



# 5G Core Network (SA) Overview

TPR1049d | On-Demand | 5G Core | ⚙️

Course Duration: 4 hours

This training provides a high-level technical overview of the 5G Core Network, which is essential to deploy an end-to-end 5G Standalone (SA) network and exploit new services like network slicing, MEC, and Voice over NR (VoNR).

## Intended Audience

This course is intended for planning, engineering, and operations personnel.

## Objectives

After completing this course, the student will be able to:

- Sketch the end-to-end 5G Standalone (SA) network architecture focusing on 5G Core (5GC)
- Identify roles and connectivity of 5GC NFs such as AMF, SMF, UPF, UDM, PCF, etc.
- Step through the essential operations like Registration and Data Session Setup
- Sketch deployment of MEC, network slicing, and voice solutions in a 5G SA network

## Course Prerequisites

[5G Core Network Overview](#)

## Outline

1. 5G Core Network Architecture
  - 1.1 Principles of 5G Core - Virtualization and CUPS
  - 1.2 Service-Based Architecture (SBA)
  - 1.3 5G Core network architecture for SA
  - 1.4 Network functions and servicesExercise: Build a 5GC network  
Exercise: Knowledge check
2. Deeper Dive on 5G Network Functions
  - 2.1 AMF, SMF, UPF
  - 2.2 Subscriber Management: UDM, UDR, AUSF
  - 2.3 Charging and Policy Functions: PCF, CHF, etc.
  - 2.4 Unique functions: NRF, NEF, NSSF
  - 2.5 Interworking and roaming architecture of 5GExercise: Knowledge check
3. Life of a UE using 5GC
  - 3.1 UE registration
  - 3.2 PDU session setup
  - 3.3 QoS in 5G and comparison with 4GExercise: Message flow for life of a UE  
Exercise: Knowledge check
4. Services in 5G
  - 4.1 Enabling Multi-Access Edge Computing (MEC) using 5G
  - 4.2 Network slicing in 5G
  - 4.3 Voice and SMS in 5G

Exercise: Knowledge check

Putting it all together  
Final Assessment