



ITU Centres of Excellence Network for Asia-Pacific Region
Advanced Level Telecom Training Centre
Online Training Course on
“Next Generation Broadband: Standards and Applications”
Ghaziabad (Near Delhi), India
11th July 2022 – 22nd July 2022

COURSE OUTLINE

Title	“Next Generation Broadband: Standards and Applications”
Modality	Online Instructor Led
Dates	11th July 2022 – 22nd July 2022
Duration	02 Weeks
Registration deadline	08 th July 2022
Training fees	The training fees applicable for this training is @ USD 100 per participant
Description	<p>This online training course aims to equip participants with an understanding of:</p> <ul style="list-style-type: none">• Standards and improvement for UFBB.• Standards for Next Generation WiFi, (WiFi6.O)• Concepts and technological aspects of mobile broadband technologies e.g. LTE ,LTE advanced 5G, 5G-NR.• Wire line Next Generation Broadband Network Architecture including latest standard development and services• Evolution of advanced xPoN Technologies i.e: GPON, XG-PON, etc.• NFV and SDN based automated, self-reliant network architecture.• Application of 5G and use cases
Course code	*****

1. LEARNING OBJECTIVES:

-
- Key technologies behind the evolution of next generation broadband.
 - Framework for the Wireless broadband network, 4G, 5G etc
 - Wire-line Next Generation Broadband Network Architecture including latest standard development and services.
 - Need behind the service based architecture.
 - Advanced transport technologies to support next generation broadband.
 - xPoN Technologies i.e:GPON, XG-PON, XGS-PON etc.
 - 5G uses scenario defined by ITU and 3GPP
-

2. LEARNING OUTCOMES:

- Standards and improvement for UFBB.
- Standards for Next Generation WiFi, (WiFi6.O)
- Concepts and technological aspects of mobile broadband technologies e.g. LTE ,LTE advanced 5G, 5G-NR.
- Wire line Next Generation Broadband Network Architecture including latest standard development and services
- Evolution of advanced xPoN Technologies i.e: GPON, XG-PON, etc.
- NFV and SDN based automated, self-reliant network architecture.
- Application of 5G and use cases
- 5G uses scenario defined by ITU and 3GPP

3. TARGET POPULATION

This training is primarily targeted at executives, managers, engineers and technical staff from regulators, policy makers, telecom operators, academia and government organizations.

4. ENTRY REQUIREMENTS

Any Graduate in Electronics, IT / Telecommunication , Electrical, Computer science and Electrical engineering may apply for this course.

No prior knowledge or qualification in next generation broadband 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)	POSITION	CONTACT DETAILS
Mr. Arun Kumar Sharma	Chief General Manager, ALTTC, BSNL, Ghaziabad, India	cgm_alttc@bsnl.co.in cgmalttc@gmail.com + 91 9414001101
Mr. P N Dohare	General Manager, ALTTC, BSNL, Ghaziabad, India	doharepratap@gmail.com +91 9464444029
Ms. Suresh Devi	Dy. General Manager ALTTC, BSNL, Ghaziabad, India	sureshdevi7009@gmail.com +91 9412739242
Mr A K Jha	Asst. General Manager, ALTTC, BSNL, Ghaziabad, India	bsnl.altcakj@gmail.com +919412739258
Mr. Anand Kumar	AGM (Broadband) ALTTC, BSNL, Ghaziabad, India	anandkumarbsnl21@gmail.com +91 9412739248
Mr. Naresh Singh	Assistant General Manager ALTTC, BSNL, Ghaziabad, India	Nareshsingh17@gmail.com +91 9412000939
Mr. N P S Chauhan	Asst. Director ALTTC, BSNL, Ghaziabad, India	npsinghhauhan@gmail.com +91 9418044500
Mr. Alock Tyagi	Asst. Director ALTTC, BSNL, Ghaziabad, India	alocknoc@bsnl.co.in +91 9412000928
Mr. Abhay Gupta	Asst. General Manager ALTTC, BSNL, Ghaziabad, India	abhaybpl@gmail.com +91 9412739319

Mr. Nikunj Goel	Assistant General Manager ALTTC, BSNL,Ghaziabad, India	nikunjoelin@yahoo.com +91 9412739309
Mr. Sandeep Singh	Asst. Director ALTTC, BSNL,Ghaziabad, India	sandeepalttc@bsnl.co.in +91 9463502525
Mr. Rajesh Kumar	Asst. Director ALTTC, BSNL,Ghaziabad, India	rajeshbsnl@gmail.com 9412739333

6. TRAINING COURSE CONTENTS:

Module 1: Wire line Broadband Standards and Technologies for Next Generation

- Standards of future UFBB network: Wired Line BB
- Overview of the Latest Broadband Technologies
- SDN and NFV (Network Function Virtualization)
- MNG-PAN
- X-PON,NG-PON, NG-PON2
- Next Generation WiFi, (WiFi 6) and Standards
- ITU standards for supporting Transport Network for Next Generation

Module 2: Mobile Broadband Standards, Technologies and Application for Next Generation

- 3GPP standardization process and evolution of technologies
- LTE Network Architecture and Standards
- LTE advanced and LTE Pro Feature
- 5G Network Architecture and Standards
- Key Technical Enablers for 5G MIMO
- MIMO Beam forming and beam management in 5G
- 5G New Radio (5G NR)
- 5 G use cases: AR/VR/XR/FWA/V2X,

7. TRAINING COURSE SCHEDULE:

Week	Module Title	Topics
1	Module 1: Wire line Broadband Standards and Technologies for Next Generation	<ul style="list-style-type: none"> • Standards of future UFBB network: Wired Line BB • Overview of the Latest Broadband Technologies • SDN and NFV (Network Function Virtualization) • MNG-PAN • X-PON,NG-PON, NG-PON2 • Next Generation WiFi, (WiFi 6) and Standards • ITU standards for supporting Transport Network for Next Generation
		Discussion / Forum
		Chat Session-1 Quiz 1
2	Module 2: : Mobile Broadband Standards, Technologies and Application for Next Generation	<ul style="list-style-type: none"> • 3GPP standardization process and evolution of technologies • LTE Network Architecture and Standards • LTE advanced and LTE Pro Feature • 5G Network Architecture and Standards • Key Technical Enablers for 5G MIMO • MIMO Beam forming and beam management in 5G

		<ul style="list-style-type: none"> 5G New Radio (5G NR) 5 G use cases: AR/VR/XR/FWA/V2X,
		Discussion / Forum
		Chat Session-2
		Quiz 2

8. METHODOLOGY(Didactic approach)

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.

9. EVALUATION AND GRADING

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

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

10. TRAINING COURSE COORDINATION

<p>Institute Head: Mr. Arun kumar Sharma Chief General Manager ALTTC, Raj Nagar, Ghaziabad, UP, INDIA -201002 cgm_alttc@bsnl.co.in +91 120 2755121 (Works) +91 9414001101 (Mobile)</p> <p>Institute Coordinator: Mr. P N Dohare General Manager ALTTC, Raj Nagar, Ghaziabad, UP, INDIA -201002 doharepratap@gmail.com +91 120 2755122 (Works) +91 9464444029 (Mobile)</p>	<p>Training Coordinators: Ms. Suresh Devi DGM (CFA & BB) ALTTC, Raj Nagar, Ghaziabad, UP, INDIA -201002 sureshdevi7009@gmail.com +91 9412739242 (Mobile)</p> <p>Mr. Anand Kumar AGM (BB) ALTTC, Raj Nagar, Ghaziabad, UP, INDIA -201002 anandkumarbsnl21@gmail.com +91 120 2755040 (Works) +91 9412739248 (Mobile)</p>	<p>ITU Coordinator: Mr. Sean S. Doral Program Officer-ITU, ITU Regional Office for Asia- Pacific 5th Floor, Thailand Post Training Centre, 111 Moo3 Chaengwattana Road, Laksi Bangkok 10210,Thailand Sean.doral@itu.int (Email) +66 806650213 (Works) +66 257 535 07 (Fax)</p>
---	---	---