



ITU Asia-Pacific Centre of Excellence
Online Training Course
"Next Generation Broadband Network: Design,
Implementation & Applications"



25 Nov. 2019 – 20 Dec. 2019

COURSE DESCRIPTION

Course Title	Online training course on "Next Generation Broadband Network: Design, Implementation & Applications"
Course Description	<p>This online training course aims to equip participants with an understanding of:</p> <ul style="list-style-type: none">• Concepts and technological aspects of Wire line Access Technologies i.e ADSL, VDSL, FTTH, Next Generation Broadband Architecture, MNG-PAN Network Architecture and design.• ISP core network architecture and MPLS-VPN technologies.• Next Generation core transmission technologies and• Wireless broadband access technologies.
Course Date	25 Nov 2019 – 20 Dec 2019
Course Duration	4 weeks
Registration Deadline	23 November 2019
Training fees	USD 100
Course Code	19OI24422ASP-E

Course Tutor/ Instructors

The course will be tutored by:

S. No.	Name	Designation	E-Mail ID	Organization
1	Mr. Manoj Kumar Mishra	Dy. General Manager (Broadband)	dgm.bberp.alttc@gmail.com	Advanced Level Telecom Training Centre (ALTTC), Bharat Sanchar Nigam Limited (BSNL), India
2	Mr. H K Dikshit	Dy. General Manager (Transmission & Mob.)	dikshithk@rediffmail.com	
3	Mr Anand Kumar	Asst. General Manager (Broadband)	anandkumarbsnl21@gmail.com	
4	Mr. Nikunj Goel	Asst. General Manager (Transmission)	nikunjgoelin@yahoo.com	
5	Mr. Abhay Gupta	Asst. General Manager	abhaybpl@gmail.com	

		(Mobile)		Advanced Level Telecom Training Centre (ALTTC), Bharat Sanchar Nigam Limited (BSNL), India
6	Mr. Rajesh Kumar	Asst. General Manager (Mobile)	rajeshbsnl@gmail.com	
7	Mr. Sandeep Singh	Asst. Director (Mobile)	sandeepbiet@gmail.com	
8	Mr. Rajeev Sharma	Asst. Director (Broadband)	at.rajeev@gmail.com	
9	Mr. Naresh Singh	Asst. Director (Broad band)	nareshsingh17@gmail.com	
10	Mr. Narendra P S Chauhan	Asst. Director (Broadband)	bbfacultyalttc@gmail.com	

Target Population

This training course targets executives, managers, engineers and technical staff interested in wireline and wireless broadband networks from regulators and policy makers; telecom operators; industry and academia. Other institutions and individuals who are interested in building their capacity in the field of next generation broadband network are also welcome to participate in this training course.

Course Objectives

The objectives of the course are to

- understand various wireline and wireless broadband access technologies;
- understand next generation broadband network design and MNG-PAN architecture;
- understand ISP Core MPLS network & technology, MPLS VPN Technologies & Services i.e., MPLS Layer-3 VPN, Layer-2 VPN and Inter AS VPN;
- understand the Optical Transport Network (OTN) and Converged Packet Access Network (CPAN) technologies; and
- understand network design and architecture of wireless broadband technologies.

Method of Teaching

PDF documents will be made available week wise. These will constitute the main source of material for the course. Each week discussion topics will be provided and a discussion forum opened for participants to participate, exchange views and share information. All participants are expected to participate in the discussion forum.

Online chat sessions with the tutor will take place every Wednesday from 11:00 – 12:00 Hrs. Indian Standard Time (IST). All participants are expected to join the chat sessions, as they will be graded.

Review quizzes will be held twice during the course. Each quiz will have multiple choice questions.

One individual assignment will be assigned to each participant.

Important: During the course, participants are expected to check their mailboxes for new messages on a daily basis.

Evaluation

Besides the weekly quiz and their assignment score, participants will be evaluated according to their substantive posts on the discussion forum, active participation in the online chat sessions and other course activities, reflecting both the quantity and quality of time spent on the course. Below are the evaluation schemes:

Quiz # 1	30%
Quiz # 2	30%
Individual Assignment:	10%
4 Chat Sessions (5% per session)	10%
4 Discussion Forum (5% per forum)	20%
Total Evaluation:	100%

Important: A passing mark of 60% is required for obtaining a completion certificate.

Course Schedule and Content

Week	Module Title	Topics
1	Module 1: Next Generation Broadband Network: Design, Architecture & Implementation	<ul style="list-style-type: none"> • Introduction to next Generation wireline broadband access technologies. • Next Generation Broadband network design and architecture • Broadband servers: Role & functionality • ADSL modem configuration
		Discussion / Forum
		Chat Session
2	Module 2: ISP MPLS Core Network Architecture	<ul style="list-style-type: none"> • ISP Core Network Architecture • MPLS Technology, Label Switch Router, Label Edge Router, PUSH/SWAP/POP/PHP operation, MPLS Traffic Engineering • Label assignment & Distribution, Label Distribution Protocol • VPN Architecture & Technologies • MPLS Layer-3 & Layer-2 VPN, Intranet, Extranet, Inter AS VPN
		Discussion / Forum
		Chat Session
		Quiz1
3	Module 3:	<ul style="list-style-type: none"> • Dense Wavelength Division Multiplexing concepts

	Next Generation Transmission Technologies, DWDM, OTN & CPAN	<ul style="list-style-type: none"> • Optical Transport Network (OTN) as a digital Infrastructure • OTN Frame Structure • CPAN for high speed Broadband
		Discussion / Forum
		Chat Session
4	Module 4: Next Generation Mobile Broadband Technologies	<ul style="list-style-type: none"> • ITU's IMT series and Mobile Network architectures Transitions. • Next Generation Broadband: Wi-Fi Access • Long Term Evolution (LTE): 3.9G Mobile Broadband • LTE Advanced (LTE-A): 4G Mobile Broadband • 5G NGC & NR: Next Generation Mobile Broadband Network and Services
		Discussion / Forum
		Chat Session
		Quiz2

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

ITU Coordinator: Mr. Ashish Narayan, Program Coordinator

Address: Regional Office for Asia & the Pacific, 5th Floor, Thailand Post Training Centre, 111 Moo3 Chaengwattana Road, Laksi Bangkok 10210, Thailand
ashish.narayan@itu.int (Email) | +66 257 500 55 (Tel.) | Fax: +66 257 535 07

Training Coordinator: Mr. Subhash Chand, Principal General Manager (Switching & Transmission & IT)

Address: Advanced Level Telecom Training Centre (ALTTC), BSNL, Rajnagar, Ghaziabad, UP-201002, India
subhash.iitr83@gmail.com (Email) | +91 120 2755122 (Tel.)

REGISTRATION AND PAYMENT

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>.

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/next-generation-broadband-network-design-implementation-applications>

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

*Please note that online registration should be done **before 23 November 2019**.*

Payment

1. On-line payment

A training fee of USD 100 per participant is applied for this training. Payment should be made via the online system using the link mentioned above for training registration at <https://academy.itu.int/training-courses/full-catalogue/next-generation-broadband-network-design-implementation-applications>

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 19OI24422ASP-E-P.40593.1.04

4. Other method of payment

For local participants, who would like to pay in local currency, please contact Mr. Subhash Chand (subhash.iitr83@gmail.com) the IoT Academy coordinator for further assistance.

*Please note that online registration should be done **before 23rd November 2019**. The course coordinator will confirm the acceptance of the candidates and will supply with the relevant instructions for participation.*