



**ITU Centres of Excellence Network for Asia-Pacific Region  
Advanced Level Telecom Training Centre  
Online Training Course on**

**“Latest Trends in Satellite Broadband Access”  
15 to 26 November, 2021**

**COURSE OUTLINE**

**COURSE DESCRIPTION**

<b>Title</b>	<b>Latest Trends in Satellite Broadband Access</b>
<b>Objectives</b>	<p>This course aims to develop an understanding on:</p> <ul style="list-style-type: none"><li>• The concepts of Satellite Communication, Satellite Communication Technologies &amp; its applications, Satellite Earth Station Configuration and its antenna types, Installation of Ku Band VSAT, Broadband Access Methodology through Satellite, High Throughput Satellites and their characteristics, Satellite Link Engineering parameters and link design Satellite Link Engineering parameters and link design.</li><li>• INSAT Satellite Systems and Launch Vehicles, Tracking &amp; Telemetry.</li><li>• INMARSAT Overview &amp; Applications (Satellite based Mobile Communication)</li><li>• Future Trends in satellite communication.</li><li>• Role of LEO and MEO in Broadband Communication.</li><li>• Application of low data rates in satellite services.</li><li>• Role of ITU-R in Sat Comm.</li><li>• Satellite Broadband Service Pricing in India</li></ul>
<b>Dates</b>	15 – 26 November, 2021
<b>Duration</b>	2 Weeks
<b>Registration deadline</b>	14 November 2021
<b>Training fees</b>	USD 100
<b>Course code</b>	21O126621ASP-E

## DESCRIPTION OF THE TRAINING COURSE

Satellite communication is an essential part of modern-day telecommunication for voice and data services. Participants will be introduced to satellite communication concepts, technologies and its applications, installation as well as operation & maintenance of Ku band VSAT system. This training will also discuss in detail broadband access methodology and different modes of access, VSAT Networks and its deployment and protocols. Other topics that will be covered in this course includes satellite link engineering, INSAT Satellite Systems and Launch Vehicles, INSAT Satellite Systems Tracking & Telemetry, Future Trends in satellite Communication, INMARSAT (Satellite based Mobile Communication using C & L Band) overview & applications, Role of different orbits in satellite broadband access as well as role of ITU-R in satellite communications.

## LEARNING OUTCOMES

**Upon completion of this training, participants will be able to understand:**

- the concepts of satellite communication.
- fundamental of satellite communication techniques and applications.
- installation, operation & maintenance of Ku Band VSAT.
- VSAT Networks-Deployment & Protocols.
- Broadband Access Through Satellites.
- Satellite earth station configuration.
- Satellite link engineering design and link parameters.
- Role of different satellite orbits in Broadband communication.
- Applications of Low Data Rate Satellite Service.
- Satellite launch vehicles and Tracking & Telemetry.
- future trends in satellite communication & Overview of INMARSAT .
- Role of ITU-R in satellite communication.

## TARGET POPULATION

This training is primarily targeted at policy-makers, regulators, executives, managers, engineers and technical staff from the Government and Regulatory agencies, telecom operators and academia.

## ENTRY REQUIREMENTS

Participants with a degree/diploma in Electronics, IT / Telecommunication , Electrical, Computer science and Electrical with basic knowledge of Satellite Communication Technology can apply for this course.

## TUTORS/INSTRUCTORS

S.No.	NAME OF TUTOR(S)/ INSTRUCTOR(S)	Position	CONTACT DETAILS
1.	Sh. Arun Kumar Sharma	Chief General Manager, ALTTC, BSNL, Ghaziabad, India	<a href="mailto:cgm_alttc@bsnl.co.in">cgm_alttc@bsnl.co.in</a> <a href="mailto:cgmalttc@gmail.com">cgmalttc@gmail.com</a> + 911202755121
2.	Sh. Mohan Singh	General Manager (Technical) ALTTC, BSNL, Ghaziabad, India	<a href="mailto:mohanbagrana2872@bsnl.co.in">mohanbagrana2872@bsnl.co.in</a> + 911202704638
3.	Mr A K Jha	DGM (EB), ALTTC, BSNL Ghaziabad, India	<a href="mailto:sdebd2010@gmail.com">sdebd2010@gmail.com</a> +919412739258

4.	Mr. Ashok Kumar Sharma	DGM (CFA & BB), ALTTC, BSNL Ghaziabad, India	<a href="mailto:ashok1963sharma@gmail.com">ashok1963sharma@gmail.com</a> +91 9412220075
5.	Mr. H K Dixit	DGM(Tx& Mobile), ALTTC, BSNL Ghaziabad, India	<a href="mailto:dikshithk@rediffmail.com">dikshithk@rediffmail.com</a> +91 9412739065
6.	Mrs. Suresh Devi	DGM(IT), ALTTC, BSNL Ghaziabad, India	<a href="mailto:sureshdevi7009@gmail.com">sureshdevi7009@gmail.com</a> +91 9412739242
7.	Mr. Abhay Gupta	Assistant General Manager, ALTTC, Ghaziabad, India	<a href="mailto:abhaybpl@gmail.com">abhaybpl@gmail.com</a> +91 9412739319
8.	Mr. Rajesh Kumar	Assistant General Manager, ALTTC, Ghaziabad, India	<a href="mailto:rajeshbsnl@gmail.com">rajeshbsnl@gmail.com</a> +91 9412739333
9.	Mr. Sanjay Kumar	Assistant General Manager, ALTTC, Ghaziabad, India	<a href="mailto:girisanju@gmail.com">girisanju@gmail.com</a> +91 9412739313
10.	Mr. Nikunj Goel	Assistant General Manager, ALTTC, Ghaziabad, India	nikunjgoelin@yahoo.com +91 9412739309
11.	Mr. Manoj Kumar	Assistant Director, ALTTC, Ghaziabad, India	<a href="mailto:manoj_nagar@hotmail.com">manoj_nagar@hotmail.com</a> +91 9412774494
12.	Mr.Sandeep Singh	Assistant Director, ALTTC, Ghaziabad, India	<a href="mailto:sandeepalttc@bsnl.co.in">sandeepalttc@bsnl.co.in</a> +91 9463502525

## EVALUATION

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The assessment of the participants shall be based on the time spent on the training and the following parameters:

<b>Quiz # 1</b>	<b>25%</b>
<b>Quiz # 2</b>	<b>25%</b>
<b>Individual Assignment:</b>	<b>20%</b>
<b>2 Chat Sessions (10% per session)(each Thursday)</b>	<b>20%</b>
<b>2 Discussion Forum (5% per forum)</b>	<b>10%</b>
<b>Total Evaluation:</b>	<b>100%</b>

The minimum passing requirement to obtain a certificate is 60 percent.

## TRAINING SCHEDULE AND CONTENTS / AGENDA

Week	Module Title	Topics
1	<b>Module 1: Latest Trends in Satellite Broadband Access: Basic Satellite Technology prospects &amp; Introduction</b>	<ul style="list-style-type: none"> <li>• Why Satellite Communication : Need, and Benefits.</li> <li>• Overview of Satellite Communication Technologies</li> <li>• Ground and Space Segments of Satellite Communication</li> <li>• Satellite Antennas and their Characteristics.</li> <li>• Satellite Link Engineering.</li> <li>• High Throughput Satellites and its Characteristics.</li> <li>• INSAT Satellite Systems and Launch Vehicles, Tracking &amp; Telemetry.</li> <li>• VSAT Networks- Deployment &amp; Protocols.</li> </ul>
		<b>Discussion / Forum</b>
		<b>Chat Session</b>
		<b>Quiz 1</b>
2	<b>Module 2: Latest Trends in Satellite Broadband Access: Advance technology and Regulatory Perspective</b>	<ul style="list-style-type: none"> <li>• Ku Band VSAT Installation &amp; Maintenance.</li> <li>• Broadband Access through Ku Band VSAT.</li> <li>• Latest Trends in Broadband Access Through Satellites.</li> <li>• Overview of Broadband Global Area Network (BGAN).</li> <li>• INMARSAT Overview &amp; Applications (Satellite based Mobile Communication).</li> <li>• Role of LEO &amp; MEO in Broadband Access Through Satellite.</li> <li>• Application of Low Data Rate Satellite Services.</li> <li>• Satellite Broadband Service Pricing in India.</li> <li>• Role of ITU-R in Satcom.</li> </ul>
		<b>Discussion / Forum</b>
		<b>Chat Session</b>
		<b>Quiz 2</b>

## METHODOLOGY

**Course materials:** Each week one module will be discussed and the relevant course material will be made available on the website.

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

**Chat sessions:** Chat sessions will be conducted in real-time every week where discussions would be held with the instructor (s) on a particular topic. Participants are encouraged to join the discussion and exchange points of view.

**Quizzes:** Two mandatory quizzes will be held during the course. Course evaluation and feedback would be done at the end of the course and is a part of the mandatory activity.

## COURSE COORDINATION

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<p><b>Institute Head:</b> <b>Sh. Arun Kumar Sharma</b> Chief General Manager ALTTC, Raj Nagar, Ghaziabad, UP, INDIA -201002 <a href="mailto:cgm_alttc@bsnl.co.in">cgm_alttc@bsnl.co.in</a> (Email) +91-120-2755121 (Works) +91-120-2710494 (Works) +91-120-2756985 (Fax)</p> <p><b>Institute Coordinator:</b> <b>Sh. Mohan Singh</b> General Manager (Technical) ALTTC, Raj Nagar, Ghaziabad, UP, INDIA -201002 <a href="mailto:mohanbagrana2872@bsnl.co.in">mohanbagrana2872@bsnl.co.in</a> (Email) +91-120-2704638 (Works) +91-120-2756985 (Fax)</p>	<p><b>Training coordinators:</b> <b>Mr. H. K Dikshit</b> DGM(Tx &amp; Mobile), Room No. 712, Admin Building, ALTTC, Raj Nagar, Ghaziabad(UP), INDIA- 201002 <a href="mailto:dikshithk@rediffmail.com">dikshithk@rediffmail.com</a> +91 120 2755146 (Works) +91 9412739065(Mobile)</p> <p><b>Mr.Abhay Gupta</b> AGM ( Mobile), Room No. 710, Admin Building , ALTTC Raj Nagar, Ghaziabad(UP), INDIA -201002 <a href="mailto:abhaybpl@gmail.com">abhaybpl@gmail.com</a>(Email) +91 120 275 5147 (Works) +91 941 273 9319 (Mobile)</p>	<p><b>ITU coordinator:</b> <b>Mr. Sean S. Doral</b> Program Officer-ITU, ITU Regional Office for Asia- Pacific 5th Floor, Thailand Post Training Centre, 111 Moo3 ChaengwattanaRoad,LaksiBank ok 10210,Thailand  <a href="mailto:sean.doral@itu.int">sean.doral@itu.int</a> (Email) +66 806650213 (Works) +66 257 535 07 (Fax)</p>
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## REGISTRATION AND PAYMENT

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### 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/latest-trends-satellite-broadband-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 100 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/latest-trends-satellite-broadband-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

Should you wish to pay for more than one participant using bank transfer and need one invoice for all of them, create an account as Institutional Contact. **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 100
Payment Reference:	CoE-ASP-21OI26621ASP-E-P.40593.1.04

## 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.