

**GOVERNMENT OF PAKISTAN
MINISTRY OF COMMERCE**

No.5 (2)2021-Admn-I/HR-I

Islamabad, the 24th November, 2021

CIRCULAR

**SUBJECT: ICT TRAINING & CERTIFICATION PROGRAM FOR
GOVERNMENT EMPLOYEES**

Please find enclosed herewith a copy of self explanatory letter No. 1-23/2019-IT dated 22nd November 2021 received from Ministry of Information Technology & Telecommunications on the above mentioned subject for placing on the website of the Ministry of Commerce for information.

2. All the concerned/interested officers of the Ministry and its attached departments, who fulfill the eligibility criteria, may forward their nominations, duly approved by the respective head of the wing to HR-I section **at the earliest.**

Encl: **As above**


(Muhammad Arshid)
Deputy Director

✓ Database Administrator,
Ministry of Commerce
Islamabad



Government of Pakistan
Ministry of Information Technology & Telecommunications
DIGITAL PAKISTAN

1-23/2019-IT

Islamabad the 22nd November, 2021

SUBJECT: ICT TRAINING & CERTIFICATION PROGRAM FOR GOVERNMENT EMPLOYEES.

In compliance to the directions of Honorable President of Islamic Republic of Pakistan, and as per vision of Honorable Prime Minister of Islamic Republic of Pakistan, for creating and enabling Digital Pakistan, Ministry of IT & Telecommunication have started major Information Communication Technologies (ICT) initiatives including e-Government, e-Learning, e-Health, and other schemes that are designed to boost the adoption of ICT based applications within public sector as well as creating a knowledge society. Ministry of IT & Telecom is working on these major e-Initiatives in the hope of minimizing the technology gap for employees serving under Government of Pakistan especially in ICT sector. Developing the potential of this wealth as envisioned by Prime Minister's #Digital Pakistan Initiative will make the country a formidable player in the international Knowledge Economy.

2. In view of foregoing, Ministry IT & Telecom has engaged Huawei Technologies. Co, Ltd for the provision of ICT trainings to the Government employees working in field of ICT. The "ICT Training Program." is divided into 2 tracks, Carrier Network & Ecosystem Track and ICT Infrastructure Track. The program and its deliverables will not only revamp the skills of the government employees but will also help them build a Digital Pakistan taking a step forward towards Digital Government Digital Pakistan.

3. Keeping in view of the above, it is desired to nominate around 50 resources (Grade 17 and above serving in ICT & Management domain for the subject online training along with their complete portfolio as per appendix-C (1.e. Name, Designation, Cell Phones, E-mails, required training, reporting supervisor etc.).

4. Ministry of IT and Telecom is planning to start the 2nd phase of abcve-mentioned online training during November, 2021, therefore nomination for the abcve-mentioned training may please be provided at the earliest.



(Fakhira Akram)
Section Officer - IT
Ph: 9215348

To,

All Federal Secretaries,
Government of Pakistan

Cc,

1. Additional Secretary, Ministry of IT & Telecom
2. Member - IT, Ministry of IT & Telecom.

ANNEX-A: TRAINING PROPOSAL FOR ICT INFRASTRUCTURE TRACK

TRAINING PROGRAM DESCRIPTION

CUSTOMIZED ICT TRAINING

Sr.No.	TRAINING PROGRAM LIST	TYPE	DURATION	LOCATION
1	Data Communication and Network Basics	Lecture, Practice	6 Hours	Online
2	Data Center Overview	Lecture	3 Hours	Online
3	Overview of the Computing System Architecture Storage Cutting-Edge Technology and Trends	Lecture	6 Hours	Online
4	Cloud Computing Overview	Lecture	3 Hours	Online
5	Big Data Industry and Technological Trends	Lecture	3 Hours	Online
6	AI Overview	Lecture	3 Hours	Online
7	Video Conference System Overview	Lecture	3 Hours	Online
8	Video Surveillance Development Trend and Camera Technology Overview	Lecture	3 Hours	Online

TRAINING CONTENTS

1. DATA COMMUNICATION NETWORK BASICS

- Basic Concepts of Data Communication
- Data Transfer Process
- Network Devices and Basic Functions
- Network Type and Topology Type
- Network Engineering
- Network Engineers

2. DATA CENTER OVERVIEW

- DC Development Course
- Basic Modules of a DC
- Evolution Trends of Cloud DCs

3. OVERVIEW OF THE COMPUTING SYSTEM ARCHITECTURE

- Definition of the Computing System
- Product types of computing system
- Introduction to major players in the computing system

STORAGE @ CUTTING-EDGE TECHNOLOGY AND TRENDS

- Latest Storage Technologies and Trends
- Definition of storage
- Development history of storage
- Evolution of storage technologies
- Latest storage technologies and trends
- Storage products and solutions

STORAGE TECHNOLOGIES FOR AI, BIG DATA AND THE CLOUD

- ICT technologies development trends
- Storage technologies and its application in the cloud
- Storage technologies and its application in AI and Big Data

4. A BRIEF INTRODUCTION TO CLOUD COMPUTING

- Cloud Computing Is Already Here
- Cloud Computing Advantages
- Cloud Computing Definition
- Origin and Development of Cloud Computing
- Cloud Computing Models

5. BIG DATA INDUSTRY AND TECHNOLOGICAL TRENDS

- Big Data Era
- Big Data Application Scope
- Opportunities and Challenges in the Big Data Era
- Huawei Big Data Solution

6. AI OVERVIEW

- AI Overview
- Technical Fields and Application Fields of AI
- Huawei's AI Development Strategy
- AI Disputes
- AI Development Trend

7. VIDEO CONFERENCE SYSTEM OVERVIEW

- Video conference system definition
- Video conference development process and trend
- Huawei Video Conference System Overview
- Huawei video conference technology innovations
- Huawei video conference solution

8. VIDEO SURVEILLANCE NETWORK BASIC KNOWLEDGE AND APPLICATION

- Network basic knowledge
- Video surveillance network solution
- Front-end access network
- Backbone transmission network
- Data Center Network and Security
- Typical case introduction

Annex-B: Training Proposal for Carrier Network & Eco System Track

Training Program Description

Training Program List	Courses
5G On Boarding Training	5G Motivation and Industry Trends Training
	5G Use Cases and Business Model Training
	Global 5G Industry Trend and Carriers' Strategy
	5G E2E Network Evolution and Key Technologies Training
	Oriented to 5G Era WDM Network Evolution
IoT	IoT Trend and Strategy
NFV/SDN	Key to Future Network - SDN Training
	NFV Principal Training

1. 5G MOTIVATION AND INDUSTRY TRENDS TRAINING

OBJECTIVES

- Upon completion of this program, participants will be able to:
- Describe the 5G vision and industry trends
- Understand the factors driving to 5G technology
- Understand the application scenarios of 5G technology

TRAINING CONTENT

- 5G Motivation and Industry Progress
 - Mobile Service Demand Trend and 5G Vision
 - 5G Application Scenarios and Service Demand
- Ultra-Broadband Required in eMBB scenario
- Massive connection requirements in mMTC scenario
- uRLLC Requirements
 - 5G Protocol Standardization & Current Stage
- 5G Protocol Standardization Progress
- 5G NSA and SA Standard
- 5G Terminal and Chipset Development
 - 5G Evolution
- 5G Spectrum and Frequency Band
- 5G New Radio Interface
- 5G Network Architecture
 - 5G Global Commercial Deployment Plan

TRAINING DURATION

- 0.5 working day

2. 5G USE CASES AND BUSINESS MODEL TRAINING

OBJECTIVES

- Describe the business progress and value of 5G.
- Understand 5G use cases and business models

TRAINING CONTENT

- 5G Use Cases and Business Model Training
 - 5G Business Value and Development
- 5G Business Development Forecast
- Benefits brought by 5G to Industries
 - 5G Business Applications and Use Cases
- eMBB Services and Business Applications
- WTTx service and commercial application
- Smart Grid Services and Business Applications .
- IoV services and business applications
- Smart manufacturing services and business applications.
- Innovation X services and business applications
 - 5G Business Model Discussion

TRAINING DURATION

- 0.5 working day

3. GLOBAL 5G INDUSTRY TREND AND CARRIERS' STRATEGY

OBJECTIVES

- Describe Global 5G Industry Trend
- Forecast 5G Development Progress
- 5G MaAnalyze Operator Opportunities in 5G Era
- Plan 5G Strategy based on Local Policy

TRAINING CONTENT

- Global 5G Industry Trend and Carriers' Strategy
 - 5G Industry Trend insight
 - Global 5G Strategy Comparison
- 5G Competition Analysis
- 5G Core Control Point
 - 5G Market Analysis
 - Carriers' 5G Strategy Recommendation

TRAINING DURATION

- 0.5 working day

4. 5G E2E NETWORK EVOLUTION AND KEY TECHNOLOGIES TRAINING

OBJECTIVES

- Describe 5G target network
- Evaluate and select 5G E2E network evolution solution
- Describe 5G Radio\Core\Bearer network key
- Understand the evolution from 4G to 5G technology

TRAINING CONTENT

- 5G E2E Network Evolution and Key Technologies
 - Key Technologies and Evolution of 5G Radio network
- 5G Air Interface Performance Target
- 5G spectrum and deployment policy
- 5G new air interface and comparison with 4G
 - Multiple access F-OFDM technology
 - Numerology
 - Frame structure
 - Coding and modulation
 - Massive MIMO technology
- 5G radio network architecture and cloudification evolution
 - SA/NSA Architecture and Interfaces
 - Overview of the NR Air Interface Protocol Stack
 - DRAN/CRAN/Cloud RAN cloud architecture
- 5G radio network evolution
 - Networking Solution for 5G
 - Key Points of 5G Site and Antenna Feeder Deployment
- 5G Core Network Evolution and Key Technologies
 - 5G core network architecture
 - 5G target network architecture
 - Key characters of 5G Network Architecture
- Networking of the 5G NSA and SA
 - Networking architecture of 5G NSA and SA
 - Evolution of 5G NSA and SA
- NSA Network Deployment
 - NSA Network Function Change
 - Key Points of NSA EPC+ Deployment
 - Voice Solution in NSA Networking
- SA Network Deployment
 - SA Core Network Element and Convergence
 - Key Points of 5GC Network Deployment
 - SA Networking Voice Service Solution

- **5G Bearer Network Evolution and Key Technologies**
 - 5G Bearer Network Requirement Analysis
 - Requirements of the 5G Networking Change on the Bearer Network
 - Requirements of 5G Network Performance on the Bearer Network
 - Requirements of 5G Network Synchronization for the Bearer Network
 - Requirements of 5G Network Slicing on the Bearer Network
- **5G Bearer Solution**
 - 5G Front-haul Network Solution
 - 5G Mid/Back-haul Network Solution
 - 5G Synchronization Solution
 - 5G Network Slicing Solution
- **5G bearer network evolution**

TRAINING DURATION

- 1 working day

5. ORIENTED TO 5G ERA WDM NETWORK EVOLUTION

OBJECTIVES

- Understand the WDM Network Bearer Requirement and Evolution
- Understand the Backbone WDM Network Key Technology

TRAINING CONTENT

OTC187 WDM Network Evolution and Key Technology

- **WDM Bearer Requirement and Key Technology Introduction**
 - WDM Network Bearer Requirement
 - WDM Network Key Technology
 - NetStar Full-Lifecycle Management System

TRAINING DURATION

- 0.5 working day

6. IOT TREND AND STRATEGY

OBJECTIVES

- Understand the current situation and trend of IoT development.
- Understand the development status of IoT services in China, and explore carriers and OTT services in IoT services.
- Analyze carriers' IoT development pain points and understand IoT service development strategies.

TRAINING CONTENT

Trend and Strategy:

- Overall Situation and Trend of IoT Development
- IoT Market Space, Key Services, and Carrier/OTT/Vertical Industry IoT Service

Exploration

- IoT Development Trend (Market, Technology, and Ecosystem)
- China IoT Market Analysis
- IoT policies, terminal development, and key services
- Carriers' IoT service initiatives (network, service, pain point, virtual carrier, and service impact)
- Carriers' IoT Development Strategies and Suggestions

TRAINING DURATION

- 0.5 working day

7. KEY TO FUTURE NETWORK - SDN TRAINING

OBJECTIVES

- Describe the concepts of SDN
- Describe the standards and working process of SDN
- Describe application of SDN in telecom industry
- Describe Huawei SDN based all-service solutions

TRAINING CONTENT

Key to Future Network - SDN Solutions Overview

- Introduction of SDN Full Service network
 - SDN standards, network architecture and working process
 - Application of SDN in telecom industry
 - Overview of Huawei SDN All-Service solution

TRAINING DURATION

- 0.5 working day

8. NFV PRINCIPAL TRAINING

OBJECTIVES

- Describe the concepts of NFV
- Describe the NFV Architecture

TRAINING CONTENT

NFV Principle Training

- NFV key concepts and terminology
- NFV Architecture
- Exploration of NFV functional elements
- NFV key technology introduction
- Huawei NFV solution

TRAINING DURATION

- 0.5 working day

