

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Computing and Informatics		
Type and level of studies		Undergraduate Academic Studies		
The name of the course		Internet of Things and Services		
Lecturer (for lectures)		Stojanović H. Dragan		
Lecturer/associate (for exercises)		Predić B. Bratislav		
Lecturer/associate (for OFE)		Davidović P. Nikola		
Number of ECTS	5	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives				
Acquiring knowledge required for design of large-scale distributed software systems and applications in Internet of Things (IoT), based in principles and technologies of service-oriented computing.				
Course outcomes				
Theoretical and practical knowledge about principles, methods and technologies of Internet of Things and service-oriented software systems, as well as technologies, software platforms and tools for design and implementation of distributed software systems and applications of Internet and Web of Things.				
Course outline				
Theoretical teaching				
Introduction to Internet of Things and service-oriented software systems. Internet of Things (IoT), Internet of Services, Internet of Everything (IoE), Web of Things (WoT) and services. Wireless networks and protocols for IoT. Service discovery and orchestration and reactive microservices in IoT. Software technologies and tools for creation and composition (mashup) IoT service. IoT platforms and services in cloud. Processing and analysis of Big Data in IoT systems and applications. Data fusion and analysis in IoT at edge and fog infrastructure. Concepts and technologies: Data as a Service, Security as a Service, Sensors as a Service, Analysis as a Service, Everything as a Service (XaaS). Security and privacy in IoT systems. Development of IoT software systems and applications in real-world applications and scenarios				
Practical teaching (exercises, OFE, study and research)				
Design and implementation of large-scale distributed software systems in Internet /Web of Things over the set of laboratory exercises and a software project that follows topics covered in lectures.				
Textbooks/references				
1	Anupama C. Raman, Pethuru Raj, The Internet of Things: Enabling Technologies, Platforms, and Use Cases, CRC Press, Taylor & Francis Group, 2017.			
2	Dominique Guinard, Vlad Trifa, Building the Web of Things, Manning, 2016.			
3	Sam Newman, Building Microservices: Designing Fine-Grained Systems, O'Reilly Media; 1st edition, 2015			
4				
5				
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	2	1	0	0
Teaching methods				
Lectures, auditive exercises, lab practicing, independent student work on assignments and projects, student seminars.				
Grade (maximum number of points 100)				
Pre-exam duties		Points	Final exam	Points
Activity during lectures			Written exam	40
Exercises			Oral exam	
Colloquia		40		
Projects		20		