

Training Course Outline

ITU and National Institute of Telecommunications

Online Training Course on

Security and QoS in Internet Network

11-19 April 2022

Title	Security and QoS in Internet Network
Modality	Online Training Course
Dates	11-19 April 2022
Duration	8 days
Registration deadline	11 April 2022
Training fees	USD 150
Description	<p>This course will focus on Security and Quality of Service (QoS) in Internet network from technology, regulation and business aspects. It will cover Internet fundamentals, including Internet protocols and architectures, Internet security standards and approaches as defined by IETF (Internet Engineering Task Force), as well as ITU's security architectures for end-to-end communications. Further, the course will incorporate cybersecurity approaches from the ITU viewpoint, and security aspects of emerging cloud computing and Internet of Things (IoT). Further, the course will incorporate Internet QoS, including the standardized solutions and practical approaches for provision of end-to-end QoS. In that manner, it will cover QoS parameters as defined by the ITU and QoS for data (i.e., Over-The-Top services) and mobile services. Finally, the course will include network neutrality, Internet KPIs (Key Performance Indicators) and their measurements.</p>
Course code	22OI27804EUR-E

1. LEARNING OBJECTIVES

This course will focus on Security and Quality of Service (QoS) in Internet network from technology, regulation and business aspects. It will cover Internet fundamentals, including Internet protocols and architectures, Internet security standards and approaches as defined by IETF (Internet Engineering Task Force), as well as ITU's security architectures for end-to-end communications. Further, the course will incorporate cybersecurity approaches from the ITU viewpoint, and security aspects of emerging cloud computing and Internet of Things (IoT). Further, the course will incorporate Internet QoS, including the standardized solutions and practical approaches for provision of end-to-end QoS. In that manner, it will cover QoS parameters as defined by the ITU and QoS for data (i.e., Over-The-Top services) and mobile services. Finally, the course will include network neutrality, Internet KPIs (Key Performance Indicators) and their measurements.

2. LEARNING OUTCOMES

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

- Internet fundamentals
- Internet security by IETF
- ITU's security architectures providing end-to-end communication
- Cybersecurity
- Cloud computing and Internet of Things (IoT) security
- Internet QoS
- QoS parameters
- QoS for data and mobile broadband services
- Network neutrality and Internet KPIs measurements
- ITU guidelines for QoS regulation

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 Security and QoS in Internet Network, including technologies, standardization, regulation and content. Other institutions and individuals that are dedicated in building their capacity related to Security and QoS in Internet Network 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

There are in total eight days, from which first 5 days (11-15 April 2022) there will be given recorded video lectures, 2 per day, five days in total and that gives the total of 10 video lectures in this course. The lectures are on the following subjects:

Lecture	Subject
Lecture 1	Internet fundamentals
Lecture 2	Internet security by IETF
Lecture 3	ITU's security architectures providing end-to-end communications
Lecture 4	Cybersecurity
Lecture 5	Cloud computing and Internet of Things (IoT) security
Lecture 6	Overview of Internet QoS
Lecture 7	QoS parameters
Lecture 8	QoS for data and mobile broadband services
Lecture 9	Network neutrality and Internet KPIs measurements
Lecture 10	ITU guidelines for QoS regulation

7. TRAINING COURSE SCHEDULE

Days	Topic	Exercises and interactions
Day 1	Lecture 1. Internet fundamentals Lecture 2. Internet security by IETF	Watching and listening to video lectures 1 and 2. Answering on questions asked by the tutor, and possibility to ask questions to him via course forum.
Day 2	Lecture 3. ITU's security architectures providing end-to-end communications Lecture 4. Cybersecurity	Watching and listening to video lectures 3 and 4. Answering on questions asked by the tutor, and possibility to ask questions to him via course forum.

Day 3	Lecture 5. Cloud computing and Internet of Things (IoT) security Lecture 6. Overview of Internet QoS	Watching and listening to video lectures 5 and 6. Answering on questions asked by the tutor, and possibility to ask questions to him via course forum.
Day 4	Lecture 7. QoS parameters Lecture 8. QoS for data and mobile broadband services	Watching and listening to video lectures 7 and 8. Answering on questions asked by the tutor, and possibility to ask questions to him via course forum.
Day 5	Lecture 9. Network neutrality and Internet KPIs measurements Lecture 10. ITU guidelines for QoS regulation	Watching and listening to video lectures 9 and 10. Answering on questions asked by the tutor, and possibility to ask questions to him via course forum.
Day 6-7	Consolidation of knowledge	Possibility to watch all video lectures one again with possibility to ask questions to the tutor.
Day 8	Final Quiz	Solving the Final Quiz.

8. METHODOLOGY (Didactic approach)

The course methodology will be as follows:

- Each day from 11 to 15 April 2022 there will be made available two recorded video lectures, which are recorded in the face-to-face ITU Centre of Excellence workshop organised by National Institute of Telecommunications in Poland. In total there are 10 video lectures during the course.
- Discussion forum will be organized based on discussion topics given on a daily basis, where students are highly encouraged to participate and interact with instructors and other students.
- Quiz test will be assigned on the last day of the course, 18 April 2022.
- All announcements for all events (lectures, quiz and forum) will be given in a timely manner (prior to the event) by the course tutor.

9. EVALUATION AND GRADING

On the last day of the course a quiz test will be assigned. It will consist of 20 questions (multiple choice) which should be solved in a time frame of 90 minutes, with at least 12 correct answers (60%).

The course evaluation for obtaining the certificate at the end is based primarily on the results from the Quiz, however, replies to the raised discussion topics may also be considered in the evaluation process.

10. TRAINING COURSE COORDINATION

Course coordinator: Name: Sylwester Laskowski Email address: S.Laskowski@il-pib.pl	ITU coordinator: Name: Jaroslaw Ponder Email address: euregion@itu.int
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11. CERTIFICATES

Each fully registered participant who successfully completes the course, based on the evaluation, will receive an ITU Certificate for this course.