Syllabus

1. Programme information

1.1. Institution	THE BUCHAREST UNIVERSITY OF ECONOMIC STUDIES
1.2. Faculty	Business Administration in Foreign Languages
1.3. Departments	Department of Economic Informatics and Cybernetics
1.4. Field of study	Business Administration
1.5. Cycle of studies	Licence
1.6. Education type	Full-time
1.7. Study programme	Business Administration
1.8. Language of study	English
1.9. Academic year	2022-2023

2. Information on the discipline

2.1. Name	Technology	Fechnology and programming in data science							
2.2. Code	22.0153IF1.	.0153IF1.2-0005							
2.3. Year of study	1	2.4. Semester	2	2.5. Type of assessment	Test	2.6. Status of the disciplin	of O le	2.7. Number of 4 ECTS credits	
2.8. Leaders	C(C)	conf.univ.dr.	onf.univ.dr. VESPAN Dragos Marcel				dragos.vespan@ie.ase.ro		
	L/P(L/P)	conf.univ.dr. VESPAN Dragos Marcel				dragos.vespan@ie.ase.ro			

3. Estimated Total Time

3.1. Number of weeks	14.00		
3.2. Number of hours per week		4.00 of which	
		L/P(L/P)	2.00
		C(C)	2.00
3.3. Total hours from curriculum	56.00	of which	
		L/P(L/P)	28.00
		C(C)	28.00
3.4. Total hours of study per semester (ECTS*25)	100.00		
3.5. Total hours of individual study	44.00		
Distribution of time for individual study			
Study by the textbook, lecture notes, bibliography and student's own notes	14.00		
Additional documentation in the library, on specialized online platforms and in the field	10.00		
Preparation of seminars, labs, assignments, portfolios and essays	14.00		
Tutorials	4.00		
Examinations	2.00		
Other activities]	

4. Prerequisites

4.1. of curriculum	Basics of programming
4.2. of competences	Designing and elaborating electronic documents Modeling and automation of data processing procedures

5. Conditions

for the L/P(L/P)	Computer laboratory (1 PC / student); LAN and Internet connection. The computers must have the Anaconda IDE installed.
for the C(C)	Room with computer and videoprojector, with Internet access. The computer must have the Anaconda IDE installed

6. Acquired specific competences

PREFESSIONAL	C5	Utilization of databases specific to business administration

7. Objectives of the discipline

7.1. General objective	Competences and practical abilities regarding the use of current IT tools in the context of electronic business (E-Business)
7.2. Specific objectives	Acquiring skills for online data collection, processing and reporting using the Python programming language.

8. Contents

8.1. 0	C(C)	Teaching/Work methods	Recommendations for students
1	Creating projects in Python Ide. Using Python libraries.	Presentation with PowerPoint support and practical exemplification	
2	Using user interface elements to create interactive Python applications	Presentation with PowerPoint support and practical exemplification	
3	Input and output operations in Python. Getting data from files and saving data in text and binary files	Presentation with PowerPoint support and practical exemplification	
4	Input and output operations in Python. Using datasheets to save and retrieve data.	Presentation with PowerPoint support and practical exemplification	
5	Text processing functions and algorithms	Presentation with PowerPoint support and practical exemplification	
6	Structure of Web documents. Automated retrieval of data from Web.	Presentation with PowerPoint support and practical exemplification	
7	Data retrieval using web services	Presentation with PowerPoint support and practical exemplification	
8	Json data. Processing Json and XML data.	Presentation with PowerPoint support and practical exemplification	
9	Python libraries for visual representation of data	Presentation with PowerPoint support and practical exemplification	
10	Python libraries for visual representation of data	Presentation with PowerPoint support and practical exemplification	
11	Python libraries for data analysis	Presentation with PowerPoint support and practical exemplification	
12	Python libraries for data analysis	Presentation with PowerPoint support and practical exemplification	
13	Python libraries for data analysis	Presentation with PowerPoint support and practical exemplification	

Bibliography

- Guido van Rossum and the Python development team, Python Tutorial, 2022, https://docs.python.org/3/download.html
- Python documentation, 2022, docs.python.org
- Dragos Vespan, Course and seminar support, 2022, online.ase.ro
- Christian Mayer, Coee Break Python 50 Workouts to Kickstart Your Rapid Code Understanding in Python, 2018, https://blog.finxter.com/python-cheat-sheet/
- Swaroop C H, A byte of Python, 2022, http://www.swaroopch.com/notes/Python
- Wes McKinney , Python for Data Analysis, O'Reilly, 2013, https://bedford-computing.co.uk/learning/wp-content/uploads/2015/10/Python-for-Data-Analysis.pdf

8.2. L/P(L/P)	Teaching/Work methods	Recommendations for students
1 Introductory seminar. Presentation of activity structure during the semester. Review of most important concepts in Python programming	Presentation using online resources. Exemplification through assignments.	

2	Creating a Python project. Use of Python libraries	Presentation using online resources. Exemplification through assignments.
3	Using tkinter library to create Python interactive applications.	Presentation using online resources. Exemplification through assignments.
4	Input and output operations. Data read and write in binary and text files	Presentation using online resources. Exemplification through assignments.
5	Input and output operations. Manipulating datasheets.	Presentation using online resources. Exemplification through assignments.
6	Using text processing functions	Presentation using online resources. Exemplification through assignments.
7	Web information retrieval	Presentation using online resources. Exemplification through assignments.
8	Using web services to retrieve data from Web	Presentation using online resources. Exemplification through assignments.
9	Processing Json and XML data files	Presentation using online resources. Exemplification through assignments.
10	Using libraries for graphical data representation	Presentation using online resources. Exemplification through assignments.
11	Using specialized libraries for data analysis	Presentation using online resources. Exemplification through assignments.
12	Using specialized libraries for data analysis	Presentation using online resources. Exemplification through assignments.
13	Project presentations	Individual project presentation
14	Project presentations	Individual project presentation

Bibliography

- Guido van Rossum and the Python development team, Python Tutorial, 2022, https://docs.python.org/3/download.html
- Python documentation, 2022, docs.python.org
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- Christian Mayer, Coee Break Python 50 Workouts to Kickstart Your Rapid Code Understanding in Python, 2018, https://blog.finxter.com/python-cheat-sheet/
- Swaroop C H, A byte of Python, 2022, http://www.swaroopch.com/notes/Python
- Wes McKinney, Python for Data Analysis, O'Reilly, 2013, https://bedford-computing.co.uk/learning/wp-content/uploads/2015/10/Python-for-Data-Analysis.pdf

9. Corroboration of the contents of the discipline with the expectations of the representatives of the epistemic community, of the professional associations and representative employers in the field associated with the programme

The contents provide the prerequisites for acquiring the necessary knowledge of an economic specialist with superior computer skills, in line with the trends of business models of migration to e-Business or the inclusion of a representative component of e-Business.

10. Assessment

Type of activity	Assessment criteria	Assessment methods	Percentage in the final grade		
10.1. L/P(L/P)	Involvement and preparation for seminar classes. Solving the assignments. Recording frequency, interaction in classroom and solving assignments		30.00		
10.2. L/P(L/P)	Creating individual project. Project presentation is a mandatory condition for sustaining the exam.	Assessing projects' compliance with requirements set	20.00		
10.3. Final assessment	Written/Computer exam with multiple choice questions and practical problems to be solved and interpreted.	The answers are evaluated for correctness, using an established grading scheme.	50.00		
10.4. Modality of grading	Whole notes 1-10				
10.5. Minimum standard of performance	Proper defining and application of appropriate instruments for modeling and administration of e- business solutions; Knowledge of fundamental elements of Python programming language. Obtaining at least 50% of the score of each sub-items 10.1, 10.2 and 10.3				

Date of listing, 07/01/2025 Signature of the discipline leaders,

Date of approval in the department

Signature of the Department Director,