

(Table 5.2) Course unit description

Study program: Economy and business management and Business Informatics			
Type and level of studies: Bachelor degree studies			
Course unit: Blockchain and advanced payment systems			
Teacher in charge: Nenad Z. Tomić			
Language of instruction: English			
ECTS: 7			
Pre requisites: None			
Semester: Summer			
Course unit objective: The course should enable students to understand the basic principles of functioning of blockchain technology. Students will be provided with the knowledge needed to understand the essence of the new Information revolution and the importance of its elements. Special attention will be focused on implementing blockchain technology in smart contracts and payment transactions. As part of considering the possibilities for mass use of electronic money in payment transactions, students should, based on the acquired knowledge, to critically consider all of its potential advantages and limitations.			
Learning outcomes of Course unit While studying the advantages and limitations of blockchain technology, students should acquire adequate knowledge about its role in modern business processes, to understand the application of smart contracts in automatic execution of transactions and recognize the potential for further computerization, which is created by establishing blockchain-based payment systems.			
Course unit contents Theoretical teaching: Cryptographic methods (symmetric and asymmetric cryptography, hash functions, digital signature, digital certificate), basic features of the blockchain (mode of operation, scalability, anonymity), classification from the perspective of participants, protocols for achieving consensus (proof-of-work, proof-of-stake, proof-of-age, Byzantine-fault-tolerance), blockchain as a platform, smart contracts, electronic money (theoretical foundations, card money, software money, micropayments, general assessment), cryptocurrencies (theoretical foundations, Bitcoin, Ether, Ripple, general assessment), energy efficiency, criminal activities involving cryptocurrencies, impact on the monetary system. Practical teaching: Exercises; Analysis of representative models of electronic money and cryptocurrencies; Practical examples of use and abuse of electronic money and cryptocurrencies; Renewal of lecture material through practical examples, discussions and tests will be represented within this part.			
Literature Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder, S. (2016) <i>Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction</i> . Princeton, NJ: Princeton University press			
Number of active teaching hours			Other classes
Lectures 3	Practice 2	Other forms of classes	
Teaching methods			
Examination methods (maximum 100 points)			

Exam pre requisites	No. of points:	Final exam	No. of points:
Student's activity during lectures	5	Oral exam	100
practical classes/tests			
Seminars/homework	5		
Colloquiums	60		
Other			