COURSE INFORMATION SHEET

University: Catholic University in Ružomberok	
Faculty: Faculty of Education	
Course code: KIN/In-BD208A/22	**Course title:** Internet of Things
Type and range of planned learning activities and teaching methods: **Form of instruction:** Lecture / Seminar **Recommended study range:** **hours weekly:** 1 / 2 **hours per semester:** 13 / 26 **Teaching method:** on-site	
Credits: 4	**Working load:** 100 hours
Recommended semester/trimester: 3.	
Level of study: I.	
Prerequisities:	
Requirements for passing the course: The student must master the theoretical knowledge of the subject and also prepare and defend a practical final thesis. Fulfillment of both conditions is demonstrated in the form of a final exam. Final assessment: total percentage gain from mastering theoretical knowledge (50%) and practical final work (50%).	
Learning outcomes of the course: - The student will be able to define the Internet of Things and the devices used. - Gain knowledge and practical experience with the basic possibilities of using and communicating Internet of Things devices in various areas of our lives. - Understands and manages basic issues of security, programming and software updates of microcontrollers and single-board computers, use of sensors, databases and online services. - He will deepen his digital competences required on the labor market.	
Course contents: 1. Definition, basic terms and areas of use of the Internet of Things (IV) 2. Microprocessor, microcontroller, microcomputer, single-board computer 3. Supply of IV devices, "Low Power" mode 4. Sensors and communication (wired, WiFi, Bluetooth, radio, GSM, NFC, RFID...) 5. Communication protocols and services (HTTP, HTTPS, WEB API, MQTT, Zigbee, IFTTT ...) 6. Microcontroller programming (Mikropython, C++ Arduino IDE) 7. Programming single-board computers (Python) 8. Visual programming (Node-Red ...) 9. Databases, collection and presentation of data 10. Real-time clocks and their network synchronization 11. Wireless OTA software update 12. Security of IV devices, LAN and WAN networks (company and home networks, LoRaWAN, Sigfox, NBIoT ...)	
Recommended or required literature: PILLÁR, J. 2021. https://moodle.pf.ku.sk/ - electronic support for the subject. Specialized web portal of the KEGA Internet of Things project: https://UNIoT.sk JAKAB, F. et al. 2020. Internet of Things. TU, Košice, 2020. ISBN: 978-80-553-3680-0.	

Language of instruction:

Notes:

Course evaluation:
Assessed students in total: 12

A	B	C	D	E	FX
33.33	50.0	8.33	0.0	0.0	8.33

Name of lecturer(s): doc. Ing. Ján Pillár, PhD.

Last modification: 10.07.2022

Supervisor(s):
People responsible for the delivery, development and quality of the study programme:
prof. PhDr. Ingrid Emmerová, PhD., PhDr. ThLic. Martin Taraj, PhD., doc. Ing. Igor Černák, PhD.