



# 5G NR Air Interface Overview - Part II

**5G\_102Bd | On-Demand | 5G Access | Express**

**Course Duration:** 1 hour

5G promises to enable a variety of new services, ranging from high-speed, high-capacity broadband access to ultra reliable low-latency communications to massive machine-type communications. To deliver on these promises, the wireless network must change, including the devices, the radio interface, the radio access network (RAN), and the core network. Part I of this self-paced course offers a high-level technical overview of 5G NR (New Radio) air interface. Part II covers the flexible numerologies, channels and frame/slot structure, and steps through the life of a 5G UE, concluding with how the technologies and standards converge to meet the performance goals set for 5G.

## Intended Audience

This course is designed for a broad audience of wireless network engineers. This includes those in RF, RAN planning, engineering, operations, troubleshooting and support groups.

## Objectives

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

- Identify key channels and their usage in the downlink and uplink
- Step through the life of a 5G UE at a high level in non-standalone architecture
- Step through the life of a 5G UE at a high level in standalone architecture
- Identify ways in which 5G NR meets the performance goals of 5G

## Course Prerequisites

No Prerequisites

## Outline

1. Key Signals and Channels of 5G NR
    - 1.1 Downlink signals and channels
    - 1.2 Uplink signals and channels
  2. Life of a 5G UE
    - 2.1 NSA vs. SA operations
    - 2.2 Non-Standalone operations
    - 2.3 Network acquisition
    - 2.4 Attach
    - 2.5 Data transfer
    - 2.6 Standalone Operations
    - 2.7 Network acquisition
    - 2.8 Registration
    - 2.9 PDU session setup
    - 2.10 Data transfer
  3. Meeting 5G Performance Goals
    - 3.1 Ways to achieve higher data rates
    - 3.2 Ways to achieve lower latency
    - 3.3 Ways to achieve higher connection density
- Putting It All Together