

Syllabus

1. Program information

1.1. Institution	ACADEMY 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 studies	Master Studies
1.6. Education type	Full-time
1.7. Program study	Digital Business and Innovation
1.8. Language study	English
1.9. Academic year	2021-2022

2. Course information

2.1. Name	Internet of Things and Blockchain								
2.2. Code									
2.3. Years of studies	2	2.4. Semester	1	2.5. Assessment type	Exam	2.6. Course type	O (Mandatory)	2.7. No. of ECTS	6
2.8. Leaders	Conf. Univ. Dr. Iulian Întorsureanu								

3. Total estimated time

3.1. Number of weeks	14.00		
3.2. Number of hours per week	4.00	of which	
		C (C)	2.00
		S (S)	2.00
3.3. Total hours from curriculum	56.00	of which	
		C (C)	28.00
		S (S)	28.00
3.4. Total hours of study per semester (ECTS*25)	150.00		
3.5. Total hours of individual	94.00		
Time distribution for individual study			
Study the textbook, course support, bibliography and notes	20		
Further reading in the library, on the online platforms and field	24		
Preparing seminars, labs, homework, portfolios and essays	47		
Tutoring	1		
Examinations	2		
Other activities	-		

4. Prerequisites

4.1. About curriculum	
4.2. About skills	

5. Requirements

for C(C)	The lectures will take place in rooms with teaching multimedia equipment and internet connection.
for S(S)	The seminars / Lab classes will take place in computer labs with teaching multimedia equipment and internet connection.

6. Skills covered

Professional	C4	Development of competences for the evaluation and usage of computer applications and technologies
	C6	Development of innovation skills and innovative use of information technology in the application of specific methods, techniques and tools for business administration

7. Course objective

7.1. General objective	Acquiring knowledge about the main aspects of the Internet of Things (IoT) and blockchain technologies and their business applications.
7.2. Specific objectives	Competences for planning and designing IoT and blockchain-based solutions.

8. Course contents

8.1. C(C)		Teaching methods	Advices
1	Internet of Things: main concepts and approaches	Presentation, practical examples, case studies	
2	IoT applications: domains and scenarios	== “” ==	
3	IoT technology constraints	== “” ==	
4	The architecture of IoT solutions	== “” ==	
5	Methodological aspects of planning an IoT-based solution	== “” ==	
6	Smart Grid, Home Automation, Smart City applications	== “” ==	
7	The blockchain technology: main concepts and approaches	== “” ==	
8	Blockchain components and operations.	== “” ==	
9	Security features of blockchain solutions.	== “” ==	
10	Blockchain application domains	== “” ==	
11	Methodological aspects of planning a blockchain-based solution	== “” ==	
12	Blockchain case studies – Bitcoin, Ethereum	== “” ==	
13	The architecture of blockchain-based solutions (I)	== “” ==	
14	The architecture of blockchain-based solutions (II)	== “” ==	

Bibliography:

- Sinclair, B., *IoT Inc: How Your Company Can Use the Internet of Things to Win in the Outcome Economy*, McGraw-Hill Education, 2017
- Bassi, A., Bauer, M., Fiedler, M. et al., *Enabling Things to Talk: Designing IoT solutions with the IoT Architectural Reference Model*, Springer, 2013
- Lewis, A., *The Basics of Bitcoins and Blockchains: An Introduction to Cryptocurrencies and the Technology that Powers Them*, Mango Publishing, 2018
- Mehta, N., Agashe, A., Detroja, P., *Blockchain Bubble or Revolution: The Present and Future of Blockchain and Cryptocurrencies*, Paravane Ventures, 2019

8.2. S(S)		Teaching methods	Advices
1	IoT solutions for enterprises: case study (I)	Case study analysis in student teams	
2	IoT solutions for enterprises: case study (II)	== “” ==	
3	Workshop IoT solution: elaborate the concept	Student team workshop	
4	Workshop IoT solution: develop the business case	== “” ==	
5	Workshop IoT solution: architecture planning	== “” ==	
6	Workshop IoT solution: implementation planning	== “” ==	
7	Blockchain solutions for enterprises: case study (I)	Case study analysis in student teams	
8	Blockchain solutions for enterprises: case study (II)	== “” ==	
9	Workshop blockchain solution: elaborate the concept	Student team workshop	
10	Workshop blockchain solution: develop the business case	== “” ==	
11	Workshop blockchain solution: architecture planning	== “” ==	
12	Workshop blockchain solution: implementation planning	== “” ==	
13	Team project review and feedback	Moderation, peer reviews, feedback	
14	Team project presentation and defence	Evaluation	

Bibliography:

- Sinclair, B., *IoT Inc: How Your Company Can Use the Internet of Things to Win in the Outcome Economy*, McGraw-Hill Education, 2017
- Bassi, A., Bauer, M., Fiedler, M. et al., *Enabling Things to Talk: Designing IoT solutions with the IoT Architectural Reference Model*, Springer, 2013
- Lewis, A., *The Basics of Bitcoins and Blockchains: An Introduction to Cryptocurrencies and the Technology that Powers Them*, Mango Publishing, 2018
- Mehta, N., Agashe, A., Detroja, P., *Blockchain Bubble or Revolution: The Present and Future of Blockchain and Cryptocurrencies*, Paravane Ventures, 2019

9. Course contents corroboration with the demands of epistemic community representatives, professional associations and representative employers

The course content was correlated with local and international business requirements during various professional meetings and debates where the lecturer took part.

10. Assessment

Activity	Assessment criteria	Assessment methods	Percentage in the final grade
10.1. S(S)	Preparation and active participation in lab classes	The participation frequency and degree of interaction during lab classes is evaluated	10%
10.2 C(C)	Elaboration of the team project. The presentation of the project is a mandatory condition for participating in	The projects are evaluated according to the established requirements	40%

	the exam.		
10.3. Final assessment	Written exam	The answers are evaluated according to an established evaluation scheme	50%
10.4. Grading scale	Whole notes 1-10		
10.5. Minimum performance standard	Knowledge and understanding of the presented concepts and terms; Practical abilities for using the methods covered in the seminar/lab.		

Completion date,
09.12.2019

Instructors,