic mathematical relations in fields of probability and statistics.   - He/she has extended experience which serves him/her as a base for research activity and creation of new knowledge and its applications in practice.   Skills: - He/she applies knowledge of own theoretical analysis and complex research in solving problems in this area.   - He/she is able to deduce qualitative conclusions from quantitative data.   - He/she is able to apply knowledge of probability and statistics.   Competence: - He/she demonstrates a high level of self-activity in solving mathematical problems.   - Appplying his/her mathematical knowledge is able well understand observable phenomena, describe and explain their natural relations.   - He/she is able to apply mathematical knowledge in wide extent.

Brief syllabus: • Definition of the probability.   • The Kolmogorovs field of probability.   • Conditional probability. Bayes theorem. Independence of events. Bernoulli trials.

- Random variable. Probability distribution, probability density function. Characteristics of random variable.
- Discrete and continuous distributions.
- Laws of large numbers. Central limit theorem.
- Random sampling. Sampling methods.
- Theory of point estimation, basic properties of estimators.
- Estimation methods (maximum likelihood).
- Interval estimations. Confidence interval for the mean and variance. Hypothesis testing.
- Parametric and non-parametric tests.
- Correlation and regression analysis.

Literature:
1. FEHÉR, Z. - JARUSKA, L. Valószínűségszámítás és statisztika alapjai. Komárno : Univerzita J. Selyeho. 2015, 152 s. ISBN 978-80-8122-147-7.
2. OBÁDOVICS, J. GY. Valószínűségszámítás és matematikai statisztika. Budapest : Scolar Kiadó. 2003, s. 302. ISBN 963-9534-00-5.
3. LUKÁCS, O. Matematikai statisztika. Budapest : Műszaki könyvkiadó. 2003, s. 570. ISBN 963-16-3036-6.
4. HUNYADI, L. Statisztika. Budapest : Aula Kiadó Kft. 2001, s. 882. ISBN 963-9215-56-2.

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:
Distribution of student workload:
32% of the workload - direct teaching,
18% of the workload - preparation for lectures and exercises,
26% of the workload - preparation for examinations,
24% of the workload - preparation for examinations.

Evaluation of subjects
Total number of evaluated students: 6

A	B	C	D	E	FX
16.67	0.0	16.67	50.0	16.67	0.0

Teacher: Dr. habil. Attila Elemér Kiss, CSc., RNDr. Zoltán Fehér, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ ROB/22	**Name:** Robotics

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 0 / 0 / 2 **For the study period:** 0 / 0 / 26
 Methods of study: present

Number of credits: 4

Recommended semester/trimester of study: 4.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
The course is completed by a written examination for which a maximum of 40 points can be obtained. Students work independently on a semester project during the semester, and a total of 60 points can be earned for their submission and presentation.
In addition to contact teaching, students prepare for practicals, prepare for a written examination and work on their semester project.
At least 90 points are required for a grade of A, 80 points for a grade of B, 70 points for a grade of C, 60 points for a grade of D, and 50 points for a grade of E. Credit will not be awarded to a student who scores less than 50 points.

Results of education:
Learning outcomes - knowledge:
Upon completion of the course the student will:
- master the relevant professional terminology,
- knows the basic principles of mobile and stationary robots,
Learning Outcomes - Skills:
Upon completion of the course, the student will:
- Practical experience with lower level programming languages,
- is able to build a complex Arduino-based robot.
Learning outcomes - competences:
Upon completion of the course the student will:
- is able to work efficiently and implement the acquired theoretical knowledge,
- has an active and responsible approach to completing tasks,
- shows independence in solving more complex problems.

Brief syllabus:
 1. Introduction to the subject, basic terminology
 2. General description of microcontrollers, introduction to the Arduino board
 3. Programming/debugging programs, semester project assignment
 4. GPIO peripherals, controlling LEDs and switches
 5. ADC/DAC converters, potentiometers
 6. USART communication

7. I2C, SPI serial communication
8. Timers, PWM signal
9. Interrupts, watchdog
10. Real-time applications
11. Complex tasks, motor control
12. Control and navigation of ground robots
13. Semester project submission and evaluation

Literature:
STUART, R. - NORVIG, P.: Mesterséges intelligencia modern megközelítésben Budapest : Panem Könyvkiadó, 2005. 1206 s. ISBN 963 545 411 2.

KULCSÁR, B.: Robottechnika LSI Oktatóközpont, 2003. 394 s. ISBN 963 577 243 2.

CSEREY, G. – ISTENES, Z.: Autonom Mobil Robotok. Budapest: Eötvös Loránd Tudományegyetem, 2019. ISBN 978-963-284-467-1. http://dtk.tankonyvtar.hu/xmlui/handle/123456789/3722

MESTER, G.: Robotika. Szeged. Szegedi Tudományegyetem, 2011. ISBN 978-963-279-515-7. http://dtk.tankonyvtar.hu/xmlui/handle/123456789/7525

PIGLERNÉ, L. R. – STARKNÉ, W. A.: Ágens-technológia. Pannon Egyetem, 2011. http://dtk.tankonyvtar.hu/xmlui/handle/123456789/7529

LACZIK, B.: Robottechnika. EDUTUS Főiskola, 2012. http://dtk.tankonyvtar.hu/xmlui/handle/123456789/11920

SZABÓ, Z. – BUDAI, C. – KOVÁCS, L. – LIPOPVSKI, G.: Robotmechanizmusok. BME, 2014. http://dtk.tankonyvtar.hu/xmlui/handle/123456789/3421

Language, knowledge of which is necessary to complete a course:
Hungarian language

Notes:
Student workload:
26% of the workload - direct teaching
26% of the workload - preparation for exercises
48% of the workload - work on the semester project

Evaluation of subjects
Total number of evaluated students: 2

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Teacher: Ing. Ondrej Takáč, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ SPR/22	**Name:** Programming Seminar

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 0 / 0 / 2 **For the study period:** 0 / 0 / 26
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 1.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 During the semester, students will take two practical closed exams, which are graded on a percentage basis.
 Students who pass the final practical examinations must score at least 50% to be able to complete the subject. The exams consist of practical programming (solving problems). Students are graded according to the average obtained from their evaluation. A requires a minimum grade of 90%, B a minimum grade of 80%, C 70%, D 60% and E a minimum grade of 50%.

Results of education:
 Learning outcomes - knowledge:
 Students know what an algorithm is, what a sequence, selection and iteration are, what a structured flowchart consists of. They know the basic algorithms for calculating the sum and average of array elements, the algorithm for finding the elements of an array, the algorithm for finding the maximum and minimum elements and indices of an array, the algorithm for mirroring an array, etc. They know the required data types, control structures, standard libraries and their frequently used functions, the syntax and semantics of the C programming language.
 Learning outcomes - skills:
 Analyse and solve simple problems. Analyse problems and issues related to C programming. Understand flowcharts and use them to build programs. They can decompose a problem into its elementary parts and solve it. Know and use basic troubleshooting functions.
 Learning outcomes - competences:
 Show autonomy in solving simple programming problems, creating algorithms and simple programs in the C programming language.
 They have an idea of how to build simple programs and look for user-friendly implementations. They use text input and output to inform and assist the user. They are able to decide which data type is best used in a given situation.

Brief syllabus:
 1. Creating and expressing algorithms. Verbal and graphical algorithm description. Development environment.
 2. Variables and constants. Basic data types (int, float, char). Creating basic algorithms.
 3. Compiling source code in C. Solving basic mathematical algorithms.

4. Solving programming problems independently. Iterations and loops. Debugging.
5. Branching (conditional statements). solving basic algorithms independently.
6. Solve problems involving iterations and branching.
7. First closed examination
8. Using multiple data, limiting the users of the program and processing error messages
9. Arrays, solving problems with arrays and strings (char[]). Debugging and documentation.
10. Static one-dimensional arrays (vectors), solving basic algorithms for array elements and their indices
11. Solving complex problems with parameter-free functions. Global and local variables.
12 Solving complex problems with functions.
13. Second closed examination

Literature:

1. PROKOP, J.: Algoritmy v jazyku C a C++. 3. aktualizované vyd. Praha : Grada Publishing, 2015. 200 s. ISBN 978-80-247-5467-3.
2. PERRY, G., MILLER, D.: C Programming : Absolute Beginner's Guide . 3. vyd. Harlow : Pearson Education, 2014. 337 s. ISBN 978-0-7897-5198-0.
3. IVÁNYI, A.: Informatikai algoritmusok I. 1. vyd. Budapest : ELTE Eötvös Kiadó, 2004. 816 s. ISBN 963 463 664 0.
4. IVÁNYI, A.: Informatikai algoritmusok II. 1. vyd. Budapest : ELTE Eötvös Kiadó, 2005. 750s. ISBN 963 463 775 2.
5. KNUTH, D. E.: The Art of Computer Programming Vol. 1 : Fundamental Algorithms. 3. vyd. New York : Addison-Wesley, 2015. 652 s. ISBN 978-0-201-89683-1.
6. KNUTH, D. E.: The Art of Computer Programming Vol. 3 : Sorting and Searching. 2. vyd. New York : Addison-Wesley, 2015. 782 s. ISBN 978-0-201-89685-5.
7. SPRAUL, V. A.: Think like a programmer : An Introduction to Creative Problem Solving. 1. vyd. San Francisco : No Strach Press, 2012. - 233 s. - ISBN 978-1-59327-4245.
8. STOFFA, V.: Algoritmizáció és programozás I. Komárno : Selye János Egyetem, 2005. 174 s. ISBN 80-969251-7-2.
9. STOFFA, V., CZAKÓ, K., VÉGH, L.: Programozás a gyakorlatban : Algoritmizáció és programozás II. 1. vyd. Komárno : Selye János Egyetem, 2015. 124 s. ISBN 978-80-8122-146-0.
10. SIROKI, L: C programozás kezdőknek. https://sites.google.com/site/sirokilaszlo/programozas/c-programozas-kezdoknek
11. HOROVČÁK, P., PODLUBNÝ, I.: Úvod do programovania v jazyku C. http://people.tuke.sk/igor.podlubny/C/index.htm
12. KRIVÁ, Z.: Základy programovania v jazyku C. Bratislava : STU, 2020. https://www.svf.stuba.sk/buxus/docs/dokumenty/skripta/Kriva_Z._-_ZAKLADY_PROGRAMOVANIA_V_JAZYKU_C.pdf
13. C Tutorial. https://www.tutorialspoint.com/cprogramming/index.htm
14. Learn C Programming. https://www.programiz.com/c-programming
15. C Programming Notes for Professionals book. https://goalkicker.com/CBook/
16. VÉGH, L.: Interaktív animációk az algoritmusok és a programozás tanítására. https://anim.ide.sk/
17. This is CS50. https://cs50.harvard.edu/

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of student load:
35% - direct teaching

30% - preparation for exercises
35% - preparation for the ZH

Evaluation of subjects
Total number of evaluated students: 74

A	B	C	D	E	FX
17.57	18.92	13.51	9.46	10.81	29.73

Teacher: PaedDr. Ladislav Végh, PhD., PaedDr. Márk Csóka

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ TAP/22	**Name:** Spreadsheet Systems and their Programming

Types, range and methods of educational activities:
  Form of study: Lecture / Seminar / Practical
  Recommended extent of course (in hours):
  Per week: 0 / 0 / 2 **For the study period:** 0 / 0 / 26
  Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 2.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
During the semester, students' performance based on exercises will be evaluated (maximum 20 points). At the end of the semester, there will be a written examination with a maximum of 30 points. Students work independently on projects during the semester, for which a total of 50 points may be earned. At the end of the semester, students will turn in their completed projects along with documentation in a text file to be graded.
In addition to contact teaching, students prepare for practical exercises, prepare for the written examination, and work on their semester projects.
A minimum of 90 points is required for an A grade, a minimum of 80 points is required for a B grade, a minimum of 70 points is required for a C grade, a minimum of 60 points is required for a D grade and a minimum of 50 points is required for an E grade. Credits will not be awarded to a student who scores less than 50 points.

Results of education:
Learning Outcomes - Knowledge:
Upon completion of the course, the student:
- has practical knowledge of spreadsheets,
- knows the programming language for spreadsheet macros.
Learning Outcomes - Skills:
- Is able to create advanced spreadsheet output,
- is able to work with contingency tables,
- is able to work with matrices and investigate function extrema,
- is able to solve equations, systems of equations, optimization problems and regression problems,
- is able to create macros in a macro programming language.
Learning outcomes - competences:
- Can work effectively independently with spreadsheets.

Brief syllabus:
Work with contingency tables.
Operations with matrices.
Investigating the extremes of a function.

Solving linear and nonlinear equations.
Solving systems of linear and nonlinear equations.
Solving linear optimization problems - production and transport problems.
Solution of linear and non-linear regression problems.
Solution of simulation problems.
Programming language for macros. Record macros.
Creation of simple macros.
Creating advanced macros.
Creating standalone applications.

Literature:
BÁRTFAI, B.: Táblázatkezelési gyakorlatok. Budapest : BBS-INFO, 2003. 176 s. ISBN 978-963-863-920-2.
BALOGH, G.: Visual Basic és Excel programozás : Computerbooks. Budapest : ComputerBooks Kiadó Kft., 2000. 172s. ISBN 978-963-618-229-9.
PRICE, M.: Excel 2013 : in manageable chunks. Leamington : In Easy Steps, 2013. 192 s. ISBN 978-184078-574-6.
CHAJDIAK, J.: Štatistika jednoducho v Exceli. Bratislava : Statis, 2013. 340 s. ISBN 978-80-85659-74-0.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of student workload:
35% - direct teaching.
30% - preparation for exercises
35% - work on semester projects

Evaluation of subjects
Total number of evaluated students: 66

A	B	C	D	E	FX
15.15	18.18	9.09	24.24	15.15	18.18

Teacher: PaedDr. Márk Csóka, RNDr. József Udvaros, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KMAT/AIdb/ TEH/22	**Name:** Game theory

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 0 / 2 / 0 **For the study period:** 0 / 26 / 0
 Methods of study: present

Number of credits: 4

Recommended semester/trimester of study: 5.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
To successfully complete the course, it is necessary to complete homework exercises during the semester (40 points) and to pass the final written test at the end of the semester - problem solving (60 points). To obtain a grade of A, you must obtain at least 90 points, to obtain a grade of B at least 80 points, to obtain a grade of C at least 70 points, to obtain a grade of D at least 60 points and to obtain a grade of E at least 50 points.

Results of education:
After completing the course, students will have a basic knowledge of game theory. Students acquire the basic concepts of game theory and are able to apply the theoretical knowledge in practice when solving problems.
Knowledge:
- Understands abstract concepts related to the topics covered in the course outline, the requirements for defining them, and the relationships between them. Recognizes the general schemes and concepts involved in applied problems.
- Knows the methodology of developing mathematical models or analytical frameworks for investigating cognitive processes in mathematics and ways of supporting these processes. - Knows the principles and basic methods of mathematical proof.
- Knows how to illustrate concepts using appropriate examples.
Skills:
- Can formulate logical, true mathematical propositions with precise specification of their conditions and main consequences.
- Can abstract from the concrete form of problems, can formulate them in abstract, general form for the purpose of analysis and solution.
- Can construct mathematical models of simpler practical problems and search for and elaborate appropriate mathematical tools and procedures for their solution.
Competences:
- Is able to independently expand his/her mathematical knowledge, acquire new mathematical knowledge.
- Works effectively as an individual, member or leader of a small team.
- Demonstrates a high degree of independence in solving problems in areas of mathematics.

Brief syllabus:
- Basic concepts of game theory. Brief overview of the historical development of game theory. - Definition and examples of non-cooperative games in strategic form.
- The form of a game in strategic form.
- Finite and infinite games.
- Pure and mixed strategies.
- Sharply and weakly dominated strategies.
- Games that can be solved by eliminating sharply dominated strategies.
- Definition of Nash equilibrium in a noncooperative game in strategic form in pure and in mixed strategies. -
Sufficient conditions for the existence of Nash equilibrium in pure strategies in an infinite noncooperative game in strategic form.
- Existence of Nash equilibrium in mixed strategies in a finite noncooperative game in strategic form. - Definition of a noncooperative game in extended form with perfect player information.
- Finite and infinite games. Games with finite and infinite horizon.
- Pure strategies in a noncooperative game in extended form with perfect player information.
- A strategy form of the noncooperative game in extended form.
- Reduced strategy form of the noncooperative game in extended form.
- Nash equilibrium in a noncooperative game in extended form with perfect player information. Its insufficiency.

Literature:
1. FILEP, L.: Játékelmélet. Budapest : Tankönyvkiadó, 1985, s. 244. ISBN 963 17 8257 3.
2. GIBBONS, R.: Bevezetés a játékelméletbe. Budapest : Nemzeti tankönykiadó, 2005, s. 222. ISBN 963 19 5350 5.

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:
Student Load Sharing:
26% of the workload - direct teaching
24% of the workload - homework
25% of the workload - preparation for lectures and exercises
25% of the workload - exam preparation

Evaluation of subjects
Total number of evaluated students: 2

A	B	C	D	E	FX
50.0	0.0	0.0	0.0	50.0	0.0

Teacher: doc. RNDr. Ferdinánd Filip, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ TEI/22	**Name:** Theoretical Informatics

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 1 / 0 / 2 **For the study period:** 13 / 0 / 26
 Methods of study: present

Number of credits: 6

Recommended semester/trimester of study: 2.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
Interim assessment during the semester: 50% of the total assessment. During the semester two written tests with maximum score of 15 points per test will be held. During the semester, students independently work on 2 practical assignments (Turing machine and RAM), for their submission a total of 20 points can be obtained. Students must obtain at least 50% of the interim assessment to be allowed to take the exam.
Exam: 50% of the total assessment. The course is finished by written exam, on which 50 points can be obtained. To successfully pass the exam, it is necessary to obtain at least 50% of the exam evaluation.
In addition to contact teaching, students prepare for exercises, prepare for written tests, work on their practical assignments and prepare for the exam.
The overall assessment consists of the sum of points from the interim assessment and the final exam. To receive grade A in the course, student must obtain at least 90 points, for grade B at least 80 points, for grade C at least 70 points, for grade D at least 60 points and for grade E at least 50 points. Credits will not be given to a student who obtain less than 50 points.

Results of education:
After completing the subject, the student:
Knowledge:
• has theoretical and practical knowledge of the theory of formal languages and automata,
• has theoretical and practical knowledge of the theory of algorithms and complexities,
• knows the principle of hashing,
• knows mathematical models of computers,
• has theoretical knowledge of computability theory,
• knows well-known NP-complete problems.
Skills:
• is able to construct regular grammars, finite automata and regular expressions, context-free grammars and pushdown automata,
• is able to prove about given languages that they are not regular or context free,
• is able to determine the complexity of sorting algorithms,
• is able to construct Turing machines, analyze and write RAM programs.

• is able to solve practical tasks both formally and practically on simulators of abstract computational models,
• knows the rules of creation of documentations for practical tasks.
Competencies:
• is able to work independently and efficiently,
• has an active and responsible approach to completing tasks within the subject.

Brief syllabus:
1. Introduction to the Theory of Formal Languages and Automata, basic terms and definitions.
2. Regular languages – basic terms, finite automata.
3. Connection between nondeterministic and deterministic finite automata, connection between regular grammars and finite automata.
4. Regular expressions, pumping lemma for regular languages.
5. Context-free languages – basic terms, pushdown automata.
6. Top-down parsing, bottom-up parsing.
7. Algorithm, properties of algorithms, complexity of algorithms.
8. Algorithms for searching in sorted array. Linear and Binary search.
9. Sorting algorithms and their complexity.
10. Hash tables and their use. Hash functions.
11. Mathematical models of computers: Turing machine and RAM.
12. Computation Theory – recursively enumerable and recursive languages, and partial recursive and recursive functions. Church–Turing thesis.
13. Complexity classes P and NP. NP-complete problems. The NPC class.

Literature:
1. GUBO, Š.: Formális nyelvek és automaták. Komárno : Univerzita J. Selyeho, 2015, 131 p. ISBN 978-80-8122-148-4.
2. FÜLÖP, Z.: Formális nyelvek és szintaktikus elemzésük. Szeged : Polygon, 1999, 124 p. ISSN 1417-0590.
3. BACH, I.: Formális nyelvek. Budapest : Typotex, 2005, p 227. ISBN 978-963-9132-92-4.
4. WIRTH, N.: Algoritmy a štruktúry údajov. Bratislava : Alfa, 1989, 488 p. ISBN 80-05-00153-3.
5. RÓNYAI, L. – IVANYOS, G. – SZABÓ, R.: Algoritmusok. Budapest : Typotex, 2005, 350 p. ISBN 978-963-2790-14-5.
6. CORMEN, T. H. – LEISERSON, CH. E. – RIVEST, R. L. – STEIN, C.: Új algoritmusok. Budapest : Scolar Kft., 2003, 992 p. ISBN 978-963-9193-90-1.
7. SINGH, A.: Elements of Computation Theory. London : Springer-Verlag, 2009. 422 p. ISBN 978-1-84882-496-6.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of the student's workload:
26% of the workload - direct teaching
26% of the workload - preparation for lectures and exercises
24% of the workload - work on practical assignments
24% of the workload - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 55

A	B	C	D	E	FX
9.09	5.45	16.36	23.64	43.64	1.82

Teacher: RNDr. Štefan Gubo, PhD., doc. RNDr. József Bukor, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KMAT/AIdb/ TEX/22	**Name:** Typographic systems and their programming

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 0 / 0 / 2 **For the study period:** 0 / 0 / 26
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 1.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 During the semester students will prepare 2 semester projects in which they will demonstrate the required level of knowledge of creating a document in a typographic system. Students may earn 50 points for each semester project. In addition to contact lessons, students prepare for practicums and work on their semester projects. A grade of A requires at least 90 points, a grade of B requires at least 80 points, a grade of C requires at least 70 points, a grade of D requires at least 60 points, and a grade of E requires at least 50 points. Credit will not be awarded to a student who scores less than 50 points.

Results of education:
 After completing the course the student acquires the basic principles of creating text documents in the LaTeX typographic system, learns the programming language for macros in the LaTeX typographic system.
 Skills:
 The student is able to create a structured document, is able to include graphs, mathematical formulas, tables, is able to create presentations, is able to create simple macros in the programming language for macros.
 Competences: the student can work effectively independently with the LaTeX typographic system.

Brief syllabus:
 – Basic concepts of DTP. Basic typographic rules.
 - Standards for creating documents. Basic structure of documents.
 - Introduction to the TeX typographic system.
 - Writing plain texts, choice of font size and typeface.
 - LaTeX environments for creating bullets, bullet points, tables, simple charts.
 - Setting mathematical formulas, equations, matrices, etc.
 - Cross-referencing.
 - Fundamentals of programming in the TeX typographic system.
 - Creating simple macros.
 - Integration of graphics into text
 - Creation of presentations

- Developing a selected topic and independent creation of a professional text.

Literature:
• WETTL, F. – MAYER, GY. – SZABÓ, P.: LaTeX kézikönyv. Budapest : Panem könyvkiadó, 2004. ISBN 978-963-545-398-1.
• RYBIČKA, J.: LaTeX pro začátečníky. Brno : Konvoj spol. s.r.o., 2003, s. 239. ISBN 978-80-7302-049-1.

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:
Student Load Sharing:
35% of the workload - direct teaching
17% of the workload - preparation for lectures and exercises
24% of the workload - work on the semester project (application)
24% of the workload - exam preparation

Evaluation of subjects
Total number of evaluated students: 63

A	B	C	D	E	FX
73.02	12.7	6.35	0.0	7.94	0.0

Teacher: Mgr. Miklós Vontszemű

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ TMA/22	**Name:** Multimedia Application Development

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 0 / 0 / 2 **For the study period:** 0 / 0 / 26
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 2.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
During the semester, students solve practical problems for which they can get 50 points. At the end of the semester, students will complete a term project for which they may receive 50 points. To obtain grade „A" students have to obtain minimum 90% of the total score, to obtain grade „B" students have to obtain 80% of the total score, to obtain grade „C" students have to obtain 70% of the total score, to obtain grade „D" students have to obtain 60% of the total score, to obtain grade „E" students have to obtain 50% of the total score. There is no credit for the subject if a student obtains less than 50%.

Results of education:
Knowledge:
The student knows the SVG format. The student knows how to create and modify an SVG image using program code or a vector graphics editor. The student knows the options for animating, interacting, and attaching audio to vector images.
Skills:
Upon successful completion of the course, students will gain basic knowledge and skills in vector image (graphic object) creation and simple animations in SVG/JavaScript or SVG/ JQuery environments. Upon completion of the course, students are able to independently create illustrations and simple animations that can be easily integrated into web pages using HTML.
Competencies:
The student is able to create vector audiovisual interactive web applications. The student can use his/her skills as a web developer, as a full-stack developer, as a web game developer, or as a web animator. The student can also use his/her skills as a developer of a system for visualizing information, for creating graphs, charts, infographics and for visually representing information.

Brief syllabus:
- Basics of vector representation. SVG format. Basic objects supported in SVG format, lines, segments, circles, ellipses, rectangles, spline-y.
- Object attributes such as color, clarity, frame, position, orientation
- Grouping of objects
- Software to create SVG images, integrate and display SVG images in web pages
- Creating simple images in SVG

- Vectorization (image display)
- Basic image animation, panning and rotation
- Special animation using external libraries, acceleration, deceleration, vibration, jumping
- Convert images
- Creating graphs
- Interactivity in SVG
- Complex interaction with the image
- Connect sound to animation

Literature:
J. David Eisenberg. Amelia Bellamy-Royds (2014), SVG Essentials, 2nd Edition. O'Reilly Media, Inc. ISBN: 9781449374358

Callum Macrae (2013). Learning from jQuery. O'Reilly Media, Inc. ISBN: 9781449335199

Tavmjong Bah (2011). Inkscape: Guide to a Vector Drawing Program, 4th Edition. Pearson.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Student Load Sharing:
35% of the workload - direct teaching
30% of the workload - preparation for and exercises
35% of the workload – work on the semester project

Evaluation of subjects
Total number of evaluated students: 54

A	B	C	D	E	FX
24.07	20.37	18.52	11.11	12.96	12.96

Teacher: László Marák, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ TWS/22	**Name:** Website Development

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 1 / 0 / 2 **For the study period:** 13 / 0 / 26
 Methods of study: present

Number of credits: 6

Recommended semester/trimester of study: 3.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 Interim assessment during the semester: 70% of the total assessment. During the semester two written tests with maximum score of 15 points per test will be held. During the semester, students independently work on the semester project (web page), for their submission and presentation a total of 40 points can be obtained. Students must obtain at least 50% of the interim assessment to be allowed to take the exam.
 Exam: 30% of the total assessment. The course is finished by written exam, on which 30 points can be obtained. To successfully pass the exam, it is necessary to obtain at least 50% of the exam evaluation.
 In addition to contact teaching, students prepare for exercises, prepare for written tests, work on their semester projects and prepare for the exam.
 The overall assessment consists of the sum of points from the interim assessment and the final exam. To receive grade A in the course, student must obtain at least 90 points, for grade B at least 80 points, for grade C at least 70 points, for grade D at least 60 points and for grade E at least 50 points. Credits will not be given to a student who obtain less than 50 points.

Results of education:
 Results of education:
 After completing the subject, the student:
 Knowledge:
 • has theoretical and practical knowledge of the theory of formal languages and automata,
 • knows basic properties of HTML markup language and CSS style sheet language.
 Skills:
 • is able to create web applications / dynamic web pages,
 • is able to create multimedia and interactive web pages,
 • is able to link the application with the data source.
 Competencies:
 • is characterized by independence in the design of static and dynamic user interfaces in the development of websites.

Brief syllabus:
 1. Basics of HTML markup language (history, use, structure).

2. HTML options.
3. Basics of CSS style sheet language.
4. More advanced use of CSS.
5. HTML5 – basic document structure, language syntax, standards, declarations, lines, metatags.
6. HTML5 – tools for creating a valid website, coding.
7. HTML5 – text formatting, font definition, links, lists.
8. HTML5 – lists, tables.
9. HTML5 – multimedia, forms. Basics of graphics, drawing options.
10. Creation of animations, applicability of animations.
11. Creation of scripts.
12. Final testing and debugging of the website. Website publishing.

Literature:

1. MONCUR, M.: Tanuljuk meg a JavaScript használatát 24 óra alatt. 1st edition. Budapest : Kiskapu, 2006. 455 p. ISBN 963 9637 16 5.
2. WENZ, Ch.: JavaScript zsebkönyv. 1st edition. Budapest : Kiskapu Kft., 2006. 275 p. ISBN 978 963 9637 22 1.
3. KOTSIS, D. – LÉGRÁDI, G. – NAGY, G. – SZÉNÁSI, S.: "Többnyelvű programozástechnika", Budapest, Magyarország, Panem Kiadó, 2007, ISBN: 9789635454723
4. SZÉNÁSI, S.: "Java programozási nyelv oktatása C# alapokon", Informatika a felsőoktatásban, Debrecen, Magyarország, 2008, pp. 1-7.
5. SZÉNÁSI, S. - JANKÓ, D.: "Orbit - Internetes, közúti közlekedésbiztonsági döntéstámogató rendszer", 6th European Transport, Budapest, Magyarország, 2007, pp. 131-136.
6. LAWSON, B.: Bemutatkozik a HTML 5. 1st edition. Budapest : Perfact Kiadó, 2013. 226 p. ISBN 978-963-9929-28-9.
7. Duckett, J.: HTML & CSS : Desing and Build Websites. 1st edition. Indianapolis : John Wiley & Sons, 2011. 490 p. ISBN 978-1-118-00818-8.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of the student's workload:
26% of the workload - direct teaching
26% of the workload - preparation for lectures and exercises
30% of the workload - work on semester project (web page)
18% of the workload - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 7

A	B	C	D	E	FX
14.29	57.14	14.29	14.29	0.0	0.0

Teacher: prof. Sándor Szénási, PhD.

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ UDI/22	**Name:** Introduction to Informatics

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 1 / 2 / 0 **For the study period:** 13 / 26 / 0
 Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 1.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
During the semester, students write two written papers, which are evaluated as a percentage. Students must achieve a score of at least 50% for both written papers in order to take the exam. During the semester, students work independently on a semester assignment or project (processing of literature), and they can receive a total of 20 points out of a total of 100 points for their submission and presentation. The combined exam consists of a written and oral part. To pass the exam, students must achieve at least 50% in the oral exam. The students are classified based on the obtained average, which includes the continuous performance of the semester, the work of the semester project and the result of the exam.
A grade is at least 90 points, B grade is at least 80 points, C grade is at least 70 points, D grade is at least 60 points and E grade is at least 50 points. A student who scores less than 50 points cannot receive credit.

Results of education:
Educational results - knowledge:
After completing the subject, the student:
• knows the role, tools and solutions of IT;
• knows the concept of data and the principles of information and processing;
• knows the basic principles of coding and displaying information on a computer and simple methods for their processing;
• knows the principles of basic mathematical operations and conversions performed in the binary system, as well as the floating-point representation of real numbers;
• knows the connections between individual number systems (conversions, transformations);
• can think algorithmically and apply knowledge to solve the problem;
• knows the basic principles of creating and graphically representing formal algorithms;
• knows the classification of programming languages, the structure of the given programming language (e.g. Python), knows the elements and programming structures of the given language (condition, cycle, functions).
Learning outcomes - skills:
After completing the subject, the student:
• can analyze and solve problems using a programming language;
• able to independently apply an algorithm to solve a specific problem;

• can divide the problem into smaller sub-problems;
• can think algorithmically;
• capable of conversions between number systems;
• able to recognize the repetitive tasks of the problem and solve them with the necessary program structure (cycle, state);
• able to select the necessary data structures in the program;
• able to design and implement a program in the given programming language.
Educational results - competences:
After completing the subject, the student:
• shows a high degree of independence in solving problems and creating programs to solve them;
• characterized by creative thinking and independence;
• uses creative IT and algorithmic thinking to solve problems;
• can explain everyday IT problems;
• has an active and responsible attitude towards the completion of subject tasks

Brief syllabus:
1. Definition of basic concepts, IT tools, storage, data processing, algorithm.
2. Graphic representation of the algorithm, with a branching condition.
3. Graphic representation of the algorithm using cycles.
4. Graphic representation of the algorithm, solving complex tasks.
5. Number systems, conversions.
6. Number systems, basic mathematical operations.
7. Numerical representations, fixed precision representation, floating precision representation.
8. Program creation process, planning, steps, development cycle.
9. Classification of programming languages, work in a specific programming language (e.g. Python), concepts and structure.
10. Programming algorithms with branching.
11. Programming algorithms using cycles.
12. Programming algorithms using functions and procedures.
13. Programming complex algorithms, displaying functions, drawing using programming tools.

Literature:
1. ANNUS, G.: Informatikai alapok. Szeged : JGYF Kiadó, 2001. 204 s. ISBN 0991508.
2. KATONA, Gy.: A számítástudomány alapjai. Budapest : Typotex Elektronikus Kiadó Kft., 2002. 192 s. ISBN 963 9326 24 0.
3. KOVÁCS, M.: Bevezetés a Számítástechnikába. Budapest : LSI Oktatóközpont, 2002. 368 s. ISBN 963 577 270 X.
4. STOFFA, V.: Az informatika alapjai I. (Základy informatiky). Apáczai közalapítvány, 2007. 268 s. ISBN 978-80-89234-29-5.
5. STOFFA, V.: Algoritmizáció és programozás I. (Algoritmizácia a programovanie I). Komárno : Univerzita J. Selyeho v Komárne, 2005. 174 s. ISBN 80-969251-7-2.
6. STOFFOVÁ, V.: Informatika. Informačné technológie a výpočtová technika. Nitra : Prírodovedec, 2001. 230 s. ISBN 80-8050-450-4.
7. STOFFOVÁ, V.: Počítač univerzálny didaktický prostriedok. 1. vyd. Nitra, 2004. 173 s. ISBN 80 8050 765 1.
Digitálna učebnica:
KOVÁCS, E. – BIRÓ, Cs. – PERGE, I.: Bevezetés az informatikába – Szemelvények. Eger : Eszterházy Károly Főiskola, 2013. Link:
https://dtk.tankonyvtar.hu/xmlui/bitstream/handle/123456789/12641/2011-0038_24_kovacs-biro_bevinf_hu.pdf

NYAKÓNÉ JUHÁSZ, K. – TERDIK, Gy. – BIRÓ, P. – KÁTAI, Z.: Bevezetés az informatikába. Debrecen : Debreceni Egyetem, Informatikai Kar, 2011. Link: https://dtk.tankonyvtar.hu/bitstream/ handle/123456789/8664/0046_bevezetes_az_informatikaba.pdf
WENTWORTH, P. - ELKNER, J. – DOWNEY, A.B. –MEYERS, Ch.: Hogyan gondolkozz úgy, mint egy informatikus: Tanulás Python 3 segítségével. 3. vyd. (preklad). Debrecen : Debreceni Egyetem, Informatikai Kar, 2019. Link: https://mtmi.unideb.hu/pluginfile.php/554/mod_resource/content/3/thinkcspy3.pdf

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of student workload:
31% of the load - direct teaching
21% of the load - preparation for lectures and exercises
19% of the load - work on a semester project
29% of the load - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 81

A	B	C	D	E	FX
33.33	13.58	9.88	12.35	18.52	12.35

Teacher: Dr. habil. Attila Elemér Kiss, CSc.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ UIS/22	**Name:** Introduction to Intelligent Systems

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 2 / 0 / 1 **For the study period:** 26 / 0 / 13
 Methods of study: present

Number of credits: 5

Recommended semester/trimester of study: 5.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
Continuous evaluation during the semester: 50% of the total evaluation. At the end of the semester, there will be a written examination for which a maximum of 30 points can be obtained. During the semester, students work independently on the semester project, for submitting and presenting the semester project, a total of 20 points can be earned.
Exam: 50% of the total assessment. The subject will be completed by a written exam, on which 50 points can be obtained. To successfully pass the exam, it is necessary to obtain at least 50% of the exam evaluation.
In addition to contact teaching, students prepare for exercises, prepare for a written examination, work on their semester projects and prepare for an exam.
The overall assessment consists of the sum of points from the interim assessment and the final exam. It is necessary to get at least 90 points to get an A rating, at least 80 points for a B rating, at least 70 points for a C rating, at least 60 points for a D rating and at least 50 points for an E rating. Credits will not be awarded to a student who earns less than 50 points.

Results of education:
Education results - knowledge:
After completing the subject, the student:
• knows the basic methods of genetic algorithms,
• knows the application areas of mobile robots,
• knows path planning algorithms,
• knows the basic principles and methods of machine learning,
• has basic theoretical knowledge in the field of neural networks,
• knows the basic principles of construction and operation of satellite navigation systems.
Learning outcomes - skills:
• is able to design and implement genetic algorithms to solve problems,
• is able to optimize genetic algorithms,
• is able to implement path planning algorithms,
• is able to use basic methods and techniques of machine learning,
• is able to solve problems using simple neural networks.
Education results - competences:
• knows how to work efficiently and implement acquired theoretical knowledge,

• has an active and responsible approach to completing tasks,
• shows independence in solving more complex problems.

Brief syllabus:
Basic terms from genetic algorithms. Gene, population, selection and mutation.
Programming problems that can be solved using simple genetic algorithms.
Optimization of genetic algorithms.
General terminology from the field of mobile robots.
Degrees of freedom, drives, path planning, orientation.
Application areas of mobile robots.
Military disaster relief, space exploration, aerospace and civilian applications.
Path planning algorithms.
Known, partially known, unknown terrain.
Learning algorithms.
Basic concepts from neural networks. Perceptron, feedforward networks, learning and error correction.
Problem solving using simple neural networks.
General description of satellite navigation systems.

Literature:
VÁRKONYINÉ KÓCZY, A. – ÁLMOS, A. – GYŐRI, S. – HORVÁTH, G.: Genetikus algoritmusok. Budapest : Typotex, 2002. 254 p. ISBN 978-963-279-107-4
RUSSEL, S. – NORVIG, P.: Mesterséges inteligencia modern megközelítésben. Budapest : Panem Kiadó Kft., 2005, 1206 p. ISBN 963-5454-11-2.
NÁVRAT, P. et al.: Umelá inteligencia. Bratislava : STU, 2002, 399 p. ISBN 80-227-1645 6.
KAPLAN, J.: Artificial Intelligence : What everyone needs to know. New York, NY : Oxford University Press, 2016. 165 p. ISBN 978-0-190-60239-0.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of the student's workload:
31% of the load - direct teaching
21% of the load - preparation for lectures and exercises
19% of the load - work on a semester project
29% of the load - preparation for the exam

Evaluation of subjects
Total number of evaluated students: 5

A	B	C	D	E	FX
20.0	40.0	20.0	20.0	0.0	0.0

Teacher: prof. András Molnár, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics

Code: KINF/AIdb/ UMS/22	**Name:** Introduction to Modeling and Simulation

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 2 / 0 / 2 **For the study period:** 26 / 0 / 26
 Methods of study: present

Number of credits: 6

Recommended semester/trimester of study: 3.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
During the semester, the students prepare their own application - a computer simulation model of a given system, in addition to analytically solving the identification of the systems, the preparation of their mathematical models and the computer implementation of the models. The evaluation of the students is based on the average obtained from the project prepared during the semester and the overall evaluation achieved during the exam. An average of at least 90% is required for an A grade, at least 80% for a B grade, at least 70% for a C grade, at least 60% for a D grade, and at least a 50% average for an E grade.

Results of education:
Educational results - knowledge:
has general knowledge of various basic models of computing, such as continuous systems, discrete systems, Markov chains, mass service systems
Learning outcomes - skills:
able to apply these models independently
Educational results - competences:
shows independence in the creation of computational models of various fields of application

Brief syllabus:
• Introduction to modeling and simulation of systems, basic concepts, system classification and basic characteristics;
• Continuous systems: description of continuous systems, mathematical models of continuous systems and their creation, simulation languages of continuous systems (Simulink), computer simulation of continuous systems;
• Discrete systems: description of discrete systems, mathematical models of discrete systems and their creation, languages for simulating discrete systems (Simulink), computer simulation of discrete systems;
• Random number generation methods, Monte Carlo method and its applications;
• Markov random discrete and continuous processes and their properties, applications and simulations, page rank;
• Poisson process;

• Mass service systems (SHO) and their classification, Kolmogorov's differential equations for the analytical solution of SHO, description and analytical solution of different types of mass service systems, computer simulation (Simevents).

Literature:
1. Giordano, F.R.: A First Course in Mathematical Modelling, Thomson, 2004.
2. Kmeť, T.: Mathematical Modelling and Simulation of Biological Systems, AM Nitra, 2005.
3. Neuschl, Š. a kol.: Modelovanie a simulácia. Alfa - SNTL. Praha 1988.
4. Simulink Simulation and Model-Based Design, The MathWorks Inc., 2004.
5. Dabney, J. B.: Mastering Simulink, Prentice Hall, 2004
6. Brunovský, P. Stochastické modely operačnej analýzy, učebný text FMFI UK, 2005
7. Takáč, O.: Modellezés és szimuláció. 1. vyd. Komárno: UJS, 2017, 234 s. ISBN 978-80-8122-203-0.
8. Brauer, F., Chavez, C., C.: Mathematical Models in Population Biology and Epidemiology. 2012
9. Geda, G.: Modellezés és szimuláció az oktatásban. Educatio kht. 2011.

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of student workload:
35% load - direct teaching
17% load - preparation for lectures and exercises
24% load - work on a semester project (application)
24% load - exam preparation

Evaluation of subjects
Total number of evaluated students: 6

A	B	C	D	E	FX
0.0	16.67	33.33	33.33	16.67	0.0

Teacher: prof. RNDr. Tibor Kmeť, CSc., Mgr. Norbert Annuš

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KINF/AIdb/ ZAV/22	**Name:** Basics of Aviatics and flying with drones

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar / Practical
 Recommended extent of course (in hours):
 Per week: 0 / 2 / 0 **For the study period:** 0 / 26 / 0
 Methods of study: present

Number of credits: 3

Recommended semester/trimester of study: 6.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
 The evaluation of the subject consists of a theoretical and a practical part. At the end of the semester, there will be a written test with maximum score of 75 points. Within the practical part (flight on the simulator), it is possible to get a total of 25 points.
 In addition to contact teaching, students prepare for seminars and prepare for written test.
 To receive grade A in the course, student must obtain at least 90 points, for grade B at least 80 points, for grade C at least 70 points, for grade D at least 60 points and for grade E at least 50 points. Credits will not be given to a student who obtain less than 50 points.

Results of education:
 Knowledge:
 After completing the subject, the student:
 • has theoretical knowledge about air transport and unmanned aircraft systems, the history of aviation, aerodynamics, aviation meteorology, communication and aviation law,
 • has the knowledge necessary to pass the theoretical part of the remote pilot examination.
 Skills:
 • is able to perform a flight on the DJI Phantom 3 Flight Simulator.
 Competencies:
 • has an active and responsible approach to completing tasks within the subject.

Brief syllabus:
 Introduction to the subject Basics of Aviation, history of aviation.
 Aircraft general knowledge.
 The basics of flight – aerodynamics.
 Airplane performance and flight planning.
 Aviation meteorology.
 A METAR report and TAF forecast.
 Communication.
 Aerodromes, interesting facts about airports.
 Airspace, the ICAO map.
 Operational procedures.
 Aviation law and air traffic control procedures.

Unmanned aircraft systems (UAS), applications of UAS.
Flight on the simulator DJI Phantom 3 Flight Simulator.

Literature:
KELLER, L et al.: Učebnice pilota 2016. Příbram : Svět křídel, 2016. 408 p. ISBN 978-80-87567-89-0.
Letecká mapa ICAO Slovenska 2016.
FÁBIÁN, A.: PPL kézikönyv : A repülőgép-vezetés elmélete. Budapest : Skylight Cerative Ec., 2010. 466 p. ISBN 978-963-06-9062-1.
ATKINSON, S.: The Aircraft Book : The definitive visual history. London : Dorling Kindersley, 2013. 320 p. ISBN 978-1-4093-6480-1.
BEARD, R. W. – McLAIN, T. W.: Small Unmanned Aircraft : Theory and Practice. New Jersey, NJ : Princeton University Press, 2012. 300 p. ISBN 978-0-691-14921-9.
FEDERAL AVIATION ADMINISTRATION: Pilot's Handbook of Aeronautical Knowledge, 2016. Link: https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/

Language, knowledge of which is necessary to complete a course:
Hungarian

Notes:
Distribution of the student's workload:
35% of the workload - direct teaching
35% of the workload - preparation for seminars
30% of the workload - preparation for the practical part (flight on the simulator)

Evaluation of subjects
Total number of evaluated students: 2

A	B	C	D	E	FX
50.0	0.0	0.0	50.0	0.0	0.0

Teacher: RNDr. Štefan Gubo, PhD.

Date of last update: 01.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KEK/ PHMdb/FGR/22	**Name:** Financial literacy

Types, range and methods of educational activities:
 Form of study: Seminar
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 5.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
The condition for completing the course is that the student participates in 80% of the sessions and completes the simulation task completed in the last session.

Results of education:
After completing the course, the student will be able to set short-, medium- and long-term goals. With the acquired knowledge, you will be able to find out about the financial market, recognize the advantageous and disadvantageous offers, and have an overview of the social system and its functioning and related obligations. You will be introduced to the benefits of different money making opportunities and will be able to assess what is the right way to achieve your personal success. You will gain insight into entrepreneurial life, get practical advice on how to sell yourself and how to be successful, both in business and in everyday life.
The course contributes to the acquisition of the following knowledge, skills and competence elements in the topics outlined in the course:
Knowledge:
He knows and has mastered finance, financial products and markets, the basics of financial thinking.
Skill:
It follows and interprets the world economic and international business processes, changes in economic policy, related policies and legislation, their effects, and takes them into account in its analyzes, proposals and decisions.
Competence:
It is responsible for its analyzes, conclusions and decisions.

Brief syllabus:
1. Introduction to everyday finances, the problem of financial intelligence
2. Setting and achieving personal goals, motivation and vision
3. The importance of financial intelligence in practice, revenue-expenditure / active-passive side /
4. The KAPS sales system
5. Labor market - differences in entrepreneurial and employee attitudes, priorities in management, methods of successful people, business etiquette and outfit.
6. Successful presentation, the secret of successful business negotiations

7. Securing revenue and explaining the principles of insurance
8. Housing issues: types of home loans, home savings, preparing to buy a home, tips, tricks and dangers.
9. Securing revenue - how do we always have money?
10. Presentation of the Slovak pension system and provision of an adequate pension.
11. Investment types, misconceptions. Opportunity to generate passive income
12-13. A practical demonstration of the acquired financial knowledge using an interactive game - a simulation game

Literature:
BODIE, Z. – KANE, A. – MARCUS, A. J.: Befektetések, AULA, 2005
KOHN, M.: Bank- és pénzügyek, pénzügyi piacok, Osiris, 2007
Online resources:
Materials of the National Bank of Slovakia:
https://www.nbs.sk/sk/ofs/informacie-pre-spotrebitelov/publikacie-a-uzitocne-odkazy
Money Compass Foundation: https://www.penziranytu.hu/
OVB Allfinanz Slovensko, www.financnagramotnost.sk

Language, knowledge of which is necessary to complete a course:
Slovak, Hungarian

Notes:
Student workload:
50% - participation in classes
50% - study of the sources provided

Evaluation of subjects
Total number of evaluated students: 1

a	n
100.0	0.0

Teacher: PhDr. Imrich Antalík, PhD.

Date of last update: 02.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KM/PHMdb/ MIP/22	**Name:** Innovation Management Applied in Practice

Types, range and methods of educational activities:
 Form of study: Seminar
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 6.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
The student participates in the seminar class. The prerequisite for completing the subject is the elaboration of an innovation project proposal and its presentation in the form of a short lecture within the framework of the seminar lesson.

Results of education:
By the end of the course, students will be introduced to the basic concepts related to open innovation systems. They will be able to use the platform at a basic level.
Knowledge:
Has basic management and organizational skills, as well as project preparation and start-up and management skills for small and medium-sized enterprises.
Skill:
Can apply economic problem solving techniques, problem solving methods, their application conditions and limitations.
Competence:
As a member of projects, group work and organizational units, he/she performs the tasks assigned to him independently and responsibly.

Brief syllabus:
 1. The concept and system of innovation
 2. Closed Innovation - Open Innovation
 3. Innovation ecosystem
 4. Innovation marketplace
 5. Tasks of innovation management
 6. Innovation management system and its functions - using a platform
 7. Tools for innovation
 8. Innovation process
 9. Business Model Canvas
 10. Theory of Design Thinking Technique
 11. Design Thinking Technique in Practice
 12. Student presentation - presentation of an innovation project
 13. Student presentation - presentation of an innovation project

Literature:

1. PAKUCS, J. – PAPANEK, G. Innováció menedzsment kézikönyv, Magyar Innovációs Szövetség, Budapest 2006. Interneten elérhető:
< https://www.innovacio.hu/tanulmanyok_pdf/innovacio_menedzsment_kezikonyv.pdf>

2. MADARAS, SZ. Innováció menedzsment, Kolozsvár: Kolozsvári Egyetemi Kiadó, 2020. ISBN 978-606-37-0911-1

3. VIANNA, M. et all - Desing Thinking – Business Innovation, 2011, Interneten elérhető:
< http://www.designthinkingbook.co.uk/DT_MJV_book.pdf>

4. Osterwalder, A. – Pigneur, Y. - Buniess Modell Generetaion, 2010, Kiadó: John Wiley & Sons, Inc. ISBN: 978-0470-87641-1

5. Hittmár, Š. – Hrnčiar, M. – Lendel, V. Riadenie inovačných procesov v podniku, EDIS, 2017, ISBN 9788055414140

Language, knowledge of which is necessary to complete a course:
Hungarian language

Notes:
Distribution of student workload:
52% - attendance at seminar lessons
48% - preparation of innovation project paper and preparation for presentation

Evaluation of subjects
Total number of evaluated students: 11

a	n
100.0	0.0

Teacher: PhDr. Zsuzsanna Gódány, PhD., PhDr. Bence Csinger

Date of last update: 03.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics

Code: KM/PHMdb/ OZP/22	**Name:** Environmental Protection

Types, range and methods of educational activities:
 Form of study: Seminar
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 3.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
Students solve individual practical tasks. There is no credit for the subject if a student obtains less than 50%.

Results of education:
The aim of the course is to deepen and expand students' knowledge applicable in the practical level.
Knowledge, skills and competences are developed:
Knowledge
Displays the basic managerial and organizational knowledge, knowledge needed for the preparation, establishment and management of projects and small and medium enterprises.
Skills
Monitors and interprets global economic and international trade processes, changes in economic policy, professional policies and legislation and their implications and takes them into account in its analyzes, proposals and decisions. Can identify complex consequences of economic processes and organizational events.
Competences.
Responsible for its analyzes, conclusions and decisions. Responsible for compliance with professional, legal and ethical standards and regulations concerning work and behavior. He lectures independently and leads debates. He independently and responsibly participates in the work of professional forums within and outside the business organization.

Brief syllabus:
1. Requirements for passing the subject.
2. Introduction to environmental protection.
3. Green production.
4. Green sales.
5. Green services.
6. Green road transport.
7. Green rail transport.
8. Green air transport.
9. Green maritime transport.

10. Ecological administration.
11. Ecologically economical use of real estate.
12. Ecologically economical use of movable property.
13. Trends in environmental protection.

Literature:

1. NHAMO, G:, MJIMBA, V. Sustainability, Climate Change and the Green Economy. Africa Institute of South Africa. 2016. ISBN 978-0-7983-0501-3
Link: https://books.google.sk/books?
hl=en&lr=&id=pl1DDgAAQBAJ&oi=fnd&pg=PP1&dq=green+economy,
+book&ots=umfzosEqJ8&sig=WYbKjoiM7udjGHNMTouGTbVIVbE&redir_esc=y#v=onepage&q=green%20economy%2C%20book&f=false
2. KATILA, P. at all. Sustainable Development Goals. Cambridge University Press UK, 2020. ISBN 978-1-108-48699-6
Link: https://books.google.sk/books?
hl=en&lr=&id=723CDwAAQBAJ&oi=fnd&pg=PR9&dq=sustainable
+development,+book&ots=JKXzSzc90Z&sig=hGleFJ4k_PBOPr-
AvMaL5l8xYdA&redir_esc=y#v=onepage&q=sustainable%20development%2C%20book&f=false

Language, knowledge of which is necessary to complete a course:
hungarian language

Notes:
Distribution of student workload:
70% load - participation in lectures, working on individual practical tasks
30% load - scientific literature study

Evaluation of subjects
Total number of evaluated students: 17

a	n
100.0	0.0

Teacher: Ing. Zoltán Šeben, PhD.

Date of last update: 03.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KEK/ PHMdb/ZEZ/22	**Name:** Basics of health economics

Types, range and methods of educational activities:
 Form of study: Lecture / Seminar
 Recommended extent of course (in hours):
 Per week: 1 / 0 **For the study period:** 13 / 0
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 4.

Level of study: I.

Prerequisites:

Conditions for passing the subject:
The method of evaluation and completion of the course consists of 3 parts: continuous assessment, active participation in lectures and written examination.
Continuous assessment (20 points): Through continuous assessment, it is possible to obtain a maximum of 20 points during the semester in writing in the scope of 5–10 pages, which the student will develop on one of the topics announced by the teacher.
Active participation in lectures (10 points): participation in lectures during the semester is a condition for receiving active participation points. It is possible to receive the maximum of 10 points during these lectures by active approach to solving practical assignments.
Final assessment (70 points): To successfully pass the course, it is necessary to pass the written final examination comprised of theoretical questions and practical problems. To pass the written examination successfully, it is necessary to receive at least 35 points from the maximum number of 70 points (excluding the points received from continuous assessment and active participation in lectures). A student who fails to achieve at least 35 points in the written test, ergo examination, will be awarded the grade FX – Insufficient.
Overall assessment: The overall assessment represents the sum of assessments received by the student for the period evaluated, ergo the sum total of points for the continuous assessment, active participation in lectures and final assessment. The course assessment shall be defined in line with the J. Selye University internal policy (JSU Study Policy) and is based on the following classification scale:
A - Excellent (90-100%),
B - Very good (80-89%),
C - Good (70-79%),
D - Satisfactory (60-69%),
E - Sufficient (50-59%),
FX - Insufficient (0-49%). Credits shall not be awarded to a student who receives less than 50 points in the overall assessment.

Results of education:
The course presents the applicability of economic principles, respectively the limitations and problems of applicability in the field of health care. Its central theme is efficient resource allocation, which underpins both macro-level (health policy) and micro-level (health

organization) decision making. The aim is to develop an economic approach among students with a degree in economics who are interested in the field of health care.

Knowledge:

The student understands the basic concepts of health economics after successful completion the course. He will learn the concepts, theories, processes and characteristics of a unique area of economics (health economics), knows the defining economic facts.

Possesses the basic specialist vocabulary in the field of economics in the language of the study programme and, at minimum, in one foreign language.

Is familiar with the fundamental theories and characteristics of the micro- and macro-level of economy, is familiar with the basic methods of information collection, mathematical methods, and methods of statistical analysis.

Skill:

With the help of the theories and methods studied the student reviews, systematises and analyses facts and fundamental relations, formulates independent conclusions and critical comments, submits proposals for decision-making and makes decisions.

The student is able to determine the complex consequences of economic processes and organizational events.

Competence:

The student has the basic specialist overview of healthcare in the conceptual and theoretical level, its uniqueness from an economic point of view, which he can apply in analytical situations.

He is responsible for his analyzes, conclusions and decisions.

As a member of project teams, teamwork, and organisation units, meets the tasks assigned independently and responsibly.

Brief syllabus:

1. Basic economic concepts.
2. The subject of economics, the main forms of economic organization: custom, market, state.
3. Summary of the elements of the economic approach.
4. Operation of market mechanism, demand factors, utility, marginal benefit, indifference curves, optimal consumer decision.
5. Supply side characteristics, production functions, kinds and types of costs, break-even point.
6. The role of the state.
7. Monopolies, externalities, public goods, common resources, means of state regulation.
8. Enforcement of an economic approach in the operation of health care systems, the importance of controlling.
9. Health and the nature of health care.
10. Economic instruments for achieving health policy goals.
11. The economics of health insurance versus social security.
12. Economic bases of fundraising and resource allocation in health care.
13. Cost analysis in healthcare, margin calculation, cost analysis in healthcare organizations, application of margin calculation to improve management results.

Literature:

1. GULÁCSI, L. Egészséggazdaságtan és technológiaelemzés. Budapest: Medicina Könyvkiadó. 2012. ISBN 978 963 226 359 5.
2. GARAJ, E. – NOVÁK, T. Az egészségügy finanszírozása és főbb gazdasági módszerei. [online]. Budapest: Akadémiai Kiadó, 2020.
3. OZOROVSKÝ, V. – VOJTEKOVÁ. I. et al. Zdravotnícky manažment a financovanie. Bratislava: Wolters Kluwert, 2016. ISBN 978-80-9168-522-4.

4. ONDRUŠ, J. – ONDRUŠOVÁ, I. et al. Manažment a financovanie v zdravotníctve. Turany: Tlačiareň P+M, 2017. ISBN 978-80-972535-9-2.

Language, knowledge of which is necessary to complete a course:
Slovak language and Hungarian language

Notes:
Student workload:
Lectures, preparation for lectures - 70%.
Exam preparation - 30%.

Evaluation of subjects
Total number of evaluated students: 18

A	B	C	D	E	FX
27.78	27.78	16.67	22.22	0.0	5.56

Teacher: Ing. Norbert Gyurián, PhD.

Date of last update: 03.03.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University	
Name of the faculty: Faculty of Economics and Informatics	
Code: KTVŠ/ VSA1a/22	**Name:** Leisure sport activities 1a

Types, range and methods of educational activities:
 Form of study: Practical
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 1.

Level of study: I., I.II.

Prerequisites:

Conditions for passing the subject:
 The following conditions shall apply to the subject:
 General conditions for the performance of the subject:
 • active participation in the course is at least 80%,
 • various forms of kinesthetic activities: play balls, sultanas, swimming, aerobic exercise, body construction, exercise (kinesthetic activity selected by the student).
 General conditions for the performance of the subject:
 • active participation in the course is at least 80%,
 • course evaluation criteria: active participation, completed — not completed.
 • Demonstration Of the sporting activity chosen By the student: In the case of game games - demonstration of the training of an attacker and defense; in the case Of swimming, - demonstration of the technical features of different swimming pools; fitness - demonstration of certain basic practices for different muscle groups and without devices;
 Assessment: Presentation of the elements of the selected sport activity - 20p.
 Total student workload (module 2): 1 credits = 30 hours participation in 13 hours of practical training (contact); 27 hours build up a set of individual exercises.
 Evaluation criteria: Presentation of selected sports activities (at the discretion of the student).

Results of education:
 Knowledge:
 The student shall be able to apply the practical skills of the chosen sport.
 The student recognizes the relationship between the chosen sport and a healthy lifestyle.
 Capabilities:
 The student is familiar with the basic features and practices of the chosen sport.
 The student can expand his knowledge and self-training.
 Competences:
 The student can also apply the knowledge acquired to the active use of leisure time.
 The student is able to independently plan the activity and expand his knowledge.

Brief syllabus:
 1. Understand the importance of physical activity as an essential part of everyday life and its impact on mental and physical health.

2. Acquisition of football and football core rules (according to selected sports activities).
3. Acquisition of basic rules and basic beats for table tennis (focused on palm beats).
4. Acquisition of basketball, volleyball, acquisition of the basic rules and techniques of the sport (according to selected sports activities).
5. Exercise - according to the selected sports activities.
6. Introduction to aerobics practices.
7. Introduction to the aerobic practices of step aerobics.
8. Development of basic mobility skills - appropriate to selected sporting activities.
9. Acquisition by basic elements in float – speed swimming, breaststroket.
10. Acquisition of control methods for sporting activities - human beings - according to the selected sporting activities.
11. Development of standing — in selected sporting activities.
12. Development of coordination capabilities - torture - according to the selected sporting activities.
13. Output sport activity in selected sports.

| **Literature:** |
1005 röplabda játék és gyakorlat / Edi Bachmann, Martin Bachmann. - 1. vyd. - Budapest-Pécs : Dialóg Campus Kiadó, 2000. - 344 s. - ISBN 963 9123 84 6.
1006 kosárlabda játék és gyakorlat / Peter Vary. - 1. vyd. - Budapest-Pécs : Dialóg Campus Kiadó, 2001. - 317 s. - ISBN 963 9123 85 4.
1008 torna játék és gyakorlat : Kézikönyv tanároknak, edzőnek, játékosoknak / Ursula Häberling-Spöhel. - 1. vyd. - Budapest - Pécs : Dialóg Campus Kiadó, 2003. - 271 s. - ISBN 963 9310 93 x.
1014 asztalitenisz játék és gyakorlat : Kézikönyv tanároknak, edzőknek, játékosoknak / Harry Blum. - 1. vyd. - Budapest - Pécs : Dialóg Campus Kiadó, 2004. - 323 s. - ISBN 963 9542 07 5.
Die fitnesspyramide / Bob Anderson, Ed Burke. - Ulm : Franz Spiegel Buch GmbH, 1997. - 117 s. - ISBN 3585335258.
Sport a családban / Takács László. - Budapest : Sport, 1973. - 380 s. - ISBN 963 253 512 x.
Pohybová aktivita v životnom štýle dospelých z hľadiska zdravia/ Beáta Dobay-Elena Bendíková, 2016. ISBN 978-963-12-7613-8

Language, knowledge of which is necessary to complete a course:
Hungarian language, Slovak language

Notes:

Evaluation of subjects
Total number of evaluated students: 29

a	n
100.0	0.0

Teacher: Dr. habil. PaedDr. Beáta Dobay, PhD., PaedDr. Peter Židek

Date of last update: 28.02.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics

Code: KTVŠ/ VSA1b/22	**Name:** Leisure sport activities 1b

Types, range and methods of educational activities:
 Form of study: Practical
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 2.

Level of study: I., I.II.

Prerequisites:

Conditions for passing the subject:
 The following conditions shall apply to the subject:
 General conditions for the performance of the subject:
 • active participation in the course is at least 80%,
 • various forms of kinesthetic activities: play balls, sultanas, swimming, aerobic exercise, body construction, exercise (kinesthetic activity selected by the student).
 General conditions for the performance of the subject:
 • active participation in the course is at least 80%,
 • course evaluation criteria: active participation, completed — not completed.
 • Demonstration Of the sporting activity chosen By the student: In the case of game games - demonstration of the training of an attacker and defense; in the case Of swimming, - demonstration of the technical features of different swimming pools; fitness - demonstration of certain basic practices for different muscle groups and without devices;
 Assessment: Presentation of the elements of the selected sport activity - 20p.
 Final assessment: A: 100-91% B: 90-81 % C: 80 % TO 71 % D: 70 TO 61 % E: 60-51% FX: 50 %
 Total student workload (module 2): 1 credits = 30 hours participation in 13 hours of practical training (contact); 27 hours of self-training for the specific sport.

Results of education:
 Knowledge:
 The student shall be able to apply the practical skills of the chosen sport.
 The student recognizes the relationship between the chosen sport and a healthy lifestyle.
 Capabilities:
 The student is familiar with the basic features and practices of the chosen sport.
 The student can expand his knowledge and self-training.
 Competences:
 The student can also apply the knowledge acquired to the active use of leisure time.
 The student is able to independently plan the activity and expand his knowledge.

Brief syllabus:

1. Understand the importance of physical activity as an essential part of everyday life and its impact on mental and physical health.
2. Master the rules of the game and be able to make the right decisions in accordance with the rules of football/football, table tennis, basketball, volleyball (according to selected sports activities).
3. Master the rules of the 'table tennis' - learn how to open the 'table tennis'.
4. Learn the rules of the basketball, balls — learn the techniques of the basketball baskets on the basketball, and the regular execution of the basketball touch and bargaining touch.
5. Make conscious use of its knowledge to develop conditioned skills at training courses in line with selected sporting activities.
6. Preparation of the set of practice required for aerobic stress in the vessel with manual weights.
7. Become familiar with step aerobics and the applicability of steppers.
8. Developing mobility, including developing fitness for work - by selected sporting activity.
9 acquiring the method of float and float and repairing faults — backstroke, breaststroke- swimming by the way, using various kinds of devices.
10. Human health-based activities — practice of protection techniques — according to the selected sporting activities.
11. Conscious development of virtue — in selected sporting activities.
12. Improving coordination capabilities — balance development.
13. Output sport activity in selected sports.

Literature:
1005 röplabda játék és gyakorlat / Edi Bachmann, Martin Bachmann. - 1. vyd. - Budapest-Pécs : Dialóg Campus Kiadó, 2000. - 344 s. - ISBN 963 9123 84 6.
1006 kosárlabda játék és gyakorlat / Peter Vary. - 1. vyd. - Budapest-Pécs : Dialóg Campus Kiadó, 2001. - 317 s. - ISBN 963 9123 85 4.
1008 torna játék és gyakorlat : Kézikönyv tanároknak, edzőnek, játékosoknak / Ursula Häberling-Spöhel. - 1. vyd. - Budapest - Pécs : Dialóg Campus Kiadó, 2003. - 271 s. - ISBN 963 9310 93 x.
1014 asztalitenisz játék és gyakorlat : Kézikönyv tanároknak, edzőknek, játékosoknak / Harry Blum. - 1. vyd. - Budapest - Pécs : Dialóg Campus Kiadó, 2004. - 323 s. - ISBN 963 9542 07 5.
Die fitnesspyramide / Bob Anderson, Ed Burke. - Ulm : Franz Spiegel Buch GmbH, 1997. - 117 s. - ISBN 3585335258.
Sport a családban / Takács László. - Budapest : Sport, 1973. - 380 s. - ISBN 963 253 512 x.
Pohybová aktivita v životnom štýle dospelých z hľadiska zdravia/ Beáta Dobay-Elena Bendíková, 2016. ISBN 978-963-12-7613-8

Language, knowledge of which is necessary to complete a course:

Notes:

Evaluation of subjects
Total number of evaluated students: 37

a	n
100.0	0.0

Teacher: Dr. habil. PaedDr. Beáta Dobay, PhD., PaedDr. Peter Židek

Date of last update: 28.02.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KTVŠ/ VSA2a/22	**Name:** Leisure sport activities 2a

Types, range and methods of educational activities:
 Form of study: Practical
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 3.

Level of study: I., I.II.

Prerequisites:

Conditions for passing the subject:
 The training course shall:
 The course is conditional on active participation in at least 80% of the hours. Various forms of movement, including ball games, table tennis, swimming, aerobic practices, fitness and group and reinforcement training.
 Assessment criteria:
 ● completion of the practical part of the training by at least 80 %.
 Assessment criteria: Active participation and full content of educational activities. Completed/not completed
 ● describe the practices according to the selected sporting activities of the student: Learning the techniques of kinesthetic activities, creating offensive and defensive game combinations and basic game systems in games. Acquiring and demonstrating basic techniques in swimming. At Fitnesssi: Acquisition and demonstration of basic practices for different body parts and groups of muscles, correct use of fitness tools and devices.
 Assessment criteria:
 Presentation of selected sports activities (at the choice of the learner). Total student workload: 1 credits = 30 hours
 Active participation - 13 hour exercises (contact); preparation 27 hours - build up a set of individual exercises.
 Evaluation criteria: Presentation of selected sports activities (at the discretion of the student).

Results of education:
 Knowledge:
 The student shall be able to apply the practical skills of the chosen sport.
 The student recognizes the relationship between the chosen sport and a healthy lifestyle.
 Capabilities:
 The student is familiar with the basic features and practices of the chosen sport.
 The student can expand his knowledge and self-training.
 Competences:
 The student can also apply the knowledge acquired to the active use of leisure time.
 The student is able to independently plan the activity and expand his knowledge.

Brief syllabus:
1. Understand the importance of physical activity as an essential part of everyday life and its impact on mental and physical health.
2. Acquisition Of football and football core rules (according to selected sports activities).
3. To learn basic rules for table tennis and beat technique.
4. basketball personal protection learning, panda-jumping acquisition of opening techniques, learning the basic rules and techniques of sport (according to selected sports activities).
5. Exercise - according to the selected sports activities.
6. Become familiar with the aerobik practices, using THE HOT-IRON utility.
7 introduction to step aerobik, aerobic practices — use of hand weights.
8. Developing basic mobility skills, including the development of speed, according to selected sporting activities.
9. Swimming learning - swathes, swimming techniques - use of aids and exercise of strolling.
10. Acquisition of control methods for sporting activities — semi-professional human beings — according to the selected sporting activities.
11. Developing speed capability through various means of support in selected sports activities.
12. Develop coordination capabilities — improve the sense of motion rhythm — in line with the selected sporting activities.
13. Output sport activity in selected sports

Literature:
1005 röplabda játék és gyakorlat / Edi Bachmann, Martin Bachmann. - 1. vyd. - Budapest-Pécs : Dialóg Campus Kiadó, 2000. - 344 s. - ISBN 963 9123 84 6.
1006 kosárlabda játék és gyakorlat / Peter Vary. - 1. vyd. - Budapest-Pécs : Dialóg Campus Kiadó, 2001. - 317 s. - ISBN 963 9123 85 4.
1008 torna játék és gyakorlat : Kézikönyv tanároknak, edzőnek, játékosoknak / Ursula Häberling-Spöhel. - 1. vyd. - Budapest - Pécs : Dialóg Campus Kiadó, 2003. - 271 s. - ISBN 963 9310 93 x.
1014 asztalitenisz játék és gyakorlat : Kézikönyv tanároknak, edzőknek, játékosoknak / Harry Blum. - 1. vyd. - Budapest - Pécs : Dialóg Campus Kiadó, 2004. - 323 s. - ISBN 963 9542 07 5.
Die fitnesspyramide / Bob Anderson, Ed Burke. - Ulm : Franz Spiegel Buch GmbH, 1997. - 117 s. - ISBN 3585335258.
Sport a családban / Takács László. - Budapest : Sport, 1973. - 380 s. - ISBN 963 253 512 x.
Pohybová aktivita v životnom štýle dospelých z hľadiska zdravia/ Beáta Dobay-Elena Bendíková, 2016. ISBN 978-963-12-7613-8

Language, knowledge of which is necessary to complete a course:

Notes:

Evaluation of subjects
Total number of evaluated students: 0

a	n
0.0	0.0

Teacher: Dr. habil. PaedDr. Beáta Dobay, PhD., PaedDr. Peter Židek

Date of last update: 28.02.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KTVŠ/ VSA2b/22	**Name:** Leisure sport activities 2b

Types, range and methods of educational activities:
 Form of study: Practical
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 4.

Level of study: I., I.II.

Prerequisites:

Conditions for passing the subject:
 The training course shall:
 The course is conditional on active participation in at least 80% of the hours. Various forms of movement, including ball games, table tennis, swimming, aerobic practices, fitness and group and reinforcement training.
 Assessment criteria:
 ● completion of the practical part of the training by at least 80 %.
 Assessment criteria: Active participation and full content of educational activities. Completed/not completed
 ● describe the practices according to the selected sporting activities of the student: Learning the techniques of kinesthetic activities, creating offensive and defensive game combinations and basic game systems in games. Acquiring and demonstrating basic techniques in swimming. At Fitnesssi: Acquisition and demonstration of basic practices for different body parts and groups of muscles, correct use of fitness tools and devices.
 Assessment criteria:
 Presentation of selected sports activities (at the choice of the learner).
 Total student workload: 1 credits = 30 hours
 Active participation - 13 hour exercises (contact); preparation 27 hours - build up a set of individual exercises.
 Evaluation criteria: Presentation of selected sports activities (at the discretion of the student).

Results of education:
 Knowledge:
 The student shall be able to apply the practical skills of the chosen sport.
 The student recognizes the relationship between the chosen sport and a healthy lifestyle.
 Capabilities:
 The student is familiar with the basic features and practices of the chosen sport.
 The student can expand his knowledge and self-training.
 Competences:
 The student can also apply the knowledge acquired to the active use of leisure time.
 The student is able to independently plan the activity and expand his knowledge.

Brief syllabus:
1. Understand the importance of physical activity as an essential part of everyday life and its impact on mental and physical health.
2. The application of football and football rules, 3:3 game (according to selected sports activities).
3. Application of rules on table tennis and acquisition of various techniques of impact of table tennis.
4. Applying international rules, in basketball and volleyball, learning the various modes of basketball delivery, acquiring the technique of jumping from 3m to step (according to selected sports activities).
5. Develop a functional capability, with complex coordination capabilities, in line with the selected sporting activities.
6. Learning on the aerobics practices, using the weighting plates.
7. Acquiring the aerobic practices of step aerobics.
8. Development of the standing capacity by various means of support, according to the selected sporting activities.
9. Learning to use the skills - improving fast-float, float, back-float technology by using aids and techniques of drawing up the skills.
10. Use of a mixed-defense method throughout the course, according to the selected sports activities.
11. Development of standing capacity by various means of support - selected sporting activities.
12. Develop coordination capacity - develop responsiveness to selected sports activities.
13. Output sport activity in selected sports.

Literature:
1005 röplabda játék és gyakorlat / Edi Bachmann, Martin Bachmann. - 1. vyd. - Budapest-Pécs : Dialóg Campus Kiadó, 2000. - 344 s. - ISBN 963 9123 84 6.
1006 kosárlabda játék és gyakorlat / Peter Vary. - 1. vyd. - Budapest-Pécs : Dialóg Campus Kiadó, 2001. - 317 s. - ISBN 963 9123 85 4.
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1014 asztalitenisz játék és gyakorlat : Kézikönyv tanároknak, edzőknek, játékosoknak / Harry Blum. - 1. vyd. - Budapest - Pécs : Dialóg Campus Kiadó, 2004. - 323 s. - ISBN 963 9542 07 5.
Die fitnesspyramide / Bob Anderson, Ed Burke. - Ulm : Franz Spiegel Buch GmbH, 1997. - 117 s. - ISBN 3585335258.
Sport a családban / Takács László. - Budapest : Sport, 1973. - 380 s. - ISBN 963 253 512 x.
Pohybová aktivita v životnom štýle dospelých z hľadiska zdravia/ Beáta Dobay-Elena Bendíková, 2016. ISBN 978-963-12-7613-8

Language, knowledge of which is necessary to complete a course:

Notes:

Evaluation of subjects
Total number of evaluated students: 0

a	n
0.0	0.0

Teacher: Dr. habil. PaedDr. Beáta Dobay, PhD., PaedDr. Peter Židek

Date of last update: 28.02.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

INFORMATION SHEET

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics	

Code: KTVŠ/ VSA3a/22	**Name:** Leisure sport activities 3a

Types, range and methods of educational activities:
 Form of study: Practical
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 5.

Level of study: I., I.II.

Prerequisites:

Conditions for passing the subject:
 The training course shall:
 The course is conditional on active participation in at least 80% of the hours. Various forms of movement, including ball games, table tennis, swimming, aerobic practices, fitness and group and reinforcement training.
 Assessment criteria:
 ● Completion of the practical part of the training by at least 80 %.
 Assessment criteria: Active participation and full content of educational activities.
 Completed/not completed
 ● Describe the practices according to the selected sporting activities of the student: Learning the techniques of kinesthetic activities, creating offensive and defensive game combinations and basic game systems in games. Acquiring and demonstrating basic techniques in swimming. At Finesse: Acquisition and demonstration of basic practices for different body parts and groups of muscles, correct use of fitness tools and devices.
 Assessment criteria:
 Presentation of selected sports activities (at the choice of the learner).
 Total student workload: 1 credits = 30 hours
 Active participation - 13 hour exercises (contact); preparation 27 hours - build up a set of individual exercises.
 Evaluation criteria: Presentation of selected sports activities (at the discretion of the student).

Results of education:
 Knowledge:
 The student shall be able to apply the practical skills of the chosen sport.
 The student recognizes the relationship between the chosen sport and a healthy lifestyle.
 Capabilities:
 The student is familiar with the basic features and practices of the chosen sport.
 The student can expand his knowledge and self-training.
 Competences:
 The student can also apply the knowledge acquired to the active use of leisure time.
 The student is able to independently plan the activity and expand his knowledge.

Brief syllabus:
1. Understand the importance of physical activity as an essential part of everyday life and its impact on mental and physical health.
2. Games in football or football in accordance with international rules, games against 4:4 (according to selected sports activities).
3. The practice Of various drop-down techniques In table-tennis and table-tennis at a toy according to international rules.
4. Apply international sports rules during the game, learn to attack basketball, learn the techniques of jumping the net from one hop to the other volleyball (according to selected sports activities).
5. Exercise training with strength conditioning capabilities according to the sport activities selected.
6. Carrying out the exercises of the aerobics with its own weight.
7. Acquiring the aerobic practices Of step aerobics.
8. Developing basic mobility skills - speed - according to selected sports activities.
9. Developing floating techniques - crawl, breaststroke, backstroke - learn turning techniques in swimming.
10. Sediment according to selected sporting activities (2:1:2; 1:3:1; 2:2; 1:2).
11. Improving speed by various means of support for selected sports activities.
12. Develop coordination capabilities - exploratory skills - in line with selected sporting activities.
13. Output sport activity in selected sports.

Literature:
1005 röplabda játék és gyakorlat / Edi Bachmann, Martin Bachmann. - 1. vyd. - Budapest-Pécs : Dialóg Campus Kiadó, 2000. - 344 s. - ISBN 963 9123 84 6.
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Language, knowledge of which is necessary to complete a course:

Notes:

Evaluation of subjects
Total number of evaluated students: 0

a	n
0.0	0.0

Teacher: Dr. habil. PaedDr. Beáta Dobay, PhD., PaedDr. Peter Židek

Date of last update: 28.02.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.

Name of the university: J. Selye University	

Name of the faculty: Faculty of Economics and Informatics

Code: KTVŠ/ VSA3b/22	**Name:** Leisure sport activities 3b

Types, range and methods of educational activities:
 Form of study: Practical
 Recommended extent of course (in hours):
 Per week: 1 **For the study period:** 13
 Methods of study: present

Number of credits: 1

Recommended semester/trimester of study: 6.

Level of study: I., I.II.

Prerequisites:

Conditions for passing the subject:
 The following conditions shall apply to the subject:
 General conditions for the performance of the subject:
 • active participation in the course is at least 80%,
 • various forms of kinesthetic activities: play balls, sultanas, swimming, aerobic exercise, body construction, exercise (kinesthetic activity selected by the student).
 General conditions for the performance of the subject:
 • active participation in the course is at least 80%,
 • course evaluation criteria: active participation, completed — not completed.
 • Demonstration Of the sporting activity chosen By the student: In the case of game games - demonstration of the training of an attacker and defense; in the case Of swimming, - demonstration of the technical features of different swimming pools; fitness - demonstration of certain basic practices for different muscle groups and without devices;
 Assessment: Presentation of the elements of the selected sport activity - 20p.
 Final assessment: A: 100-91% B: 90-81 % C: 80 % TO 71 % D: 70 TO 61 % E: 60-51% FX: 50 %
 Total student workload (module 2): 1 credits = 30 hours participation in 13 hours of practical training (contact); 27 hours of self-training for the specific sport.

Results of education:
 Knowledge:
 The student shall be able to apply the practical skills of the chosen sport.
 The student recognizes the relationship between the chosen sport and a healthy lifestyle.
 Capabilities:
 The student is familiar with the basic features and practices of the chosen sport.
 The student can expand his knowledge and self-training.
 Competences:
 The student can also apply the knowledge acquired to the active use of leisure time.
 The student is able to independently plan the activity and expand his knowledge.

Brief syllabus:

1. Understand the importance of physical activity as an essential part of everyday life and its impact on mental and physical health.
2. Games in football or football in accordance with international rules, games against 5:5 (according to selected sports activities).
3. The practice of various road-making techniques In table-tennis, table-tennis, according to international rules - raction.
4. Organize games, championships, basketball training in accordance with international rules 1:2:2; 1:3:1; practice of a net jump-out technique in a volleyball (according to selected sports activities).
5. Developing a konditional capacity - strength: Still image power, maximum force, speed-of-speed force - according to the selected sports activities.
6. Carrying out the exercises of the aerobis with its own weight.
7. Acquiring aerobic practices of step aerobik with different combinations.
8. Developing basic mobility skills in line with selected sports activities.
9. Developing the skills of the sex - fast-float, float, float - learn the skills of turning and jumping in swimming.
10. Acquiring various kinds of physical activity - according to the selected sporting activity (2:1:2; 1:3:1; 2:2; 1:2).
11. Developing speed — speed, speed of movement, speed of speed, speed of speed of speed, with various aids — for selected sports activities.
12. Develop coordination capabilities — spatial awareness capabilities — in accordance with selected sporting activities.
13. Output sport activity in selected sports.
According to the selected ball roll. Kinesthetic activities in different load zones — according to the sport activities selected. Preparation of a weekly microcycle plan to improve aerobic capacity.

Literature:
1005 röplabda játék és gyakorlat / Edi Bachmann, Martin Bachmann. - 1. vyd. - Budapest-Pécs : Dialóg Campus Kiadó, 2000. - 344 s. - ISBN 963 9123 84 6.
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Language, knowledge of which is necessary to complete a course:

Notes:

Evaluation of subjects
Total number of evaluated students: 0

a	n
0.0	0.0

Teacher: Dr. habil. PaedDr. Beáta Dobay, PhD., PaedDr. Peter Židek

Date of last update: 28.02.2022

Approved by: prof. Dr. Annamária Várkonyiné Kóczy, DSc.