



Training course outline

Title	The Last Mile Internet Connectivity
Modality	Online self-paced
Dates	5-31 December 2022
Duration	9 hours
Registration deadline	24 December 2022
Training fees	Free
Description	<p>This course is based on two ITU products: The Last-Mile Connectivity Internet Solutions Guide and Broadband Connectivity Toolkit.</p> <p>The Last-Mile Connectivity Internet Solutions Guide was developed to support the design and development of programmes and interventions that address the lack of Internet infrastructure availability in certain areas and high Internet service prices that make Internet connectivity unaffordable for local populations.</p> <p>Broadband Connectivity Toolkit is a set of methodologies, software tools and parameters that allows decision makers, network designers or infrastructure owners to support their decisions about connecting of unconnected.</p>
Code	22OS100085MUL-E

1.LEARNING OBJECTIVES

The objectives are to enhance the quality of information for projects related to the development of broadband infrastructure and to present tools that could be used to identify connectivity gaps and options.

2. LEARNING OUTCOMES

Upon completion of this course, participants will be able to:

- Understand the steps for identifying and selecting affordable and sustainable technology for connecting a locality to broadband transport backbones (Middle-Mile connections for localities, schools, hospitals etc.)



- Understand the steps for identifying and selecting affordable and sustainable technology for creating last mile connectivity for localities.
- Determine a network topology for a multiple objects network

3.TARGET POPULATION

The target audience for this course is telecommunication engineers/technicians, software developers or government professionals working on strategic/technical projects and/or software products targeting cost-effective, quality and affordable technical solutions.

4.ENTRY REQUIREMENTS

No prior knowledge or qualification in QoS is required

5.TUTORS/INSTRUCTORS

The course is self-paced without instructors. However, contributions on the course content was received from (alphabetical order): Dr. Aminata A. Garba, Dr. Ievgen Dobrovolsky, Mr. John Garrity, Mr. Sameer Lalwani, Mr. Andile Ngcaba, Mr. Serhii Sinina, Dr. Miriam Stankovich, Dr. Tim Unwin, Dr. Marco Zennaro.

6.TRAINING COURSE CONTENTS

The topics covered in this course are grouped into 3 modules:

Module 1 Roadmaps for connecting the last mile

The first module of the course focuses on roadmaps for designing and procuring the last mile connectivity data networks. It contains 2 lectures.

- **Lecture 1: Overview of last mile connectivity solutions guide**
The first lecture presents a roadmap for selecting and designing last mile connectivity solutions, focusing on Identification of the digitally unconnected, a review of options for middle mile and last mile connectivity as well as key elements for selecting sustainable solutions.
- **Lecture 2: Procuring Last Mile Connectivity Data Networks**
The second lecture of this module presents a roadmap for requisitioners, in procuring last-mile connectivity networks and services based on the principles of affordability, use, financial viability, structure and sustainability.

Module 2 Technology and tools for middle and last mile connectivity network design

This module focuses on technology options for the last mile and presents selected tools for identifying technology, designing network and estimating infrastructure costs. It comprises 3 lectures.

- **Lecture 1 : Link Budget Calculation: from Theory to Practice**
In this lecture you will go through the basic concepts in wireless link budget calculation and we will present few alternatives to perform it with software tools.
- **Lecture 2: Broadband Connectivity Toolkit Part 1: Overview**
This session presents an overview of the Broadband Connectivity Toolkit, which is a set of methodologies, software tools and parameters designed to assist decision makers, network designers or infrastructure owners to support their decisions when designing a network.
Topics include:



- Designing a network topology for multiple objects network
- Estimation of main cost related to building a network
- Selecting affordable technology for connecting a locality to broadband transport backbones
- Selecting technology for last-mile connectivity in a locality
- **Lecture 3:** Broadband Connectivity Toolkit Part 2: Demo
During this session, demos for selected tools are presented for
 - Estimation of the cost related to infrastructure
 - Providing input data and visualizing the output data
- **Lecture 4:** Broadband Connectivity Toolkit Part 3: Simplification
This session presents a simplified methodology for the Broadband Connectivity Toolkit including:
 - Key parameters for simplified solutions
 - Designing a network topology for multiple objects network
 - Estimation of the cost related to infrastructure

Module 3 Outside of the box interventions for connecting the last mile

This last module of the programme will focus on policy, financial and other non-financial interventions for connecting the last mile with the theme “thinking outside of the box”. It is divided into 3 lectures:

- **Lecture 1:** Policy and Regulations: A Case Study from The Philippines
This lecture will present innovative and out of box policy, regulations, case study and interventions to extend sustainable connectivity networks and services
- **Lecture 2 :** Innovative Mechanisms for Financing the Last Mile Connectivity
In this session, selected innovative methods for financing last mile connectivity are presented
- **Lecture 3 :** What if...? Thinking About First-Mile Connectivity
In this session, a change of perspective is considered, when thinking about first-mile connectivity

7. TRAINING COURSE SCHEDULE

Day	Topic	Exercises and interactions
Module 1: Roadmaps for connecting the last mile	Lecture 1: Overview of last mile connectivity solutions guide (1h) Lecture 2: Procuring Last Mile Connectivity Data Networks	<ul style="list-style-type: none"> • Lectures • Reference documents • Knowledge check
Module 2: Technology and tools for middle	Lecture 1 : Link Budget Calculation: from Theory to Practice	<ul style="list-style-type: none"> • Lectures



and last mile connectivity network design	Lecture 2: Broadband Connectivity Toolkit Part 1: Overview Lecture 3: Broadband Connectivity Toolkit Part 2: Demo	<ul style="list-style-type: none">• Reference documents• Knowledge check
Module 3: Outside of the box interventions for connecting the last mile	Lecture 1: Policy and Regulations: A Case Study from The Philippines Lecture 2 : Innovative Mechanisms for Financing the Last Mile Connectivity Lecture 3 : What if...? Thinking About First-Mile Connectivity	<ul style="list-style-type: none">• Lectures• Reference documents• Knowledge check

8.METHODOLOGY (Didactic approach)

This course will be delivered using self-paced online learning. Participants will reinforce their understanding of the topics studied by drawing on their specific environments and are encouraged to consult with colleagues who are working on a relevant topic. The following methods will be used for this course

- Self-study materials
- Reference documents
- Knowledge check

9.EVALUATION AND GRADING

Final Quiz counts as 100% of the total score

Pass mark is 70% to obtain the ITU digital badge.

10.TRAINING COURSE COORDINATION

ITU coordinator:
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