



---

**International Telecommunication Union**

**Online Training Course on**

**Cost Modelling**

**8 March - 8 April 2021**

**TRAINING COURSE OUTLINE**

---

**COURSE DESCRIPTION**

---

Title	Cost Modelling
Objectives	The main objective of this online training course, to be delivery in the framework of ITU Academy, is to train the NCA staff of Somalia on the cost modelling methodologies for ICT Services, including FAC, LRIC, LRIC+, LRAIC and LRAIC+ for mobile and fixed voice and data services using top-down, bottom-up and hybrid approaches.
Dates	8 March – 8 April 2021
Duration	5 weeks
Registration deadline	5 March 2021
Course code	21OI26554ARB-E

**DESCRIPTION OF THE TRAINING COURSE**

---

Setting cost-based interconnection and access pricing is one of the main concerns of regulators, even as telecom transitions from being voice-based to broadband driven. For operators, responding to regulatory requirements for cost-based pricing requires significant effort to build, maintain and defend regulatory cost models. For both regulators and operators, understanding telecom cost models is essential.

This practical course will provide the regulator staff with best practices to develop and implement successful LRIC, LRIC+, LRAIC and LRAIC+ costing models for voice and data using top-down, bottom-up and hybrid approaches.

## LEARNING OUTCOMES

---

By the end of this training, participants should be able to:

- Discuss interconnection and access regulation and the key concerns of regulators in evaluating the adequacy of cost methodologies
  - Explain the drivers and process of cost allocation and costing
  - Evaluate telecommunications costs
  - Apply the most common cost modeling methodologies used in telecommunications/ICT including FAC, LRIC, LRIC+, LRAIC and LRAIC+
  - Analyze real world concerns associated with using and applying cost models
- 

## TARGET POPULATION

---

The training course is mainly designed to staff from Somalia's National Communications Authority.

## ENTRY REQUIREMENTS

---

Basic knowledge of telecommunications interconnection and financial concepts.

## TUTORS/INSTRUCTORS

---

NAME OF TUTOR(S)/INSTRUCTOR(S)	CONTACT DETAILS
Mr. Abraão Balbino e Silva	E-mail: <a href="mailto:abraaogtr@yahoo.com.br">abraaogtr@yahoo.com.br</a> Tel: +55 61 9901-0077
Mr. Tiago Sousa Prado	E-mail: <a href="mailto:pradotia@msu.edu">pradotia@msu.edu</a> Tel: +1 517 980-4700

## TRAINING COURSE CONTENTS and SCHEDULE (CET)

---

The topics covered in this module are:

- 1. Interconnection and access in a broadband world**
  - Relevance of interconnection and access in a broadband world
  - Types of interconnection and access
    - Call termination
    - Unbundling
  - Regulator's role
    - Case study: EU interconnection and access regulation
  - Interconnection and access best practices
    - Workshop: Duct access
    - Pricing interconnection using forward-looking economic cost
    - Discussion: What is a cost?

## 2. Economic Concerns

- Discounting logic
- WACC
  - WACC optimization
  - Discussion: How WACCs used by telecom regulators vary from country to country and why
- Causal costs
  - DIAC
  - Workshop: Cost causality in copper access lines - telephony versus broadband services
- Annuities
- Depreciation
- Economic evaluators
  - Exercise: The Net Present Value (NPV) of a discounted cash flow - what does it really mean?
- Discussion: High prices are good/high prices are bad

## 3. Top-down versus Bottom Up costing

- Understanding financial statements
- Key costing concepts
  - Typical cost behaviour
  - Allocating costs – Fully Allocated Costs (FAC)
  - Incremental, fixed, common costs and LRIC basics
- Types of costing analysis
- Accounting separation
  - Example: Separation of costs into network core and network access costs
- Activity Based Costing (ABC) and the routing table
- Example: Routing table demonstration
- Workshop: Allocating network element costs to products

## 4. Long Run Incremental Costing (LRIC)

- Regulatory concerns
- LRIC versus regulatory concerns
- Major assumptions of LRIC
- LRIC+
- Cost factors of telecom network operators
  - Standard and more 'contentious' cost factors
  - Efficient costs and how much inefficiency is allowable
  - Real-life considerations impacting operator costs
  - Workshop: Country-specific cost factors
- LRIC and LRIC+: methodology for a regulator
- Top-down vs. bottom-up reconciliation
- Exercise: From FAC to LRIC and LRIC+ in numbers
  - Case study: To be defined

## 5. Long Run Average Incremental Costing (LRAIC)

- Regulatory concerns
- LRIC versus Regulatory concerns
- Major assumptions of LRAIC
- LRAIC +

- LRAIC and LRAIC+: methodology for a regulator
- Exercise: From FAC to LRAIC and LRAIC+ and from LRAIC to LRIC in numbers
- Cost modeling bundled services (packages)
- Case study: To be defined

#### 6. LRIC, LRIC+, LRAIC and LRAIC+ modeling examples

- Example: Economic depreciation
- Example: Split of access costs between telephone, broadband and TV
- Example: Local loop unbundling modeling
- Example: Bitstream modeling

Week / Session	Topic	Exercises and interactions
<b>Week 1</b>	<p>Topic 1: Interconnection and access in a broadband world</p> <p>Topic 2: Economic Concerns</p>	<p>This week, each participant has to:</p> <ul style="list-style-type: none"> <li>• Read of the PPT slides uploaded in the course page for Topics 1 and 2</li> <li>• Post an answer to the forum questions related to Topics 1 and 2 at the latest by <b>Saturday - 23:59 (GMT+3)</b></li> <li>• Attend three live zoom sessions scheduled for: <ul style="list-style-type: none"> <li>○ Mon, 8/3/21 14-15:30 pm (GMT+3)</li> <li>○ Wed, 10/3/21 14-15:30 pm (GMT+3)</li> <li>○ Fri, 12/3/21 14-15:30 pm (GMT+3)</li> </ul> </li> </ul>
<b>Week 2</b>	<p>Topic 3: Top-down versus Bottom Up costing</p> <p>Topic 4: Long Run Incremental Costing (LRIC)</p>	<p>This week, each participant has to:</p> <ul style="list-style-type: none"> <li>• Read of the PPT slides uploaded in the course page for Topics 3 and 4</li> <li>• Post an answer to the forum questions related to Topics 3 and 4 at the latest by <b>Saturday - 23:59 (GMT+3)</b></li> <li>• Attend three live zoom sessions scheduled for: <ul style="list-style-type: none"> <li>○ Mon, 15/3/21 14-15:30 pm (GMT+3)</li> <li>○ Wed, 17/3/21 14-15:30 pm (GMT+3)</li> <li>○ Fri, 19/3/21 14-15:30 pm (GMT+3)</li> </ul> </li> </ul>
<b>Week 3</b>	<p>Topic 4: Long Run Incremental Costing (LRIC)</p>	<p>This week, each participant has to:</p> <ul style="list-style-type: none"> <li>• Read of the PPT slides uploaded in the course page for Topics 4 and 5</li> </ul>

	Topic 5: Long Run Average Incremental Costing (LRAIC)	<ul style="list-style-type: none"> <li>• Post an answer to the forum questions related to Topics 4 and 5 at the latest by <b>Saturday - 23:59 (GMT+3)</b></li> <li>• Attend three live zoom sessions scheduled for:             <ul style="list-style-type: none"> <li>○ Mon, 22/3/21 14-15:30 pm (GMT+3)</li> <li>○ Wed, 24/3/21 14-15:30 pm (GMT+3)</li> <li>○ Fri, 26/3/21 14-15:30 pm (GMT+3)</li> </ul> </li> </ul>
<b>Week 4</b>	Topic 6: LRIC, LRIC+, LRAIC and LRAIC+ modeling examples	<p>This week, each participant has to:</p> <ul style="list-style-type: none"> <li>• Read of the PPT slides uploaded in the course page for Topic 6</li> <li>• Post an answer to the forum questions related to Topics 6 at the latest by <b>Thursday - 23:59 (GMT+3)</b></li> <li>• Attend two live zoom sessions scheduled for:             <ul style="list-style-type: none"> <li>○ Mon, 29/3/21 14-15:30 pm (GMT+3)</li> <li>○ Wed, 31/3/21 14-15:30 pm (GMT+3)</li> </ul> </li> </ul>
<b>Week 5</b>	<p>Final Exam</p> <p>Closing Ceremony</p>	<p>This week, each participant has to:</p> <ul style="list-style-type: none"> <li>• Complete the final examination at the latest by <b>Wednesday 7/4/21 - 15:30 (GMT+3)</b>. This exam will include not only multiple choice but also open-ended questions, and has the aim of assessing the participant's ability to i) discuss interconnection and access regulation and the key concerns of regulators in evaluating the adequacy of cost methodologies, ii) explain the drivers and process of cost allocation and costing, iii) evaluate telecommunications costs, iv) apply the most common cost modeling methodologies, and v) analyze real world concerns associated with using and applying cost models.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Attend the zoom closing ceremony scheduled for:             <ul style="list-style-type: none"> <li>○ Thu, 8/4/21 14-15:00 pm (GMT+3)</li> </ul> </li> </ul>

## METHODOLOGY (Didactic approach)

---

The training course will follow an online learning approach, that will turn online classes into connected, active, and engaging learning communities. Through interactive learning, interpersonal relationships between students and instructors are emphasized to support better educational outcomes.

The course will mix synchronous and asynchronous weekly activities.

- Asynchronous activities: offline activities, including a reading list, forum discussions, and assignments.
- Synchronous activities: online activities, students and the instructor will meet via videoconference (e.g. Zoom meeting) to weekly lectures, chat sessions, including Q&A.

Course Material: The training material will be provided in electronic format (.pptx and .xlsx files) along the course. Each module will be available for the course material on the website.

Online Discussion Forums: Participants are expected to participate actively in discussion forums on selected topics throughout the week.

## EVALUATION AND GRADING

---

Evaluation will be based on attendance (30%), forum participation (20%), and a final exam (50%).

**IMPORTANT:** a passing mark of 60% is required for obtaining a completion certificate.

## TRAINING COURSE COORDINATION

---

<b>Course coordinator:</b> Eng Naima Hassan Dimbil NCA Focal point for cost modelling training. Mobile: +252617601316 Email address: <a href="mailto:naimadimbil@nca.gov.so">naimadimbil@nca.gov.so</a>	<b>ITU coordinator:</b> Eng. Mustafa Al Mahdi Programme Officer Arab Regional Office-ITU Mobile: +20114 117 75 73 Email address: <a href="mailto:mustafa-ahmed.al-mahdi@itu.int">mustafa-ahmed.al-mahdi@itu.int</a>
---	--

## REGISTRATION

---

### 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 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/online-training-course-cost-modelling-somalias-national-communications-authority>

You can also register by finding your desired course in our training catalogue <https://academy.itu.int/index.php/training-courses/full-catalogue>