5G (SA) RAN Signaling and Operations Part 4: Downlink Data Transfer

5G_214d | On-Demand | 5G Access | ⚙⚙
Course Duration: 4 hours

This is the fourth course in a six-course set of self-paced courses encompassing 5G SA RAN Signaling and Operations! In this course, you will learn about downlink data transfer from a gNodeB to a device. You will explore the necessary signals and feedback the gNodeB needs from the device, how the gNodeB does resource allocation for downlink data, and the use of incremental redundancy for efficient and reliable communications. Each course in this six-course set can stand on its own or can be combined with other courses as necessary to meet your learning objectives.

Intended Audience

5G RAN and device engineering, operations, and performance related job functions

Objectives

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

- Explore the role of beamforming in DL traffic operations
- Identify 5G NR signals and UE measurements related to downlink operation
- Highlight downlink resource allocation and Hybrid ARQ procedures
- Explore RRC signaling messages and parameters for the uplink operation

Course Prerequisites

5G NR Air Interface

Outline

1. Downlink Data Parameters
1.1 Overview of Downlink data transfer in 5G
1.2 Downlink signals and UE measurements
1.3 UE measurement reporting
1.4 SRS and CSI-RS configuration
1.5 CSI metrics
Exercise: CSI-RS configurations
Exercise: CSI Report configurations
Exercise: PDCCH and PDSCH configurations

2. Downlink Data Transfer Operations
2.1 Downlink resource allocation
2.2 Downlink data transfer
2.3 Downlink data transmission with Hybrid ARQ
2.4 Carrier Aggregation (CA) operation
Exercise: Traffic operations in downlink

Assessment