



Training Course Outline

ITU and National Institute of Telecommunications

Title	Strategic aspects for internet governance and innovations
Modality	Online instructor-led
Level	Intermediate
Dates	13 – 20 May 2024
Duration	8 days
Language	English
Region	World or Multi-Regional
Registration type	Application and selection
Registration deadline	12 May 2024
Training fees	150 USD
Description	<p>This course covers strategic aspects of Internet governance and innovations, including technical, business and regulatory aspects. It covers the convergence of telecommunications to all-IP, including open Internet and telecoms. Such convergence is driven by the development of fixed and mobile broadband (cable, optical, 5G), based on standards. In that way the course further covers broadband strategies and innovations as well as telecom standardization and policy. The open Internet allows speedy innovations in networks and services, especially by large OTT providers, hence the course includes innovation management in ICT and Google vs. Apple innovation models. Further, it includes business and regulatory aspects of VoIP and IPTV services for telecom operators and for OTT providers. The digital transformation based on the broadband Internet increases the importance of online security and use of data, so the course also covers cybersecurity and data governance including blockchain and quantum computing security. It also includes cloud and edge computing, the Internet of Things (IoT) and Artificial Intelligence (AI) along with the new Metaverse in terms of innovation and governance. Finally, the course includes network neutrality and QoS for open Internet as well as future approaches for global Internet governance including emerging technologies such as AI, data and crypto, as well as policy and regulatory aspects.</p>

<i>Training topics</i>	<i>Internet governance</i>
<i>Certification</i>	<i>Certificate</i>
<i>Code</i>	<i>240I100371MUL-E</i>

1. TARGET POPULATION

This course is targeted at managers, engineers and employees from regulators, government organizations, telecommunication companies and academia, who are interested in Strategic Aspects for Internet Governance and Innovations, including technical, business and regulatory aspects. Other institutions and individuals that are dedicated in building their capacity related to Strategic Aspects for Internet Governance and Innovations are also welcome to participate.

2. ENTRY REQUIREMENTS

No specific prerequisites in terms of knowledge or qualifications are required for the intended target population.

3. TRAINING OBJECTIVES

At the end of the training, the participant should have gained knowledge about the key aspects of:

- Convergence in telecommunications
- Broadband strategies and new telecom technologies
- Telecom standardization and policy
- Innovation management in ICT
- OTT innovations: Google model vs. Apple model
- Telecom and OTT VoIP and IPTV: technologies and regulation
- Cybersecurity and data governance
- Cloud, IoT, AI and Metaverse innovations and governance
- Network neutrality
- Global Internet governance

4. METHODOLOGY

This course will be delivered using instructor-led online learning. The course methodology will be as follows:

- Each day from 13 to 17 May 2024 there will be made available two recorded video lectures,. In total, there are 10 video lectures during the course.
- Course forum, asynchronous, will be organized based on discussion topics raised by the instructor on a daily basis, from Course Day 1 to Course Day 5, which will cover the course material on the given day. Also, participant responses will be asynchronous, keeping in mind the different time zones and daily commitments of participants from different countries around the world.
- General discussion forum, asynchronous, will be provided for participants to ask their own questions which can be answered by the instructor and other participants.
- Final Quiz test will be assigned on the last day of the course, 20 May 2024.
- All announcements for all events (lectures, quiz and forum) will be given in a timely manner (prior to the event) by the course tutor.

5. ASSESSMENT AND GRADING

The evaluation of the participants will be based on 80% from the Final Quiz and 20% from the answers given in the course forum on the raised discussion topics on daily basis by the tutor, thus reflecting both the quantity and the quality of time spent on the course.

Participation in the course forum is mandatory in order to access the Final Quiz.

The Final Quiz will be open from 00:00 hours on Monday (20th of May 2024) according to the GMT+1 time, and will remain open for 30 hours after opening, so each participant can choose the most convenient time to solve it. However, after the start of the attempt the Quiz should be completed in 90 minutes. The Final Quiz contributes with 80% in the total grade.

The course is completed successfully with a total grade of 70% or higher. The grading will be completed by the course tutor after the course is fully completed.

Each fully registered participant who successfully completes the course with a total grade of 70% or higher will receive an ITU Certificate for this course.

The ITU certificates will be given to participants via the ITU Academy platform after completion of the course reporting and processing within the ITU.

6. TRAINING DETAILS & INSTRUCTIONAL APPROACH

Day	Sessions/Topics covered	Key learning points (detail learning outcomes)	Training activities details
Day 1 Monday	Lecture 1. Convergence in telecommunications Lecture 2. Broadband strategies and new telecom technologies	<p>Outline, discuss, use, analyze, design and evaluate the following topics using technical, business and regulatory aspects:</p> <ul style="list-style-type: none"> – Development of the telecommunications – Internet architecture – Internet name spaces – Internet governance – the main players – Convergence of telecommunications to IP-based networks and services – NGN transport and service stratum – The NGN concept – All-IP network concept – NGN functional architecture – NGN control architecture – ITU’s work on broadband – DSL, Cable networks – XG-PON (10G Passive Optical Networks) – IMT-2020/5G for enhanced mobile broadband – 5G usage scenarios (eMBB, mMTC, URLLC) – 5G mobile Internet speeds – IP Multimedia Subsystem (IMS) for FMC – Broadband economic impact – Effects of broadband on employment – Conclusions – towards broadband in 2030 	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.

<p>Day 2 Tuesday</p>	<p>Lecture 3. Telecom standardization and policy Lecture 4. Innovation management in ICT</p>	<p>Outline, discuss, use, analyze, design and evaluate the following topics using technical, business and regulatory aspects:</p> <ul style="list-style-type: none"> – Licensing objectives and types – ITU ladder of standards development – Spectrum management – IMT spectrum – Unlicensed spectrum – 5G spectrum standardization and harmonization – Interconnection – Universal access and service – Digital literacy and e-inclusion – Next technology breakthrough – Clouds and media cloud – Challenges and benefits from cloud and mobile adoption – Innovation management – Educational system and innovations – ITU-D digital innovation ecosystems – Innovation ecosystem maturity map 	<p>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.</p>
<p>Day 3 Wednesday</p>	<p>Lecture 5. OTT innovations: Google model vs. Apple model Lecture 6. Telecom and OTT VoIP and IPTV: technologies and regulation</p>	<p>Outline, discuss, use, analyze, design and evaluate the following topics using technical, business and regulatory aspects:</p> <ul style="list-style-type: none"> – OTT and Telco relations – Business models – Apple innovation strategy – Google innovation model – Google Cloud IoT AI/ML innovations – OTT providers investing in submarine cable – Apple's innovations – Technology side of telephony - the telecom approach 	<p>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.</p>

		<ul style="list-style-type: none"> – Naming and addressing schemes – QoS-Enabled VoIP in NGN – Regulation side of the telephony – Comparison of QoS-enabled VoIP and OTT VoIP – ITU IPTV architectures – IPTV service models – IMS-based IPTV functional architecture – Mobile TV – IPTV QoE (Quality of Experience) – IPTV features and market needs – OTT television 	
Day 4 Thursday	<p>Lecture 7. Cybersecurity and data governance</p> <p>Lecture 8. Cloud, IoT, AI and Metaverse innovations and governance</p>	<p>Outline, discuss, use, analyze, design and evaluate the following topics using technical, business and regulatory aspects:</p> <ul style="list-style-type: none"> – Cybersecurity fundamentals – Security framework by ITU – Technical aspects of Internet security – Cybercrime and online safety – Open data governance – Privacy and trust in cyberspace – Blockchain for Internet services – Digital identity and authentication – Innovative quantum computing security – Cybersecurity strategies – Cloud and edge computing – Cloud computing models (IaaS, PaaS, SaaS, etc.) – Edge computing telecom use cases – The application of IoT and Web of Things (WoT) – Smart cities and future digital twin network – IoT governance – Machine Learning (ML) and Generative AI 	<p>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.</p>

		<ul style="list-style-type: none"> – AI ethics and governance in open Internet – Metaverse, eXtended Reality (XR) and future Web – Metaverse economic, regulatory and competition aspects by ITU 	
Day 5 Friday	Lecture 9. Network neutrality Lecture 10. Global Internet governance	<p>Outline, discuss, use, analyze, design and evaluate the following topics using technical, business and regulatory aspects:</p> <ul style="list-style-type: none"> – Introduction to network neutrality and QoS – Degradations of Internet service – End users' rights and NRAs – Main regulatory goals on QoS – Emerging business models – Differentiation of Internet access service offers – High-level regulatory process description – Degradation of Internet access service with regard to individual applications – Questions for an NRA to consider regarding the intervention – QoS regulation on open Internet – Technical governance of Internet (ICANN) – ITU/WSIS role in global Internet governance – UN Internet Governance Forum (IGF) role – Digital divides and inclusion – Global digital governance and cooperation – Digital rights and freedoms – Sustainability and environment – Cybersecurity and crypto technologies impact – Artificial Intelligence (AI) impact on Internet – Future approaches for global Internet governance 	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 Saturday	Consolidation of knowledge	Summarizing the knowledge	Possibility to watch all video lecture once again with

			possibility to ask questions to the tutor.
Day 7 Sunday	Consolidation of knowledge	Summarizing the knowledge	Possibility to watch all video lectures once again with possibility to ask questions to the tutor.
Day 8 Monday	Final Quiz	Final assessment	Solving the Final Quiz.

7. TUTORS/INSTRUCTORS

Name of tutor(s)/instructor(s)	Title	Contact details
Prof. Dr. Toni Janevski	Professor Doctor	tonij@feit.ukim.edu.mk

8. TRAINING COURSE COORDINATION

Course coordinator	ITU coordinator
Name: Dr. Sylwester Laskowski Title: Doctor, Chief Training Specialist Email address: s.laskowski@il-pib.pl	Name: Célia Pellet Title: Associate Capacity Development Officer Email address: ituacademy@itu.int