



Training course outline

ITU and African Advanced Level Telecommunications Institute

Title	SMTP EM1.3 Spectrum Management for Satellite Systems
Method of delivery	Online Instructor led
Dates	5 – 30 September 2022
Duration	4 weeks
Registration deadline	4 September 2022
Training fees	USD 200
Description	This module will cover the management of radio spectrum related to satellite communications systems.
Course code	21OI500081MUL-E

1. LEARNING OBJECTIVES

This module will provide students with an understanding of the management of radio spectrum related to satellite communications systems.

2. LEARNING OUTCOMES

It is expected that upon completion of the training session, participants will be able to:

Have knowledge of

- Basic principles of satellite communications, different types of satellites/satellite networks and Earth Stations.
- Relevant parts of ITU Radio Regulations governing spectrum use by satellite communications systems.

An understanding of

- Understanding of the SM procedures for satellite communications systems
- Understanding of satellite orbital position and frequency assignment plans
- Understanding the respective roles of NRAs, satellite operators and ITU BR in managing spectrum for satellite communications systems

They should have the ability to

- to interpret the provisions of ITU Radio Regulations in respect of satellite communications services

- to use the international and national rules and specifications (e.g. National Frequency Allocation Table)
- to interpret essential business development criteria and trends

3. TARGET POPULATION

This training is targeted those who are entering the regulatory environment and are interacting with technologies as operators, developers or managers. It is targeted at those aiming to understand workings of various technologies with a view to developing a general overview of trends.

This may include professionals working in the telecommunications industry, lawyers, regulatory staff across all departments.

Besides that, other institutions and individuals that are dedicated to building their capacity related to new technologies are welcome to participate.

4. ENTRY REQUIREMENTS

No prior knowledge or qualification in Spectrum Management for Satellite Systems is required; however, it is important for participants to be working for a regulator, or in the ICT/Telecoms sector as a provider or consultant. Students in the Engineering or ICT related courses could also be considered.

5. TUTORS/INSTRUCTORS

NAME OF TUTOR(S)/INSTRUCTOR(S)	CONTACT DETAILS
Eng. Edith Roseline Nginya Njeru	Email: Roseline.njeru@gmail.com Tel: +254 797 504 957
Jonathan Mwakijeje	Email: Jmwakijeje@afralti.org Tel: +254 718 860 897

6. TRAINING COURSE CONTENTS

The topics covered in this module are:

S/n	Topic
1	Introduction to Satellite Communications
2	Satellite Communication Services i. FSS ii. Non – FSS e.g. MSS, BSS, RDSS
3	Coverage: i. Global ii. Regional iii. National
4	Frequency bands used in the FSS for GSO: i. 1/2 GHz L band ii. 6/4 GHz C band iii. 8/7 GHz X band iv. 2.5/4 GHz S band v. 14/11-12 GHz Ku band vi. 18/12 GHz Feeder Link for BSS bands vii. 30/20 GHz Ka band viii. 37.5/50.2 V band

5	Frequency reuse and bandwidth utilisation
6	Different types of satellite systems and their respective Spectrum Management considerations: i. GSO ii. Non –GSO
7	Different types of Earth Stations; i. Fixed ii. Mobile/Portable
8	Overview of the International Radio Regulations and Appendixes pertaining to satellite systems; i. Vol 1 Articles ii. Vol 2 Appendixes iii. Vol 3 Resolutions and Recommendations iv. Vol 4 ITU-R Recommendations incorporated by Reference
9	Overview of ITU BR operational procedures i. Technical/.Regulatory Examination ii. BSS Plans and Lists (AP30/30A) iii. FSS Plans and Lists (AP30B)
10	Software for notification and recording of assignments to satellite systems: i. Electronic submission of notices ii. Application of BR software packages iii. BR IFIC on CD-ROM

7. TRAINING COURSE SCHEDULE

Agenda (for online training)

Week / Topic	Activity	Exercises and Interactions
Week 1 Introduction Satellite Communication Services Coverage	Read week 1 Materials and references Participate in Forum Topic 1 Attempt Quiz for week 1	Forum Topic 1: Relevance of Satellite Services in the current communications setup Live Lecture and Discussion: Monday and Wednesday Quiz: Friday
Week 2 Frequency Bands used in the FSS for GSO Frequency reuse Different Satellite systems	Read week 2 Materials and references Participate in Forum Topic 2 Attempt Quiz for week 2	Forum Topic 2: High data rate Architectures Live Lecture and Discussion: Monday and Wednesday Quiz: Friday
Week 3 Earth stations International Regulations ITU BR procedures overview	Read week 3 Materials and references Participate in Forum Topic 3 Attempt Quiz for week 3 Starting working on end course assignment	Forum Topic 3: LEO technologies and propagation models Live Lecture and Discussion: Monday and Wednesday Quiz: Friday

<p>Week 4</p> <p>Notification Software overview</p>	<p>Read week 2 Materials and references</p> <p>Participate in Forum 4</p> <p>Attempt Quiz for week 4</p> <p>Submit end of course assignment</p>	<p>Forum Topic 4: Emerging Architectures</p> <p>Live Lecture and Discussion: Monday and Wednesday</p> <p>Quiz: Friday</p>
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8. METHODOLOGY (Didactic approach)

The course is instructor led. Course materials such as PowerPoint slides will be posted at the ITU Academy. Participants have to study each week, participate in scheduled activities and undertake self-assessments. Participants will reinforce their understanding of the topics studied by drawing on their specific environments and are encouraged to consult with experienced colleagues who are working on a relevant topic. The following methods will be used for this course:

- Self-study of PPTs and reference materials
- Instructor led presentations and discussions through ZOOM on Monday and Wednesday from 1500 Hours to 1700 Hours EAT
- Forum discussions through the ITU Academy portal

9. EVALUATION AND GRADING

The evaluation is based on:

- Participation in all four (4) Forums (10%)
- Quiz week 1 (10%)
- Quiz week 2 (10%)
- Quiz week 3 (10%)
- Quiz week 4 (10%)
- Written assignment (50%)

Participants should score an overall mark of at least 60% to receive ITU Certificate.

10. TRAINING COURSE COORDINATION

<p>AFRALTI Coordinator:</p> <p>Jonathan Mwakijele, Head of Training Department, African Advanced Level Telecommunications Institute (AFRALTI), Nairobi, Kenya. Tel : +254 718 860 897 Email: Jmwakijele@afralti.org</p>	<p>ITU Coordinator:</p> <p>Emmanuel Niyikora Programme Officer ITU Area Office for West Africa, Dakar, Senegal. Tel : +250 788312939 Email: emmanuel.niyikora@itu.int</p>
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