Course ID	Course Title
EGPRS-OPT	**GSM/GPRS/EDGE RAN Optimization: Features and Parameters**
Course Duration	
5 days	

Related Courses

- GSM: Optimization and Advanced Features (GSM-A, 2 days)
- Traffic Engineering Models for Network Design (TRAFFIC, 3 days)
- Traffic Engineering for Voice and Data networks (TELETRAF, 2-3 days)
- EGPRS Engineering: Designing and Optimizing a GPRS/EGPRS Network (EGPRS, 2 days)

Aimed At

Engineers who have prior experience with GSM, GPRS, and EDGE and wish to learn how to optimize GSM/GPRS/EDGE radio networks.

Group Size

5-25

Prerequisites

- GSM: Network Architecture, Operation, and Design (GSM-I, 5 days)
- GPRS: Network Architecture, Operation, and Design (GPRS, 3 days)
- EDGE: Network Architecture, Operation, and Design (EDGE, 2 days)

Course in a Nutshell

GSM/GPRS/EDGE operators worldwide face the challenge of setting the RAN parameters to achieve optimum network performance. Different equipment vendors choose different approaches to solve the same design, optimization, and tuning problems. Different operators make differing architectural and design choices as well, leading to different parameter configurations. To further add to the complexity, an operator may have equipment from multiple vendors. All this makes it difficult to reduce optimization to simple rules of thumb.

In this course, we will study GSM/GPRS/EDGE optimization in all its complexity, including the network parameters for the idle and busy mode of operation, basic and added radio network features and their characteristics, and desired versus actual network performance considering the interaction between the features simultaneously active in a network. The course will conclude with a discussion of real-life design and optimization scenarios.

Customize It!

If you'd like us to focus the course on the specific features and parameters pertinent to your needs, we can do that. We can also tailor it to a particular vendor's equipment of interest to your company. Additionally, we can design case studies specific to your network that can be the basis for in-class hands-on optimization exercises.

Course Outline

- Principles of Tuning and Optimization: An Introduction

- Idle Mode Behavior

  - o Cell selection parameters
  - o Cell reselection parameters
  - o Location updating parameters
  - o Paging parameters

- Handover Algorithm: Locating

  - o Overview of the algorithm steps
  - o Basic ranking procedure
  - o Preparation of the candidates list

- Radio Features and Parameters that Impact the Basic Candidate List

  - o Reasons for and discussion of rearranging the basic candidate list
  - o Hierarchical cell structure
  - o Assignment to other cell
  - o Intra cell handover
  - o Cell load sharing
  - o OL/UL subcells

- Optimizing the Allocation of Resources

  - o Channel administration
  - o Channel allocation optimization
  - o Adaptive multirate

- Dynamic BTS/MS Power Control

- Extending the Network Coverage

  - o GSM->UMTS cell reselection
  - o GSM->UMTS handover procedure

- GPRS Optimization and Fine Tuning

  - o GPRS idle mode behavior
  - o GPRS cell reselection
  - o GPRS channel administration
  - o GPRS link adaptation
  - o EGPRS link quality control

- Wrap-up: Course Recap and Discussion

How You Will Learn

- You will be taught by an instructor who is expert at GSM/GPRS/EDGE/UMTS RAN features and parameters.
- The course will be presented as an interactive lecture interspersed with quizzes, puzzles, practical case studies, and interesting group activities to enrich the instruction and drive home the essential points.
- If you are familiar with a particular vendor's implementation, we will explain the basic features and discuss the similarities and differences with other vendors' implementation.
- You will receive a printed Participant Handbook which will help you remember and retain what you learned in class and apply it on your job.

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