ITU CENTRES OF EXCELLENCE NETWORK FOR THE ASIA-PACIFIC REGION

FINAL REPORT

OF THE

2ND STEERING COMMITTEE MEETING

17-18 DECEMBER 2019

TEHRAN, IRAN

1. INTRODUCTION AND OPENING

The 2nd Steering Committee Meeting of the ITU Centres of Excellence for Asia-Pacific for the 2019-2022 cycle was held in Tehran from 17-18 December 2019. The Meeting was organized by the ITU and hosted by ICT Research Institute, Ministry of ICT, Iran. It was attended by 24 delegates including Centres of Excellence (CoEs), representatives from Governments hosting CoEs, other ITU Member states, the ITU Secretariat and other agencies. The list of participants is attached to this report (Annex 1).

The meeting was officially opened by Dr. Alireza Yari from ICT Research Institute, Tehran. On behalf of the Ministry of ICT, he welcomed all the participants to the ITU ASP CoE Steering Committee. He thanked the ITU for hosting the meeting in Iran and expressed his best wishes for the success of the meeting.

Mr. Sameer Sharma, Regional Director (a.i.), ITU Regional Office for Asia and the Pacific delivered the opening remarks on behalf of the ITU. He thanked the host for their gratitude and hosting, and emphasized on the importance of the Centres of Excellence trainings as a vehicle to meet the expectations of the ITU Members. He recalled the objective of the meeting, which was to review the progress of the CoEs in 2019, learn from experiences, strengthen cooperation amongst COE members as well as current and potential partners, provide strategic guidance and set the plan for 2020. He also expressed his gratitude to the Chairman of the Steering Committee, the Steering Committee members, the Centres of Excellence and the partners for their contribution to the successful operations of the ITU Asia-Pacific Centres of Excellence.

Ms Benjawan Anuntasilpa, Director (International Organizations Division), NBTC (Thailand) delivered the remarks on behalf of Mr. Notachard Chintakanond, Chairman of the CoE Steering Committee. The Chairman thanked the Steering Committee Members for their support during his tenure and briefed the meeting on the functioning of the steering committee including the first Steering Committee Meeting, the mid-term virtual meeting and activities supported by the NBTC. He congratulated the CoEs on their performance. In the end, he also congratulated the incoming chairman and conveyed his full support.

2. CONFIRMATION OF THE COE STEERING COMMITTEE CHAIR

Mr. Sameer Sharma invited the meeting to confirm the Steering Committee Chair nominated by the hosting country as per stipulations of the CoE operational guidelines. The meeting confirmed the chairmanship of Iran, represented by Dr. Ahmad Reza Sharafat, Professor and Senior Consultant to the Ministry of Communications and Information Technology. Dr. Sharafat thanked the meeting for the nomination and chaired the 2nd Steering Committee Meeting of the CoE Network for Asia-Pacific (2019-2022) Cycle.

Mr. Ashish Narayan recalled the composition of the Steering Committee of the CoE Network for Asia-Pacific region for the cycle 2019-2022 as follows:

- Centres of Excellence: ALTTC, CAICT, IOT Academy, NIA, SRMC and UTM
- Member States: China, India, Islamic Republic of Iran, Malaysia, Republic of Korea and Thailand
- ITU

The 2nd Steering Committee Meeting was physically attended by the following

- Centres of Excellence: CAICT, IOT Academy and UTM
- Member States: China, Islamic Republic of Iran and Thailand
- ITU

ALTTC, NIA and SRMC joined the meeting remotely (through Skype).

The meeting recalled the importance of physical presence of all Steering Committee Members and strongly recommended that all the Members attend the future steering committee meetings in person.

3. REVIEW OF THE IMPLEMENTATION OF 2019 ACTVITIES

Presentations by ITU

Mr. Mike Nxele, Senior Human Capacity Building and Skills Development Officer, ITU presented an overview of the implementation of CoE activities, both globally and regionally.

In his presentation, he highlighted that:

- Globally there were 146 planned activities, of which 82 were implemented and 11 were planned. If the planned ones get implemented, the implementation level would be 64%, with a total of 53 courses unimplemented.
- Asia-Pacific will be the only region where all the planned courses are being implemented.
- The delivery mode varies significantly from one region to region, with some regions primarily delivering through face to face trainings while others using online or a mix of the two.

Mr Nxele highlighted that the overall performance within the CoE network is a cause for concern and stated that the idea of introducing virtual mid-term reviews was to try and improve performance by year end. He congratulated the CoEs in Asia-Pacific region for their effective implementation.

Mr. Ashish Narayan, Programme Coordinator, ITU Regional Office for Asia-Pacific provide a detailed performance report of the CoEs performance in 2019 (Annex 2). He recalled and stressed on the importance of the core strategies of the CoE in the Asia-Pacific region, which include

- Unique, locally unavailable content aimed at problem solving;
- International character
- Aligned with strategic work of the ITU
- Low or no fees.

While highlighting the good performance of the CoEs in terms of increase in the number of trainings as well as the number of participants, he invited the meeting to some of the concerning trends that need to be quickly addressed viz., decrease in percentage of international participants and the decline in average number of participants per training.

Presentations by Centres of Excellence

The Chair invited the CoEs to present their detailed 2019 activity report, including challenges faced in the implementation of training courses.

ALTTC

Mr. Subhash Chand, Principal General Manager, ALTTC made remote presentation and provided an overview of ALTTC activities in general and CoE activities in 2019. ALTTC had implemented five trainings until 13 December 2019 while three were ongoing. The implementation status is as follows:

Courses planned	Delivery mode	Final dates	Status	Number of participants	End-of training reports	Training fee (USD)
Information Security Internal Audit	face-to-face	27-31 May 2019	Implemented	60	Submitted	275
Evolution and Emerging Trends of Broadband Access Technologies	face-to-face	20-24 May 2019	Implemented	19	Submitted	275
Broadband Network Security: Issues & Challenges	face-to-face	26-30 Aug 2019	Implemented	10	submitted	275
Cyber Security for Enterprises	face-to-face	10-15 Oct 2019	Implemented	18	submitted	275
IoT applications and IoT Security Aspects	face-to-face	9-13 Dec 2019	Implemented	30	Awaited	275
Cyber Network Defense and Cyber Laws	face-to-face	16-20 Dec 2019	Ongoing	15	Awaited	275
Next Generation Broadband Network: Design, Implementation and Applications	Online	25 Nov - 20 Dec	Ongoing	5	Awaited	100
IOT: Technologies aspects and implementation	Online	16-27 Dec	Ongoing	1	Awaited	100

CAICT

Ms. Fu Li, Deputy Chief Engineer, CAICT made the presentation on behalf of the CAICT. The status of courses are as follows:

Courses planned	Delivery mode	Final dates	Status	Number of participants	End-of training reports	Training fee (USD)
5G and Conformity & Interoperability	online instructor-led	15 April- 26 May 2019	Implemented	91	Submitted	0
5G and ICT Application	online instructor-led	17 June-10 July 2019	Implemented	47	submitted	0
Conformity and Interoperability relating to Smart City	Face-to-face	18-21 Sep 2019	Implemented	30	Submitted	0
ICT Application relating to Smart City	Face-to-face	21-24 Sep 2019	Implemented	34	submitted	0

IoT Academy

Dr Farzad Ebrahimi, President, IoT Academy presented the courses being undertaken by IoT Academy. He informed that one of the planned workshops had to be changed into an online course due to last minute unexpected issues. The current status is as follows:

Courses planned	Delivery mode	Final dates	Status	Number of participants	End-of training reports	Training fee (USD)
IoT Security Challenges and Solutions	online instructor-led	26 Aug – 6 Sep 2019	Implemented	59	Submitted	125
Building IOT Solutions for Energy and Water Resource Management*	online instructor-led	26 Aug – 6 Sep 2019	Ongoing	46	Submitted	125

He also shared his experiences on marketing of courses and emphasized on the importance of face-to-face meetings and social media-based promotion over emails. Dr. Ebrahimi also recommended that all face-to-face courses should be completed before September so that there is some flexibility to change dates in case there is an unexpected event.

NIA

Ms Jiyoung Seol, Manager, NIA presented the performance of NIA remotely. The table below summarizes the details:

Courses planned	Delivery mode	Final dates	Status	Number of participants	End-of training reports	Training fee (USD)
Smart Sustainable Cities, ICT Applications And E-Government: Incorporating Data, Network And AI Technologies Towards More Efficient Cities (in partnership with WeGO and World Bank)	Face to face	15-18 July 2019	Implemented	24	Submitted	0
Artificial Intelligence Overview and Applications (in partnership with NBTC)	Face to face	16-19 Sep 2019	Implemented	47	Submitted	0
Digital Transformation and Digital Government	Online instructor led	4-29 Nov 2019	Implemented	68	Submitted	0

SRMC

Ms Fu Li made the presentation on behalf of SRMC (Mr Jia Huang joined remotely). The details of implementation are as follows:

Courses planned	Delivery mode	Final dates	Status	Number of participants	End-of training reports	Training fee (USD)
Spectrum management and IMT 2020 Radio technology application	Face to face	17-21 June 2019	Implemented	35	Submitted	0
Spectrum Engineering and IMT2020	Online instructor led	1-19 July 2019	Implemented	88	Submitted	0

UTM

Prof. Jafri Din, Wireless Communication Center, UTM presented the achievements of UTM in 2019. The current status is as follows:

Courses planned	Delivery mode	Final dates	Status	Number of participants	End-of training reports	Training fee (USD)
Traffic engineering and advanced wireless network planning (in partnership with NBTC)	Face to face	30 Sep - 3 Oct 2019	Implemented	53	Submitted	0

Fifth Generation (5G) Technology, Opportunities and Challenges	Face to face	15-17 Oct 2019	Implemented	28	Submitted	550
Human Exposure to Radio Frequency Electromagnetic Fields	Face to face	3-5 Dec 2019	Implemented	13	Submitted	550

He also thanked NBTC and ITU for providing the support and information during the CoE training in Thailand.

All presentations made are available on the website: http://academy.itu.int

The follows issues were raised during the discussions:

- The issue of the right charging and business model was discussed during the meeting. ITU informed that self-sustainability remains the core principle of operation of CoEs. It was also clarified that while ITU provided support in terms of content, brand value, platform, coordination, promotion, etc., the choice of business model was left to the discretion of respective CoEs.
- The Chairman said that it is advisable that all CoEs to contact private sector companies to seek partnership that would enhance the sustainability of the CoEs.
- ITU informed the meeting about MoU signed with Huawei and the offer of Huawei to partner with CoEs. The Chairman asked ITU to share the presentation and offer of Huawei with all CoEs.
- ITU also informed the meeting that a new initiative on Digital Transformation Centers (DTC) has been launched by ITU in partnership with Cisco. Other entities are welcome to join the initiative.
- The meeting also recognized that the relevance of topic and the timing of the training in relation to other global activities are crucial to the success of the training.
- For effective promotion of the CoE courses, it was emphasized that all brochures and details be submitted to ITU by 15 January 2020.

4. DISCUSSION ON STRATEGIC AND OPERATIONAL ISSUES RELATED TO THE IMPLEMENTATION OF THE COE NETWORK ACTIVITIES

Mr. Mike Nxele and Mr. Ashish Narayan made a presentation on strategic and operational issues pertaining to CoE operations. These pertained to

- Performance of the network and its monitoring
- Upcoming assessment of ITU capacity development work in 2020

- Operational issues

Following the presentation, a discussion took place concerning the points raised. The following points were made:

- The Chairman emphasized on the need for close collaboration with the work of ITU Sectors and invited all CoEs to engage with experts in the ITU-D, ITU-T and ITU-R Study Groups and contribute to its activities.
- The Chairman also advised CoEs and ITU to take advantage of large meetings such as WSIS and AI for Good Global Summit 2020 to promote the courses.
- ITU reiterated the importance of timely submission of documents to the Secretariat for processing and requested CoEs to submit it in the template before sending to make the process faster.
- The ITU also requested all CoEs to align the content with the relevant work of the ITU in various Sectors (ITU-T, ITU-R, ITU-D).
- The meeting had elaborate discussion on what would be an appropriate number of courses under the CoE framework keeping in view the processes required and the need to maintain high quality. There was general agreement that the number of courses should be kept at around 20 to keep the work manageable. Some other suggestions include
    - Holding joint courses by CoEs would help build partnerships, strengthen the course, keep the number manageable and also meet the KPIs. The Steering Committee recommended that in such cases, in terms of counting of the joint course, it would be counted as an implemented course by each of the partnering CoEs.
    - Creating the flexibility for CoEs with 3 priority areas to reduce voluntarily to 2 if the CoE wishes as it may offer more flexibility;

Mr. Ashish Narayan also presented the priorities of ITU in the Asia-Pacific Region and the regional initiatives. He requested CoEs to align the trainings with ITU priority areas.

5. TRAINING PLAN 2020

Each CoE made a presentation on the training plans for 2020, including details on the content, expected target audience and price.

ALTTC

Courses planned	Delivery mode	Final dates	Partners	Venue	Training fee (USD)

Advanced Broadband Network QoS and Applications	Online instructor led	17 Feb – 06 Mar 2020			100
IoT Advanced Applications :Smart City & Industry 4.0	Face-to-Face	20 - 24 April 2020			275
Data Protection Framework with Security Policy & Audit	Face-to-Face	21 - 25 July 2020			275
Ultra High Speed Broadband Network	Face-to-Face	24 – 28 Aug 2020			275
Cyber Security and Critical Infrastructure Protection	Face-to-Face	08- 12 Sept 2020			275
IoT Sensors and Network for Disaster Communication	Online instructor led	02 – 13 Nov 2020			100
High Throughput Satellite Communication	Online instructor led	07 - 18 Dec 2020			100

CAICT

Courses planned	Delivery mode	Final dates	Partners	Venue	Training fee (USD)
C&I relating to Smart City	Online instructor led	6-24 April		ITU Academy	Free
Future Network Security, Conformity & Interoperability	Face to face	11-14 May	BRICS Institute of Future Network	Shenzen	Free
5G Technology and Applications	Face to face	24-28 August	ITRC	Shanghai	Free
ICT Applications relating to Smart City	Online instructor led	13-31 July		ITU Academy	Free

IoT Academy

Courses planned	Delivery mode	Final dates	Partners	Venue	Training fee (USD)
Digital Transformation: Enhancing IoT-Driven Accessibility	Online instructor led	10-16 Feb	ITRC	ITU Academy	Free
Internet of Things Policy	Online instructor led	27 April - 8 May		ITU Academy	150

Building IoT Solutions for Smart Sustainable Cities	Face to face	15-19 Aug		Tehran	500

NIA

Courses planned	Delivery mode	Final dates	Partners	Venue	Training fee (USD)
Data driven governance	Face to face	24-28 Aug	APCICT	Seoul	Free
Digital Platform with Emerging Technologies	Face to face	21-24 Sep	NBTC	Bangkok	Free
Government Innovation driven by Emerging Technology	Online instructor led	4-29 Nov		ITU Academy	Free

SRMC

Courses planned	Delivery mode	Final dates	Partners	Venue	Training fee (USD)
Spectrum Monitoring Technologies and Practice	Face to face	Sept		Chengdu	Free
Spectrum Monitoring Technologies and Practice	Online			ITU Academy	Free
Spectrum pricing and allocation	Face to face	7-10 Sept	NBTC	Bangkok	Free

UTM

Courses planned	Delivery mode	Final dates	Partners	Venue	Training fee (USD)
Human Exposure to Radio Frequency Electromagnetic Fields	Face to face	14-16 April		Johor Baru	600
5G Radio Access Network Planning and Coexistence	Face to face	21-23 July		Kuala Lumpur	600
Human Exposure to Radio Frequency Electromagnetic Fields	Face to face	Nov	ITRC	Tehran	Free

Following the presentations, the Steering Committee discussed and agreed on the ITU CoE network for Asia-Pacific training courses for the coming year. A total of 21 courses were agreed upon for 2020. The table with the agreed courses for the region is attached as Annex 3.

6. UPDATE ON ITU ACTVITIES

Mr. Mike Nxele made a presentation updating CoEs on the capacity building activities undertaken within ITU outside the CoE framework. In this presentation, he touched on the work related to the development of training materials, the Digital Skills Insights publication, the ITU Academy platform and the issues arising from its use, as well as the launch of the new Digital Transformation Centres Initiative. This new initiative, launched in collaboration with CISCO, will address digital skills training at basic and intermediate levels. He also covered the work being undertaken under the auspices of the Group on Capacity Building Initiatives (GCBI). Lastly, he updated on the Academia event which was held in Atlanta Georgia.

7. PRESENTATION BY PARTNERS

Dr. Maryam Tayefeh Mahmoudi, Head of Education, Scientific & International Collaboration Office of ICT Research Institute provided an overview of ITRC including the history, organizations structure, capabilities and areas of research. She highlighted important areas of research including AI, 5G, Big Data, Cloud Computing, IoE/IoT, Assistive ICTs and SDN and offered potential areas of collaboration from ITRC including organisation of joint training courses, workshops, symposiums, conducting joint projects and sharing of experts.

8. DISCUSSION AND ADOPTION OF DRAFT REPORT

Following the discussions, the meeting agreed as follows:

a) The Steering Committee (SC) agrees to keep interacting during the year including holding of at least one online SC meeting during the year. The Chair and the ITU will facilitate the interaction.

b) The meeting agreed on the importance of using the ITU Academy platform and encouraged more delivery of online training. All course participants (for both face-to-face and online courses) need to register through the ITU Academy.

c) The Steering Committee meeting asked all CoEs to take due cognizance of the work in ITU-D, ITU-T and ITU-R Study Groups and other activities.

d) The need for CoEs to actively promote their activities (in addition to ITU's promotion) is very important. The use of digital media platforms is key in this regard.

e) CoEs are highly encouraged to use ITU content and while developing the content take into account the work of the ITU on the issue. The ITU Secretariat will provide to all Centres of Excellence with the syllabus developed for the purposes of CoE trainings (the use of material is for free).

f) As of 2020, no individual course invitations will be sent out by ITU any longer. Instead, ITU will send a letter to its membership on a biannual basis (beginning of the year and mid-year) informing them of all courses that are planned in a particular region for the coming semester.

g) A revenue share of 20% (ITU) and 80% (CoE) was agreed upon with the CoEs.

h) The Steering Committee Meeting recommended CoEs to keep the overall number of courses at manageable level (around 20)

i) CoEs that had not specified the exact dates of their training courses, were requested to do so by **15 January 2020**.

j) In order to maintain effectiveness of delivery and assurance of quality of the courses, it was agreed that the maximum number of courses offered should be limited accordingly.

k) The next physical meeting of the Steering Committee will be held in fourth quarter of 2020. Malaysia offered to host the next Steering Committee in 2020. The Steering Committee accepted the offer and agreed to host the meeting in Malaysia.

9. CLOSING

The meeting ended with closing remarks from Mr Sameer Sharma, Regional Director (a.i.), ITU Regional Office for Asia and the Pacific as well as Dr. Ahmad Reza Sharafat, Chair of the Steering Committee.

ITU ASIA-PACIFIC CENTRE OF EXCELLENCE

REPORT TO

2ND STEERING COMMITTEE MEETING ON PERFORMANCE OF THE ASP COE NETWORK 2019

PERFORMANCE REPORT

OVERVIEW

1.0 OVERVIEW

The current phase (2019-2022)of the ITU Asia-Pacific Centres of Excellence (CoE) was launched at 1 January 2019. Six CoEs from the Asia-Pacific region were selected after a due selection process.

Figure 1: ITU Asia-Pacific Centres of Excellence

Name of institution	Country	Priority areas
Advanced Level Telecom Training Centre (ALTTC)	India	Wireless and Fixed Broadband Internet of Things Cybersecurity
China Academy of Information and Communications Technology (CAICT)	China	Conformance & Interoperability ICT Applications
IoT Academy	Iran	Internet of Things
National Information Society Agency (NIA)	Republic of Korea	ICT Applications
State Radio Monitoring Center / State Radio Spectrum Management Center (SRMC)	China	Spectrum Management
Wireless Communication Centre, Universiti Teknologi Malaysia (UTM)	Malaysia	Wireless and Fixed Broadband

The Steering Committee comprises representatives from the following:

- Centres of Excellence: ALTTC, CAICT, IoT Academy, NIA, SRMC and UTM ;
- Member States: China, India, Islamic Republic of Iran, Malaysia, Republic of Korea and Thailand ; and
- ITU.

Mr. Notachard CHINTAKANOND, Acting Executive Director, NBTC, Thailand was appointed the Chairman of the ITU Asia-Pacific Centres of Excellence Steering Committee during the 1st ITU Asia-Pacific CoE Steering Committee Meeting held from 30-31 January 2019 in Bangkok, Thailand.

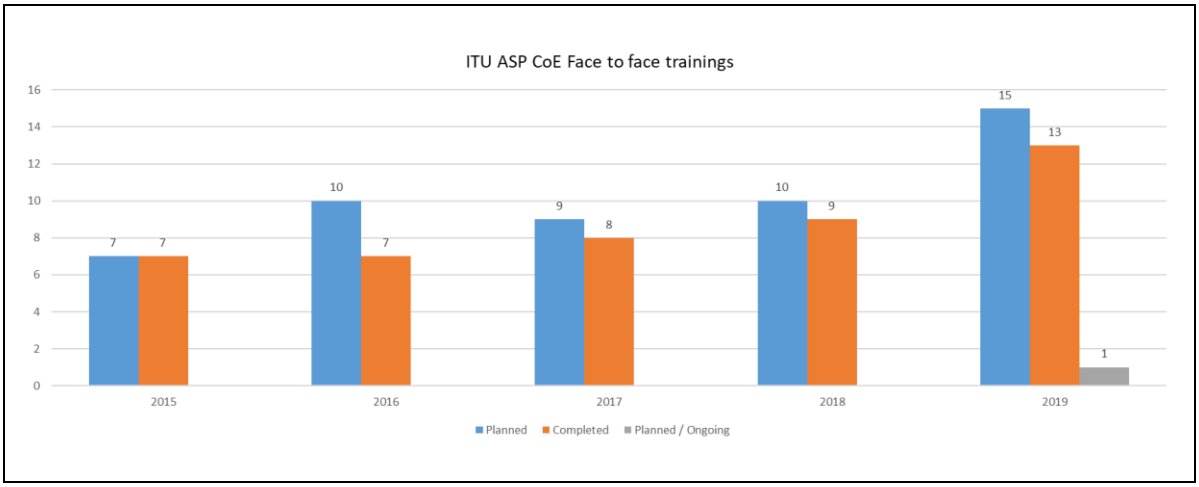
In the first year, all six CoEs actively started their operations. In 2019, 14 face-to-face and 8 online trainings are expected to build capacity of more than 750 participants (excluding secretariat and key speakers) in specialized areas. One training was changed from face to face after the issue of invitation and completing registration due to security situation. Summary of activities are provided in Table 1 and Table 2 respectively.

Table 1: Summary of ITU ASP CoE Performance (face to face)

Summary of trainings – Face to Face

	Training topics (face to face)	CoE	Dates	Venue	Training fees	Number
1	Evolution and Emerging Trends of Broadband Access Technologies	ALTTC	20-24 May	Ghaziabad, India	275	19
2	Information Security Internal Audit	ALTTC	27-31 May	Ghaziabad, India	275	60
3	Spectrum management and IMT 2020 Radio technology application	SRMC	17-21 June	Harbin, China	Free	35
4	Smart Sustainable Cities, ICT Applications And E-Government: Incorporating Data, Network And AI Technologies Towards More Efficient Cities	NIA	15-18 July	Busan, Rep. of Korea	Free	24
5	Broadband Network Security: Issues & Challenges	ALTTC	26-30 Aug	Ghaziabad, India	275	10
6	Artificial Intelligence Overview and Applications	NIA	16-19 Sep	Bangkok, Thailand	Free	47
7	Conformity and Interoperability relating to Smart City	CAICT	18-21 Sep	China	Free	30
8	ICT Application relating to Smart City	CAICT	21-24 Sep	China	Free	34
9	Traffic engineering and advanced wireless network planning	UTM	30 Sep-3 Oct	Bangkok, Thailand	Free	53
10	Cyber Security for Enterprises	ALTTC	10-15 Oct	Ghaziabad, India	275	18
11	Fifth Generation (5G) Technology, Opportunities and Challenges	UTM	15-17 Oct	Kuala Lumpur, Malaysia	550	28
12	Human Exposure to Radio Frequency Electromagnetic Fields	UTM	3-5 Dec	Johor Bahru, Malaysia	550	13
13	IoT applications and IoT Security Aspects (report awaited)	ALTTC	9-13 Dec	Ghaziabad, India	275	30
14	Cyber Network Defense and Cyber Laws	ALTTC	16-20 Dec	Ghaziabad, India	275	
				Percentage of charged courses	55%	401

Face to face training on **Building IOT Solutions for Energy and Water Resource Management** was changed to online after registrations were completed due to security issues



As an example of collaboration / partnership in the framework of COE , face to face training activities have been supported by the National Broadcasting and Telecommunications Commission (Thailand), World Bank and WeGo in this year. Several other organizations provided speakers in training programs enhancing quality of the courses.

Table 2: Summary of ITU ASP CoE Performance (Online)

Summary of trainings – Online

	Online Trainings	CoE	Dates	Training fees	Number
1	5G and C&I	CAICT	15 April - 11 May	Free	91
2	IOT Security Challenges and Solutions	IOT Academy	26 Aug-6 Sep	125	59
3	Spectrum Engineering and IMT2020	SRMC	1-19 July	Free	88
4	5G and ICT Application	CAICT	17 June -19 July	Free	47
5	Digital Transformation and Digital Government (report awaited)	NIA	4-29 Nov	Free	68
6	Next Generation Broadband Network: Design, Implementation and Applications	ALTTC	25 Nov - 20 Dec	100	5
7	IOT: Technologies aspects and implementation	ALTTC	16-27 Dec	100	
8	Building IOT Solutions for Energy and Water Resource Management*	IOT Academy	16-27 Dec	125	
					358

The number of online participants for free courses are taken as those participants who undertake at least one evaluation exercise.

The training on Next Generation Broadband Network: Implementation and Applications is ongoing.

Most of the courses in 2019 were new courses and aimed to address priority areas requested by ITU Members.

The average number of participants in face-to-face trainings have reduced to around 30.

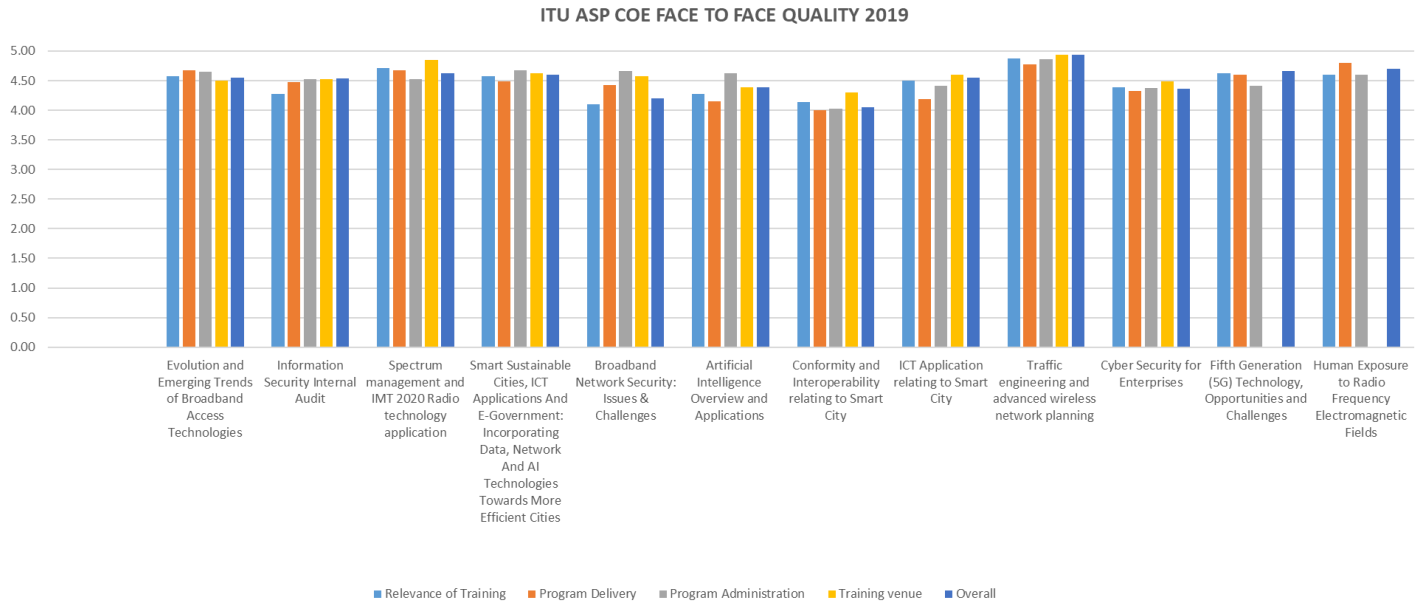
	2015	2016	2017	2018	2019
International as %age of total	**46%**	**51%**	**42%**	**36%**	**32%**
Average number of participants per course	**33**	**44**	**47**	**45**	**31**

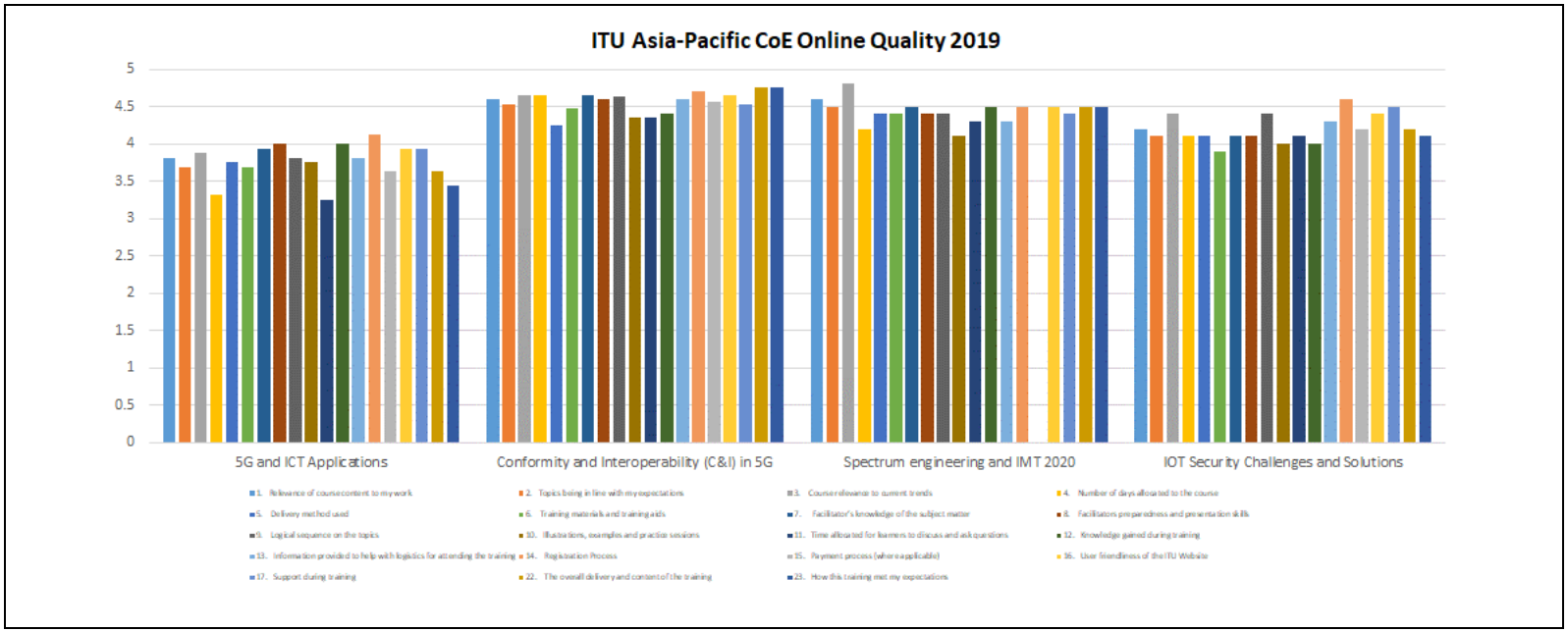
Out of 22 training activities (14 face to face and 8 online), 10 trainings (6 face to face and 4 online) were offered free of charge with support from CoEs and partners.

2.0 EVALUATION OF TRAININGS

The trainings continued to deliver high quality as reflected in the feedbacks of the trainings. The trainings received feedback between 4 and 5 (on a scale of 5). Table 3 provides more details. Some of the reports for the courses are still under preparation.

Table 3: Summary of ITU ASP CoE Feedback Quality




ITU Asia-Pacific CoE Online Quality 2019
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
5G and ICT Applications
Conformity and Interoperability (C&I) in 5G
Spectrum engineering and IMT 2020
IOT Security Challenges and Solutions
1. Relevance of course content to my work
2. Topics being in line with my expectations
3. Course relevance to current trends
4. Number of days allocated to the course
5. Delivery method used
6. Training materials and training aids
7. Facilitator's knowledge of the subject matter
8. Facilitators preparedness and presentation skills
9. Logical sequence on the topics
10. Illustrations, examples and practice sessions
11. Time allocated for learners to discuss and ask questions
12. Knowledge gained during training
13. Information provided to help with logistics for attending the training
14. Registration Process
15. Payment process (where applicable)
16. User friendliness of the ITU Website
17. Support during training
22. The overall delivery and content of the training
23. How this training met my expectations

3.0 CERTIFICATES

In accordance with the framework of CoE processes, participants had to meet specific criteria in order to receive their certificates (a combination of attendance, quality of participation, assignments and tests). The minimum passing score for receiving a certificate was 60%. A summary of outcomes of 2019 is provided in Table 4 and Table 5 respectively.

Table 4: Summary of ITU ASP CoE face-to-face training certificates eligibility for activities in 2019

	Training topics (face to face)	CoE	Dates	Venue	Training fees	Number	Partners	Number of participants eligible for certificates	Percentage
1	Evolution and Emerging Trends of Broadband Access Technologies	ALTTC	20-24 May	Ghaziabad, India	275	19		19	100%
2	Information Security Internal Audit	ALTTC	27-31 May	Ghaziabad, India	275	60		60	100%
3	Spectrum management and IMT 2020 Radio technology application	SRMC	17-21 June	Harbin, China	Free	35		34	97%
4	Smart Sustainable Cities, ICT Applications And E-Government: Incorporating Data, Ne	NIA	15-18 July	Busan, Rep. of Korea	Free	24	WeGo, World Bank	24	100%
5	Broadband Network Security: Issues & Challenges	ALTTC	26-30 Aug	Ghaziabad, India	275	10		10	100%
6	Artificial Intelligence Overview and Applications	NIA	16-19 Sep	Bangkok, Thailand	Free	47	NBTC	34	72%
7	Conformity and Interoperability relating to Smart City	CAICT	18-21 Sep	China	Free	30		30	100%
8	ICT Application relating to Smart City	CAICT	21-24 Sep	China	Free	34		30	88%
9	Traffic engineering and advanced wireless network planning	UTM	30 Sep-3 Oct	Bangkok, Thailand	Free	53	NBTC	33	62%
10	Cyber Security for Enterprises	ALTTC	10-15 Oct	Ghaziabad, India	275	18		18	100%
11	Fifth Generation (5G) Technology, Opportunities and Challenges	UTM	15-17 Oct	Kuala Lumpur, Malaysia	550	28		27	96%
12	Human Exposure to Radio Frequency Electromagnetic Fields	UTM	3-5 Dec	Johor Bahru, Malaysia	550	13		13	100%
13	IoT applications and IoT Security Aspects (report awaited)	ALTTC	9-13 Dec	Ghaziabad, India	275	30			
14	Cyber Network Defense and Cyber Laws	ALTTC	16-20 Dec	Ghaziabad, India	275				
				Percentage of charged courses	55%	401			

Table 5: Summary of ITU ASP CoE online training certificates eligibility for activities in 2019

For online courses that are free though the number are very high the rate of completion is lower than charged. One of the main reasons is lack of financial commitment while registering for the course.

	Online Trainings	CoE	Dates	Training fees	Number	Number of participants eligible for certificates	Percentage
1	5G and C&I	CAICT	15 April - 11 May	Free	91	58	64%
2	IOT Security Challenges and Solutions	IOT Academy	26 Aug-6 Sep	125	59	58	98%
3	Spectrum Engineering and IMT2020	SRMC	1-19 July	Free	88	59	67%
4	5G and ICT Application	CAICT	17 June -19 July	Free	47	29	62%
5	Digital Transformation and Digital Government (report awaited)	NIA	4-29 Nov	Free	68	41	60%
6	Next Generation Broadband Network: Design, Implementation and Applications	ALTTC	25 Nov - 20 Dec	100	5		
7	IOT: Technologies aspects and implementation	ALTTC	16-27 Dec	100			
8	Building IOT Solutions for Energy and Water Resource Management*	IOT Academy	16-27 Dec	125			
					358		

4.0 LESSONS LEARNT AND SUCCESS FACTORS

Some of the key lessons learnt, experiences and success factors include:

- The CoE trainings have been providing very good quality of content aimed at skill development of executives and managers.
- The trainings provide unique content aligned with the mandate and the skills needs of ITU Members, which may not be available locally in most countries.

- The areas of training needs to be updated continuously as new areas of requirement keep on emerging. Some of the existing areas of trainings, such as broadband, need to evolve into areas of new demand e.g. smart technologies, smart cities, e-applications, IoTs.
- The international nature of the content is one important reason for participants to attend these courses.
- Partnership has been the critical factor for the successful delivery of the courses. These partners (e.g. NBTC, WeGo, World Bank) provide great value to the trainings.
- The CoEs have also delivered courses outside their home location, which is very well received.
- Cooperation and synergy between existing ITU activities and partner activities is very important.
- Strong cooperation amongst the Centres as well as between Centres and Partners is critical.
- Promotion of the courses at national and international levels is critical and this is an area that requires improvement.
- Institutional engagement of partners through human resources contacts is important to promote the sale of CoE courses and enable better planning.
- There is a need for the Centres to plan course details well in advance, publish catalogues at the beginning of the year and promote the courses.

5.0 ISSUES FOR CONSIDERATION

The issues for consideration before the Steering Committee include:

- Performance of the ITU Asia-Pacific CoE for 2019
- Approval of training plan for 2020
- Number of training courses
- Balance of online and face to face courses
- Announcement of course in advance
- Strong emphasis on quality of content, delivery and experience is critical
- Fees collection and reconciliation issues needs to be addressed
- International participants numbers as a percentage of total has reduced
- Promotion of training is a key issue

6.0 FUTURE AREAS OF TRAININGS PROVIDED IN FEEDBACKS (INDICATIVE)

Summary of topics proposed in feedbacks
Spectrum Auction / Bidding. Spectrum Engineering

Spectrum planning
IMT-2020 Spectrum decisions after WRC 19
Spectrum monitoring
Coordination on space services and terrestrial service, the examples and cases on the coordination about space service.
Technical principle of 5G air interface and analysis of anti-interference performance.
Frequency engineering and planning
Aeronautical radio management
Radio monitoring short range devices
Freq licensing and monitoring procedure
Solving radio interference situations especially between 5G and Satellite Earth Station.
Radio monitoring and international interference detection.
Special course on data management for monitoring and to analyse the result of big data into 5G testing techniques
Monitoring centre best practices
Visit monitoring centre of 3G/4G etc.
Interference analysis and practices
Type approval processes
Antenna communication, Propagation
5G technology
5G commercialization
5G economics in the future
Rules and regulations on 5G
5G testing
6G
5G backbone technology, SDN etc.
Support NFU and cloud network
mMTC use cases in 5G.
KPI,IoT, Big Data, AI, Space Law, Broadcast band for microsatellites
Blockchain
Fintech
Focus more on law, regulatory and philosophy
AI Regulation
AI and Machine Learning
IOT Regulation
IOT & Machine Learning
Free trainings for administrations on NGN, 5G and IoT
Future networks; Artificial Intelligence, Network Function Virtualization

Satellite communications and high throughput satellite
QOS/EMF radiation
Security trust and privacy
Control automation or IOT applications
More about financing of smart cities including loans and grants
Data mining
Data analysis, more in IoT
Big data analysis
Big data integration
Security on the radio network.
Emergency telecommunication
Digital skills, Big data and statistics

ANNEX 3: LIST OF COE TRAINING COURSES FOR 2020

	Training topics	CoE	Dates	Venue	Training fees	Partners
1	Spectrum Monitoring Technologies and Practice	SRMC	Sep	Chengdu	Free	
2	Data-driven Governance	NIA	24-28 Aug	Seoul	Free	APCICT
3	Digital Platform with Emerging Technologies	NIA	21-24 Sep	Bangkok	Free	NBTC
4	Building IoT Solutions for Smart Sustainable Cities	IOT ACADEMY	15-19 Aug	Tehran	500	
5	IoT Advanced Applications & Industry 4.0	ALTTC	20 - 24 April	Ghaziabad	275	
6	Data Protection Framework with Security Policy & Audit	ALTTC	21 - 25 July	Ghaziabad	275	
7	Digital infrastructure planning	ALTTC	24 – 28 Aug	Ghaziabad	275	ITRC
8	Cyber Security and Critical Infrastructure Protection	ALTTC	08- 12 Sept	Ghaziabad	275	
9	Future Network Security, Conformity & Interoperability	CAICT	11-14 May	Shenzen	Free	BRICS institute for future network
10	5G Technology and Applications in practice	CAICT	19-23 Oct	Shanghai	Free	ITRC
11	Fifth Generation (5G) Radio Access Network Planning and Coexistence	UTM	14-16 April	Kuala Lumpur	600	
12	Human Exposure to Radio Frequency Electromagnetic Fields	UTM	Nov	Iran	Free	ITRC
13	Human Exposure to Radio Frequency Electromagnetic Fields	UTM	14-16 April	Johor Baru	600	
14	Spectrum pricing, auction and allocation	SRMC	7-10 Sep	Bangkok	Free	NBTC
	Online Trainings	CoE	Dates	Venue	Training fees	
1	C&I relating to Smart City	CAICT	6-24 April	ITU Academy	Free	
2	ICT applications relating to smart cities and communities	CAICT	13-31 July	ITU Academy	Free	
3	Government Innovation based on Emerging Tech	NIA	4-29 Nov	ITU Academy	Free	
4	Advanced Broadband Network QoS and Applications	ALTTC	17 Feb – 06 Mar	ITU Academy	100	
5	IoT Sensors and Network for Disaster Communication	ALTTC	02 – 13 Nov	ITU Academy	100	
6	Digital Transformation: Enhancing IoT-Driven Accessibility	IOT ACADEMY	10-16 Feb	ITU Academy	Free	ITRC
7	Internet of Things	IOT ACADEMY	Nov	ITU Academy	150	