



Training Course Outline

ITU and National Institute of Telecommunications

Title	Key Aspects and Governance of Internet of Things, Big Data and Artificial Intelligence
Modality	Face-to-face Szachowa 1, 04-894 Warsaw, Poland
Dates	27-28 October 2022
Duration	2 Days
Registration deadline	27 October 2022
Training fees	USD 500
Description	This course will focus on technical, business and regulatory aspects of Internet of Things (IoT), Big Data and Artificial Intelligence (AI).
Course code	22WS27813EUR-E

1. LEARNING OBJECTIVES

This course will focus on technical, business and regulatory aspects of Internet of Things (IoT), Big Data and Artificial Intelligence (AI). It will cover Internet technologies for IoT, then IoT standards, architectures and interoperability, as well as IoT policies and regulations, including IoT security and privacy issues. The course will include IoT services in 4G and 5G mobile systems, including massive IoT and critical IoT use cases. The IoT generates large amounts of data that cannot be processed by traditional techniques, and such data is referred to as Big Data. In that manner, the course will include Big Data overview, Big Data ecosystem and reference architecture, Big Data technologies and use cases, as well as business and regulatory challenges for Big Data. Artificial Intelligence (AI) is targeted for processing Big Data in Internet and telecom networks. In that regard the course will cover introduction to AI in ICT/telecom world, and AI applications in Internet and telecom worlds, including Machine Learning aspects for 5G mobile networks. The course will further include Big Data and AI challenges, business aspects, as well as policies and regulation. Finally, the course will cover Internet governance with regard to IoT, Big Data, and AI.

2. LEARNING OUTCOMES

At the end of the training, the participant should have gained an understanding of the key aspects of:

- Introduction to Internet technologies and Internet of Things (IoT)
- IoT standards, architectures and interoperability
- IoT in 4G and 5G mobile networks
- IoT data security, privacy and trust
- IoT business aspects, policies and regulations
- Big Data ITU's framework, ecosystem and architectures
- Artificial Intelligence (AI) fundamentals in Internet and telecom worlds
- Big Data and AI technologies and use cases
- AI and ITU's Machine Learning for 5G/IMT-2020 mobile networks
- Governance of IoT, Big Data, and AI

3. TARGET POPULATION

This course is targeted at managers, engineers and employees from regulators, government organisations, telecommunication companies and academia, who are interested in understanding, implementation and regulation of Internet of Things (IoT), Big Data and Artificial Intelligence (AI), including technical, business and regulatory aspects. Other institutions and individuals that are dedicated in building their capacity related to IoT, Big Data and AI, including technical, business and regulatory aspects, are also welcome to participate.

4. ENTRY REQUIREMENTS

No prior knowledge or qualification is required to register for this course, considering the given target population.

5. TUTORS/INSTRUCTORS

NAME OF TUTOR(S)/INSTRUCTOR(S)	CONTACT DETAILS
Prof. Toni Janevski	tonij@feit.ukim.edu.mk

6. TRAINING COURSE CONTENTS

Lecture 1. Introduction to Internet technologies and Internet of Things (IoT)

Lecture 2. IoT standards, architectures and interoperability

Lecture 3. IoT in 4G and 5G mobile networks

Lecture 4. IoT data security, privacy and trust

Lecture 5. IoT business aspects, policies and regulations

Lecture 6. Big Data ITU's framework, ecosystem and architectures

Lecture 7. Artificial Intelligence (AI) fundamentals in Internet and telecom worlds

Lecture 8. Big Data and AI technologies and use cases

Lecture 9. AI and ITU's Machine Learning for 5G/IMT-2020 mobile networks

Lecture 10. Governance of IoT, Big Data, and AI

7. TRAINING COURSE SCHEDULE / AGENDA

Day 1:

Time (CEST)	Lecturer	Title and content of the session
09:30 – 10:00	REGISTRATION	
10:00 – 11:00	<i>Prof. Dr. Toni Janevski, Faculty of Electrical Engineering and Information Technologies, Ss. Cyril and Methodius University, Skopje</i>	Introduction to Internet technologies and Internet of Things (IoT)
11:00 – 11:30	COFFEE BREAK	
Section A		
11:30 – 13:00	<i>Prof. Dr. Toni Janevski, Faculty of Electrical Engineering and Information Technologies, Ss. Cyril and Methodius University, Skopje</i>	IoT standards, architectures and interoperability
13:00 – 14:00	LUNCH BREAK	
Section B		
14:00 – 15:00	<i>Prof. Dr. Toni Janevski, Faculty of Electrical Engineering and Information Technologies, Ss. Cyril and Methodius University, Skopje</i>	IoT in 4G and 5G mobile networks
15:00 – 15:30	<i>Prof. Dr. Toni Janevski, Faculty of Electrical Engineering and Information Technologies, Ss. Cyril and Methodius University, Skopje</i>	IoT data security, privacy and trust
15:30 – 16:00	COFFEE BREAK	
16:00 – 17:00	<i>Prof. Dr. Toni Janevski, Faculty of Electrical Engineering and Information Technologies, Ss. Cyril and Methodius University, Skopje</i>	IoT business aspects, policies and regulations
Day 1 Conclusions		

Day 2:

Time	Lecturer	Title and content of the session
Section C		
10:00 – 11:00	<i>Prof. Dr. Toni Janevski, Faculty of Electrical Engineering and Information Technologies, Ss. Cyril and Methodius University, Skopje</i>	Big Data ITU's framework, ecosystem and architectures
11:00 – 11:30	COFFEE BREAK	
11:30 – 13:00	<i>Prof. Dr. Toni Janevski, Faculty of Electrical Engineering and Information Technologies, Ss. Cyril and Methodius University, Skopje</i>	Artificial Intelligence (AI) fundamentals in Internet and telecom worlds
13:00 – 14:00	LUNCH BREAK	

Section D		
14:00 – 14:45	<i>Prof. Dr. Toni Janevski, Faculty of Electrical Engineering and Information Technologies, Ss. Cyril and Methodius University, Skopje</i>	Big Data and AI technologies and use cases
14:45 – 15:30	<i>Prof. Dr. Toni Janevski, Faculty of Electrical Engineering and Information Technologies, Ss. Cyril and Methodius University, Skopje</i>	AI and ITU's Machine Learning for 5G/IMT-2020 mobile networks
15:30 – 16:00	COFFEE BREAK	
16:00 – 17:00	<i>Prof. Dr. Toni Janevski, Faculty of Electrical Engineering and Information Technologies, Ss. Cyril and Methodius University, Skopje</i>	Governance of IoT, Big Data, and AI
Day 2 Conclusions		

8. METHODOLOGY (Didactic Approach)

Face-to-face workshop. The course will be conducted as two full days lecture sessions. All participants will receive course materials in hard copy.

9. EVALUATION AND GRADING

At the end of the course participants will take part in a written test checking the level of knowledge gained during the training.

10. TRAINING COURSE COORDINATION

Course coordinator: Name: Sylwester Laskowski Email address: S.Laskowski@il-pib.pl	ITU coordinator: Name: Jaroslaw Ponder Email address:
--	--

COVID-19 MEASURES

- Venue will be prepared to meet the 4 square metres of space per person rule
- Participants will be required to stand and sit at least 1.5 metres apart in line with social distancing recommendations
- Good hygiene will be practiced throughout the training and hand sanitiser will be provided
- Equipment will be wiped down during the breaks

Actual national rules regarding covid are given at:

<https://www.gov.pl/web/koronawirus/aktualne-zasady-i-ograniczenia>