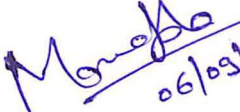


Ministry of Communications
Department of Telecom
(International Relations Division)

Subject: ITU online training

The undersigned is directed to request all concern to nominate suitable officers from your office latest by 20-09-2022 in attached Proforma regarding ITU e-learning course on "QoS Technologies and Regulation for Fixed and Mobile" (26 September – 3 October 2022) for further processing please.

The details of the course are enclosed.


06/09/2022

(Monu Gupta)
ADG (IR)
Ministry of Communications,
Department of Telecommunications,
Sanchar Bhavan, 20, Ashoka Road,
New Delhi-110001
Mobile: 9412218931

To
All DDGs, DoT



Training Course Outline

ITU and National Institute of Telecommunications

Title	QoS Technologies and Regulation for Fixed and Mobile
Modality	Online instructor-led
Dates	26 September – 3 October 2022
Duration	8 days
Registration deadline	26 September 2022
Training fees	USD 150
Description	<p>This course will focus on technical, business and regulatory aspects of QoS for Fixed and Mobile Networks. It includes QoS (Quality of Service) and QoE (Quality of Experience) fundamentals by ITU, as well as traffic and QoS management in Internet and IP networks. Further, it includes QoS for fixed ultra-broadband access, including QoS solutions in metallic and optical networks, carrier grade Ethernet QoS, as well as end-to-end QoS. The course also covers QoS for mobile ultra-broadband access, including 4G and 5G mobile technologies and their QoS capabilities and approaches. Further, it covers QoS-enabled services provisioning, including QoS and QoE for VoIP, video and IPTV services, as well as QoS for Internet OTT/data services. The course includes interconnection and its QoS aspects, generic and specific QoS parameters, KPIs (Key Performance Indicators) and their measurements, as well as network neutrality approach for OTT/data services and its regulation. The QoS constantly increases in its importance with the digitization and innovation of various critical services, so the course includes QoS regulatory framework based on technical, business/economic and regulatory principles of QoS for services over fixed and mobile networks.</p>
Course code	22OI27810EUR-E

1. LEARNING OBJECTIVES

This course will focus on technical, business and regulatory aspects of QoS for Fixed and Mobile Networks. It includes QoS (Quality of Service) and QoE (Quality of Experience) fundamentals by ITU, as well as traffic and QoS management in Internet and IP networks. Further, it includes QoS for fixed ultra-broadband access, including QoS solutions in metallic and optical networks, carrier grade Ethernet QoS, as well as end-to-end QoS. The course also covers QoS for mobile ultra-broadband access, including 4G and 5G mobile technologies and their QoS capabilities and approaches. Further, it covers QoS-enabled services provisioning, including QoS and QoE for VoIP, video and IPTV services, as well as QoS for Internet OTT/data services. The course includes interconnection and its QoS aspects, generic and specific QoS parameters, KPIs (Key Performance Indicators) and their measurements, as well as network neutrality approach for OTT/data services and its regulation. The QoS constantly increases in its importance with the digitization and innovation of various critical services, so the course includes QoS regulatory framework based on technical, business/economic and regulatory principles of QoS for services over fixed and mobile networks.

2. LEARNING OUTCOMES

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

- QoS and QoE fundamentals by ITU
- Traffic and QoS management
- QoS for fixed ultra-broadband
- QoS for mobile ultra-broadband
- QoS and QoE for VoIP and IPTV
- QoS for Internet data services
- Interconnection and QoS
- QoS parameters, KPIs and measurements
- Network neutrality regulation
- QoS regulatory framework

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 QoS for Fixed and Mobile networks, including technologies, standardization, and regulation. Other institutions and individuals that are dedicated in building their capacity related to QoS Technologies and Regulation for Fixed and Mobile Networks 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 (26 – 30 September) 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	QoS and QoE fundamentals by ITU
Lecture 2	Traffic and QoS management
Lecture 3	QoS for fixed ultra-broadband
Lecture 4	QoS for mobile ultra-broadband
Lecture 5	QoS and QoE for VoIP and IPTV
Lecture 6	QoS for Internet data services
Lecture 7	Interconnection and QoS
Lecture 8	QoS parameters, KPIs and measurements
Lecture 9	Network neutrality regulation
Lecture 10	QoS regulatory framework

7. TRAINING COURSE SCHEDULE

Days	Topic	Exercises and interactions
Day 1	Lecture 1. QoS and QoE fundamentals by ITU Lecture 2. Traffic and QoS management	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. QoS for fixed ultra-broadband Lecture 4. QoS for mobile ultra-broadband	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. QoS and QoE for VoIP and IPTV Lecture 6. QoS for Internet data services	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. Interconnection and QoS Lecture 8. QoS parameters, KPIs and measurements	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 regulation Lecture 10. QoS regulatory framework	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 26 to 30 September 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, 3 October 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: eurregion@itu.int
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Registration and payment information

ITU and National Institute of Telecommunications (NIT) - P Online instructor led training
course on

QoS Technologies and Regulation for Fixed and Mobile

26 Sep 2022 - 03 Oct 2022

COURSE DETAILS

Title	QoS Technologies and Regulation for Fixed and Mobile
Modality	Online instructor led
Dates	26 Sep 2022 - 03 Oct 2022
Duration	8 days
Registration deadline	26 Sep 2022
Training fees	\$150.00
Course code	22OI27810EUR-E

REGISTRATION

ITU Academy portal account

Registration should be made online at the ITU Academy portal.

To be able to register for the course you **MUST** first create an account in the ITU Academy portal at the following address: <https://academy.itu.int/user/register>

Training course registration

When you have an existing account or created a new account, you can register for the course online at the following link: <https://academy.itu.int/training-courses/full-catalogue/qos-technologies-and-regulation-fixed-and-mobile-2> You can also register by finding your desired course in our training catalogue: <https://academy.itu.int/training-courses/full-catalogue>

PAYMENT

1. Online payment

A training fee of USD 150.00 per participant is applied for this training course. Payment should be made via the online system using the link mentioned above for training course registration at <https://academy.itu.int/training-courses/full-catalogue/qos-technologies-and-regulation-fixed-and-mobile-2>

2. Payment by bank transfer

Where it is not possible to make payment via the online system, select the option for offline payment to generate an invoice using the same link as above. Download the invoice to make a bank transfer to the ITU bank account shown below. Then send the proof of payment/copy of bank transfer slip and the invoice copy to Hcbmail@itu.int and copy the course coordinator.

All bank transaction fees must be borne by the payer.

Failure to submit the above documents may result in the applicant not being registered for the training.

3. Group payment

Should you wish to pay for more than one participant using bank transfer and need one invoice for all of them, create an account as **Institutional Contact**. **Institutional Contacts** are users that represent an organization. Any student can request to be an institutional contact.

To do this, go to your profile page by clicking on the “**My account**” button in the user menu. If you want to **become an institutional contact**, click on the “**Apply to be an Institutional Contact**” button. This will redirect you to a small form that will ask for the organization name. After you fill the name of the organization you want to represent, click on “**continue**” and a request will be created. An ITU Academy manager will manually review this request and accept or deny it accordingly.

ITU BANK ACCOUNT DETAILS:	
Name and Address of Bank:	UBS Switzerland AG Case postale 2600 CH 1211 Geneva 2 Switzerland
Beneficiary:	Union Internationale des Télécommunications
Account number:	240-C8108252.2 (USD)
Swift:	UBSWCHZH80A
IBAN:	CH54 0024 0240 C810 8252 2
Amount:	USD 150.00
Payment Reference:	CoE-EUR 027810-P.40595.1.04

4. Other method of payment

If due to national regulations, there are restrictions that do not allow for payment to be made using options 1 & 2 above, please contact the ITU course coordinator for further assistance.

