
ITU Centres of Excellence Network for Americas region

ANTEL

Online Training Course on

Fundamentals on 5G and related technologies

COURSE OUTLINE

COURSE DESCRIPTION

Title	Fundamentals on 5G and related technologies
Objectives	The main objective of this course is to provide the students with general knowledge about the mobile networks evolution from 4.5 G to 5G.
Duration	4 weeks
Training fees	USD 250,00
Course code	20OI24852AMS-E

LEARNING OUTCOMES

- Present the general concepts of the LTE evolved mobile networks (LTE-Advanced/ LTE-Advanced Pro).
- Transmit general knowledge, state of the art and evolution of the 5G mobile networks.
- Discuss about the new expected scenarios concerning the mobile connectivity for what it is expected to be the fourth industrial revolution.
- Facilitate the generation of a strategic vision of the different business lines supported by the mobile connectivity technologies based on the knowledge of their evolution.

TARGET POPULATION

The course is oriented to people whose work requires general knowledge of the mobile network evolution and the business lines associated to them

It is required to have general knowledge about mobile networks.

TUTORS

NAME OF TUTOR(S)/INSTRUCTOR(S)	CONTACT DETAILS
Eng. Guillermo Figueredo	gfigueredo@antel.com.uy
Eng. Diego Lanzaro	dlanzaro@antel.com.uy

EVALUATION

To pass the course the student needs to have an active participation in the forums and get a minimum of 60% in the activities and exercises proposed.

TRAINING SCHEDULE AND CONTENTS

- **Module 1: Review the ITU recommendations for the 2020 IMT and on (ITU-R M.2083-0) and the 5 G role in the future industry.**

In this module we describe the definition framework of 5G generated as a necessary technological answer to fulfill the coming industry needs. It will be discussed the adopted definitions stated in the ITU-R recommendation for the advanced networks which respond to the future industry needs as well as the new communication ways amongst people and things. It will be explained how 5G is the technological answer to some of the requirements that have not been fulfilled with the present technologies and their evolution.

- **Module 2: General concepts about 4G networks evolution (LTE-Advanced y LTE-Advanced Pro) and the role of these networks in the achievement of some of the IMT-2020 requirements**

In this module we highlight the concepts and main improvements planned and the general concepts about the LTE-Advanced y LTE-Advanced Pro networks. It will be explained in details the effects of implementing each of the planned improvements and how through them we can achieve some of the IMT-2020 requirements, as well as the requirements that cannot be reached.

- **Module 3: General Concepts about 5G technology and how we fill the gap left by the legacy mobile networks.**

It will be presented the 5G technology highlighting the main expected concepts associated to this technology, as well as the differences and similarities with the legacy mobile networks and their evolutions. It will be specially consider the newest expected characteristics that try to respond to the modern networks requirements which have not been achieved by the previous networks.

- **Module 4: 5G State of the art and its expected evolution**

It will be analyzed the first commercial trials and deployments describing the technical and commercial characteristics of each of the present solutions. It will be presented cases that are planned to be implemented in the short and medium term starting from the present devices ecosystem situation.

Schedule and content (for online courses)

Week / Session	Activity	Exercises and interactions
Week 1	Reading	a synchronic forum
Week 2	quiz	a synchronic forum
Week 3	Study case	synchronic forum
Week 4		Final quiz

METHODOLOGY

The course will be instructor –led. There will be PowerPoint slides, individual exercises and assignments, quizzes, and a synchronic and asynchrony forum.

COURSE COORDINATION

<p>Course coordinator: Mónica Correa Centro de Educación de Antel mcorrea@antel.com.uy</p>	<p>ITU coordinator: Ana Veneroso Oficina Regional de la UIT para las Américas Ana.veneroso@itu.int</p>
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REGISTRATION AND PAYMENT

ITU Academy portal account

Registration and payment 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/index.php?option=com_hikashop&view=user&layout=form&Itemid=559&lang=en

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/index.php?lang=en>

You can also register by finding your desired course in our training catalogue https://academy.itu.int/index.php?option=com_joomla&view=coursescatalogdomain&Itemid=478&lang=en

Payment

1. On-line payment

A training fee of USD 250 per participant is applied for this training. Payment should be made via the online system using the link mentioned above for training registration at <https://academy.itu.int/training-courses/full-catalogue/fundamentals-5g-and-related-technologies>

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

If you want to pay for more than one participant by bank transfer and need an invoice for all of them, create an account as Institutional Contact. Institutional contacts are users who represent an organization. Any student can apply to be an institutional contact or to belong to any existing organization. To do this, go to your profile page by clicking on the "My Account" button in the user menu. At the bottom of this page you should see two buttons:

- a. If you wish to become an institutional contact, click on the "Apply to become an institutional contact" button. This will redirect you to a small form that will ask for the name of the organization. After completing the name of the organization you wish to represent, click on "continue" and an application will be created. An ITU Academy administrator will manually review this application and accept or reject it accordingly.
- b. If you wish to belong to an existing organization, click on the button "Request to have an institutional contact". This will direct you to a small form that will ask you to select the organization you wish to join from a list of organizations. After selecting the correct organization, click on "continue", a request will be created. The institutional contact representing that organization will manually accept or deny your request to join the organization.

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 250
Payment Reference:	CoE-24852- P.40591.1.08

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 coordinator for further assistance.