ITU Centres of Excellence Network for Arab Region

Sudatel Telecommunications Academy (SUDACAD)

Face-to-Face Training course on

Ultra-Microwave Broadband Internet Access

Khartoum, Sudan
22–24 October 2019

TRAINING OUTLINE

COURSE DESCRIPTION

Title	Ultra-Microwave Broadband Internet Access
Method of delivery	Face-to-Face
Objectives	• To understand Microwave technologies and their effect on business and management. • To be aware of Microwave planning, capacity configuration, microwave design, Microwave route and Microwave tools.
Dates	22-24 October 2019
Duration	3 Days
Registration deadline	15 October 2019
Training fees	USD 150
Course code	**19WS24261ARB-A**

LEARNING OUTCOMES

It is expected that upon completion of the training session, participants will be able to:
- Understand concepts of Microwave technology.
- Understand the key concepts behind the tools for solving various problems in microwave engineering.
- Understand Microwave planning, analysis, design and development of microwave systems.
- Understand how does microwave planning tool working.

TARGET POPULATION

This training is targeting Network Operation Center (NOC) engineers, Microwave Planning and Microwave project engineers, regulators analysis engineers and academia.

TUTORS/INSTRUCTORS

NAME OF TUTOR(S)/INSTRUCTOR(S)	CONTACT DETAILS
Dr. Musaab Ali Abdelrahim	Musab20000@yahoo.com

EVALUATION

Participants will be evaluated according to:
- Pre and Post- test.
- Active interaction in the group exercises and discussions;
- Dedication in attending the sessions.

TRAINING SCHEDULE AND CONTENTS / AGENDA

Day 1. Overview		
Date for 1st day	**Time; Start time**	**Topics/Activities**
22/10/2019	09:00-9:30	Registration. Round the table. Ground rules.
	09:30-10:30	• **Digital Microwave Communication Overview** o Transmission Method for Communication o Fiber and Microwave transmission • **Digital Microwave Equipment Introduction** o Types of Digital MW Equipment
	11:00-12:30	• **Microwave Propagation and Anti fading Technologies** o Microwave Propagation and fading
	13:00-15:00	*Anti-fading Technologies** o Automatic Transmit Power Control o Round table discussion

Day 2: Scaling

Date for 2nd day	Time; Start time	Topics/Activities

23/10/2019	09:00-10:30	o **Microwave Network Planning**
		    o How to design a Microwave link?
		    o Basic Requirements for Microwave design?

	11:00-12:30	o **Microwave Formulas calculation**
		    o Calculating the Minimum RSL
		    o Formula for Calculating the Free Space Loss
		    o Formula for Antenna dimeter

	13:00-15:00	o **Microwave Planning Tools**
		    o Pathloss Tools
		    o Capacity configuration
		    o Round table discussion

Day 3: Security and other Technological Aspects		
Date for 3rd day	Time; Start time	Topics/Activities

24/10/2019	09:00-10:30	o **Capacity configuration**
		    o Maximum Ethernet throughput (Mbps**)**
		    o Band channel

	11:00-12:30	o **Site Surveys**
		    o Preparation Before Microwave Site Surveys
		    o Information Collection

	13:00-15:00	o **O&M analysis**
		    o Microwave troubleshooting
		    o Round table discussion

METHODOLOGY

- Pre-test.
- Instructor-Led Class Lectures and power point presentations.
- Reviews and Revisions.
- Case Studies.
- Group exercises & assignments.

TRAINING COORDINATION

Training coordinator:	ITU coordinator:
Eng. Mustafa Agab Seido Maragan Senior Manager Training Development &Planning Tel: +249 183 49 09 99 Mobile: +249 120 120 070 Fax: Email: agab@sudatel.sd	**Eng. Mustafa Al Mahdi** Programme Administrator Arab Regional Office-ITU Tel: +202 3537 1777 Mobile: +20114 117 75 73 Fax: +202 3537 1888 Email: mustafa-ahmed.al-mahdi@itu.int

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/user/register

Training 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/ultra-microwave-broadband-internet-access
You can also register by finding your desired course in our training catalogue
https://academy.itu.int/index.php/training-courses/full-catalogue

Payment

1. On-line payment

A training fee of USD 150 per participant is applied for this training. Payments should be made via the online system using the link mentioned above for training registration at https://academy.itu.int/training-courses/full-catalogue/ultra-microwave-broadband-internet-access

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

Institutional Contacts are users that represent an organization. Any student can request to be an institutional contact or to belong to any existing organization.

To do this, head 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 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.

b. If you want to **belong to an existing organization**, click on the **"Request to belong to an Institutional Contact"** button. This will redirect you to a small form that will ask you to select the organization you want to join from an organization list. After you select the correct organization, click on **"continue"**, a request will then be created. The Institutional Contact that represents 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 150
Payment Reference:	CoE-ARB **24261**-WBS No. P.40592.1.06

4. Other method of payment

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