



SYLLABUS

Basic information of the course	
University:	University “Ukshin Hoti” - Prizren
Academic unit:	Faculty of Computer Science
Study program:	Information and Telecommunication Technologies
Course:	Internet of Things and its Application
Study level:	Bachelor
Course status:	Elective
Study year:	3
Number of hours per week:	2+2
Credit value - ECTS:	6
Time / location:	It will be published in the university web site!
Lecturers:	Ass. Betim Maloku, Ph. D. c.
Contact details:	betim.maloku@uni-prizren.com
Course description:	<p>The Internet of Things (IoT) is a course about the new paradigm of objects interacting with people, with information systems, and with other objects. The course will focus on creative thinking and on hands-on project development. The students will learn: – IoT concepts – IoT technologies – Creative thinking techniques – Co-creation techniques. This subject does not have the intention of being a comprehensive course about the technologies involved in IoT. The focus will be more on the possibilities offered by the different technologies, and on the creative thinking techniques to find innovative applications of combinations of such technologies in real-life scenarios. Several presentations will also be scheduled in which people from industry will make presentations about selected topics related to the IoT.</p>
Course objectives:	<p>The purpose of this course is to give students general knowledge about:</p> <ul style="list-style-type: none"> - The concise way in which the general Internet and the Internet of Things work. - Limitations and possibilities of wireless and cellular networks for the Internet of Things.

Learning outcomes:	The student will be able to understand: <ul style="list-style-type: none"> - The use of basic measurement tools to determine the real-time performance of packet-based networks. - Compromises in interconnected networks with integrated wireless sensors. 		
Contribution on student load (must correspond with learning outcomes)			
Activity	Hours	Days/week	Total/hours
Lectures	2	15	30
Exercise theoretical/laboratory	2	15	30
Practice work	1	2	2
Contact with lecturer/consultations	1	5	5
Field exercises	1	1	1
Midterms	2	2	4
Laboratory exercises	2	2	4
Individual time spent studying (at the library or home)	3	10	30
Final preparation for the exam	5	6	30
Time spent in evaluation (tests, quiz, final exam)	2	3	6
Projects, presentations, etc.	4	2	8
Total			150
Notice: 1 ECTS credits = 25 hours commitment, e.g. if the course has 6 ECTS credits student must have 150 hours during the semester.			
Teaching methods:	The course is a combination of lectures, discussions, numerical and laboratory exercises, while the assignments are presented by the laboratory course lecturers!		
Assessment methods:	<ul style="list-style-type: none"> - Attendance in lectures and exercises: 5% + 5%. - Semestral project: 10%. - Test 1: 15%. - Test 2: 15%. - Final exam: 100%. 		
Assessment and grading:	Vlerësimi në %	Nota përfundimtare	
	91% - 100%	10	
	81% - 90%	9	
	71% - 80%	8	
	61% - 70%	7	
	51% - 60%	6	

	0% - 50%	5
Literature		
Basic literature:	1. Arshdeep Bahga and Vijay Madiseti. “Internet of Things: A Hands-on Approach”, by Universities Press, 2015. ISBN: 9788173719547.	
Additional literature:	1. Adrian McEwen, Hakim Cassimally. “Designing the Internet of Things”, John Wiley & Sons, 2014.	
Study plan		
Week	Lectures	
<i>First week:</i>	<ul style="list-style-type: none"> • Introduction to Internet of Things (IoT) • Presentation of the syllabus 	
<i>Second week:</i>	<ul style="list-style-type: none"> • IoT Levels & Deployment Templates 	
<i>Third week:</i>	<ul style="list-style-type: none"> • Domain Specific IoTs 	
<i>Fourth week:</i>	<ul style="list-style-type: none"> • IoT and Machine-to-Machine (M2M) 	
<i>Fifth week:</i>	<ul style="list-style-type: none"> • IoT System Management with NETCONF-YANG 	
<i>Sixth week:</i>	<ul style="list-style-type: none"> • IoT Platforms Design Methodology 	
<i>Seventh week:</i>	<ul style="list-style-type: none"> • IoT Systems – Logical Design using Python 	
<i>Eighth week:</i>	<ul style="list-style-type: none"> • Test 1 	
<i>Ninth week:</i>	<ul style="list-style-type: none"> • IoT Physical Devices & Endpoints 	
<i>Tenth week:</i>	<ul style="list-style-type: none"> • IoT Physical Servers & Clouds 	
<i>Eleventh week:</i>	<ul style="list-style-type: none"> • Case Studies Illustrating IoT Design - 1 	
<i>Twelfth week:</i>	<ul style="list-style-type: none"> • Case Studies Illustrating IoT Design - 2 	
<i>Thirteenth week:</i>	<ul style="list-style-type: none"> • Data Analytics for IoT 	
<i>Fourteenth week:</i>	<ul style="list-style-type: none"> • Tools for IoT 	
<i>Fifteenth week:</i>	<ul style="list-style-type: none"> • Test 2 	

Exercises

Study plan	
Java	Exercises
<i>First week:</i>	<ul style="list-style-type: none"> • Introduction to Internet of Things (IoT) • Presentation of the syllabus
<i>Second week:</i>	<ul style="list-style-type: none"> • IoT Levels & Deployment Templates
<i>Third week:</i>	<ul style="list-style-type: none"> • Domain Specific IoTs
<i>Fourth week:</i>	<ul style="list-style-type: none"> • IoT and Machine-to-Machine (M2M)
<i>Fifth week:</i>	<ul style="list-style-type: none"> • IoT System Management with NETCONF-YANG
<i>Sixth week:</i>	<ul style="list-style-type: none"> • IoT Platforms Design Methodology
<i>Seventh week:</i>	<ul style="list-style-type: none"> • IoT Systems – Logical Design using Python
<i>Eighth week:</i>	<ul style="list-style-type: none"> • Test 1
<i>Ninth week:</i>	<ul style="list-style-type: none"> • IoT Physical Devices & Endpoints

<i>Tenth week:</i>	<ul style="list-style-type: none"> • IoT Physical Servers & Cloud Offerings
<i>Eleventh week:</i>	<ul style="list-style-type: none"> • Case Studies Illustrating IoT Design - 1
<i>Twelfth week:</i>	<ul style="list-style-type: none"> • Case Studies Illustrating IoT Design - 2
<i>Thirteenth week:</i>	<ul style="list-style-type: none"> • Data Analytics for IoT
<i>Fourteenth week:</i>	<ul style="list-style-type: none"> • Tools for IoT
<i>Fifteenth week:</i>	<ul style="list-style-type: none"> • Test 2

Academic policies and rules of conduct	
<ul style="list-style-type: none"> • Generally lecture presentations will be made through MS PowerPoint, tables, material usage, computer programs and numeric exercises. • Additional resources (scientific papers, publications, national bulletins, as well as recent discoveries and research) will be provided by professors. • In the absence of the opportunity for practical work to be organized weekly, in cooperation with the management of the university, this activity will be organized on certain days in: organizations, companies, etc. • During each session will be organized the conversation and co-participation with the students! • Students are required to be regular in lectures and exercises! • It will be evaluated when the students collaborate and participate in the lectures and course exercises! • Timely arrival in lectures and exercises is mandatory! 	