



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

**“IoT & 5G in AI Smart City”**  
15<sup>th</sup> to 26<sup>th</sup> March, 2021

**COURSE OUTLINE**

**COURSE DESCRIPTION**

Title	<b>IOT &amp; 5G in AI Smart</b>
Objectives	<p>To develop an understanding:</p> <ul style="list-style-type: none"><li>• the various elements of AI Smart City in the digital economy, including telecom networks, digital governments, industry verticals, platforms, and devices.</li><li>• the policy and regulatory ecosystem necessary to support national of AI Smart City planning and implementation;</li><li>• the concept of smart cities, smart power requirements, and Industry 4.0;</li><li>• Virtualization (SDN/NFV) ;</li><li>• Cellular IoT Air Interface</li><li>• 3GPP Vs Non-3GPP IoT Application in Smart City</li><li>• Transport Requirement in AI Smart City: core and access network;</li><li>• the infrastructure of core data network and security aspects;</li><li>• 3GPP Technologies: Recommendations &amp; Standards;</li><li>• IMT spectrum management for wireless broadband &amp; 5G deployment.</li></ul> <p>To discuss:</p> <p>5G: A case study (AI Smart City)</p>
Dates	15 <sup>th</sup> - 26 <sup>th</sup> March 2021
Duration	2 Weeks
Registration deadline	14 <sup>th</sup> March 2021
Training fees	The applicable fee for this training is <b>@ 100 USD per participant</b>
Course code	21OI26532ASP-E

## DESCRIPTION OF THE TRAINING COURSE

Internet of Things (IoT) is expected to dominate the telecom market where machines exchange data for intelligent applications. Devices and networks supporting IoT pose unique challenges such as low power, low cost, low mobility, and long battery life. This course addresses several low power wide area (LPWA) network technologies defined by 3GPP to meet these requirements. 3GPP-defined LPWA technology options include LTE-M (or enhanced machine type communication) and Narrowband IoT (NB-IoT). This course provides a foundation for 5G aspects relevant to IoT and NB-LTE and their extensions. It also addresses the basics of AI and its Use case in Smart City.

## LEARNING OUTCOMES

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

- Different types of basic technologies available to support and supplement the IOT & 5G in AI Smart city.
- Cellular IoT evolution EC-GSM IoT, LTE-M, NB-IoT, 5G IoT.
- Challenges and paucity with Contemporary Technological Eco-system towards futuristic AI-based Use Cases.
- Development in different fields which, by combining together, support the evolution of Futuristic Cellular IoT.
- Latest development available especially in wireless and transportation domain to further support the development of MIoT.
- Administrative and regulatory Framework needed for successful implementation of IoT for ALL regardless of any limitation.

## TARGET POPULATION

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

## ENTRY REQUIREMENTS

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Any Graduate/Diploma in Electronics, IT / Telecommunication , Electrical, Computer science and Electrical with basic knowledge of Mobile Technology can apply for this course

## TUTORS/INSTRUCTORS

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S.No.	NAME OF TUTOR(S)/ INSTRUCTOR(S)	Position	CONTACT DETAILS
1.	Mr. Subhash Chand	Chief General Manager, ALTTC, BSNL, Ghaziabad, India	<a href="mailto:cgm_alttc@bsnl.co.in">cgm_alttc@bsnl.co.in</a> <a href="mailto:subhash.iitr83@gmail.com">subhash.iitr83@gmail.com</a> +91 9868202123
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4.	Mr. Ashok Kumar Sharma	DGM (CFA & BB), ALTTC, BSNL Ghaziabad, India	<a href="mailto:ashok1963sharma@gmail.com">ashok1963sharma@gmail.com</a>

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5.	Mr. H K Dixit	DGM(Tx& Mobile), ALTTC, BSNL Ghaziabad, India	<a href="mailto:dikshithk@rediffmail.com">dikshithk@rediffmail.com</a> +91 9412739065
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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
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11	Mr. Manoj Kumar	Assistant General Manager, 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

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 per cent.

## TRAINING SCHEDULE AND CONTENTS / AGENDA

(Updated information will be available at <http://www.itu.int/itu-d/asp> or <https://academy.itu.int> )

**Agenda (for on-line trainings)**

Week	Module Title	Topics
1	<b>Module 1: IoT &amp; 5G in AI Smart city: Basic Technology prospects</b>	<ul style="list-style-type: none"> <li>• Why IOT &amp; 5G in AI Smart city: Need, and Benefits.</li> <li>• IoT Security Guidelines and Assessment</li> <li>• Mobile IoT: 3GPP standardized technologies for licensed mobile spectrum.</li> <li>• Drivers and inhibitors of IoT and 5G.</li> <li>• Use Cases in AI smart City-Smart water pump, e-WaterPay, Smart parking sensors etc.</li> </ul>
		Discussion / Forum
		Chat Session
		Quiz 1
2	<b>Module 2: IoT &amp; 5G in AI Smart city: Advance technology and Regulatory Perspective</b>	<ul style="list-style-type: none"> <li>• Licensed mobile Spectrum for IoT ss Unlicensed Spectrum for IoT.</li> <li>• Policy considérations related to IoT. Making Smart Cities and IoT a Reality.</li> <li>• The policy and regulatory implications of IoT.</li> <li>• 3GPP Standardisation &amp; Evolution towards IoT</li> <li>• Mobile IoT technologies: LTE-M, EC-GSM-IoT, NB-IoT and 5G IoT.</li> <li>• Spectrum Management and standards for Wireless Broadband</li> <li>• Mobile Massive IoT with 5G-NR (mMTC)</li> </ul>
		Discussion / Forum
		Chat Session
		Quiz 2

## METHODOLOGY

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**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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<b>Institute Head:</b>	<b>Training coordinators:</b>	<b>ITU coordinator:</b>
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<p><b>Mr. Subhash Chand</b> Chief General Manager ALTTC, Raj Nagar, Ghaziabad, UP, INDIA -201002 cgm_alttc@bsnl.co.in (Email) +91 120 2755121 (Works) +91 120 2755121 (Works) +91 120 2756985 (Fax) +91 9868202123 (Mobile)</p> <p><b>Institute Coordinator:</b> <b>Mr. Devi Prasad</b> General Manager (Tech &amp; Admin) ALTTC, Raj Nagar, Ghaziabad, UP, INDIA -201002 dp17696@gmail.com (Email) +91 120 2755144 (Works) +91 120 2704639 (Works) +91 9412739101 (Mobile)</p>	<p><b>Mr. Ashok Kumar Sharma</b> DGM(CFA &amp;BB), Room No. 721, Academic Building, ALTTC, Raj Nagar, Ghaziabad(UP), INDIA- 201002 ashok1963sharma@gmail.com +91 120 2755132 (Works) +91 9412220075 (Mobile)</p> <p><b>Mr. Abhay Gupta</b> AGM ( Mobile), Room No. 710, Admin Building , ALTTC , Raj Nagar, Ghaziabad(UP), INDIA -201002 abhaybpl@gmail.com(Email) +91 120 275 5147 (Works) +91 941 273 9319 (Mobile)</p>	<p><b>Mr. Sean S. Doral</b> Program Officer-ITU, ITU Regional Office for Asia- Pacific 5th Floor, Thailand Post Training Centre, 111 Moo3 Chaengwattana Road, Laksi Bankok 10210,Thailand Sean.doral@itu.int (Email) +66 806650213 (Works) +66 257 535 07 (Fax)</p>
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## REGISTRATION AND PAYMENT

### 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/index.php/training-courses/full-catalogue/iot-5g-ai-smart-city>.

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/index.php/training-courses/full-catalogue/iot-5g-ai-smart-city>

#### 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.

<b>ITU BANK ACCOUNT DETAILS:</b>	
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-210I26532ASP-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.