Course title: Sensor Networks	
Course code: 41079	
ECTS credits: 5	
Requirements: None	
Basic information	
Level of studies: Undergraduate applied studies	
Year of study: 3	
Trimester: 2	
Goal: Students should learn to plan, implement and configure wireless sensor networks. They will adopt basic knowledge of hardware and software platforms for implementation of sensor networks, and also basic routing algorithms, request processing and topology management. Students should be trained for different implementations of sensor networks.	
Outcome: Students should learn to connect wireless sensors to a network, to enable communications and process data requests. Students should master programming of different software and hardware platforms for sensor networks implementation and be able to use a sensor network to control a prescribed system.	
Contents of the course	
Theoretical instruction	
1. Applications of sensor networks	
2. Communication models	
3. Localization and sensor coverage	
4. Routing	
5. Request processing in sensor networks	
6. Mobility and tracking	
7. Sensor networks security	
8. Practical implementation of sensor networks using Arduino and Raspberry Pi hardware platforms.	
9. Basic PLC programming	
Practical instruction (Problem solving sessions/Lab work/Practical training)	
1. Programming Arduino and Raspberry Pi platforms, connecting sensors and platforms.	
2. Different implementations of general purpose sensor networks.	
3. PLC programming , system control using sensor networks.	
Textbooks and References	

1. I. F. Akyildiz, M. C. Vuran,"Wireless Sensor Networks", John Wiley&Sons 2010.
2. R. Faludi,"Building Wireless Sensor Networks with ZigBee, XBee, Arduino, and Processing", O'Reilly Media 2010.
3. C. Bell, "Beginning Sensor Networks with Arduino and Raspberry Pi (Technology in Action)", Apress 2014.
4. J. R. Hackworth, F. D. Hackworth Jr, "Programmable Logic Controllers: Programming Methods and Applications ", Prentice Hall, 2003.
Number of active classes (weekly)
Lectures: 3
Practical classes: 3
Other types of classes:
Grading (maximum number of points: 100)
Pre-exam obligations: Points
Activities during lectures:
Activities on practical exercises: 40
Seminary work: 10
Colloquium: 10
Final exam: Points
Written exam: 40
Oral exam:
Lecturer
Miroslav Đorđević, PhD
Associate