GSM Air Interface

Duration: 3 Days  Course Code: MB50

Overview:

The Global System for Mobile communications (GSM) is a well-established technology providing a near global standard for a second-generation cellular telecommunication system. The air interface is a key area of standardization that permits global compatibility. The capabilities and features available on the air interface have greatly increased since the technology first appeared.

Target Audience:

This course is primarily designed for engineers working for equipment manufacturers and for network operators who are involved in equipment design, manufacturing, network planning, network optimization, strategy determination and deployment of GSM technology. Some will find that this course will satisfy their complete requirements, while for others it will provide one element in a wider study based on primary material and other related Wray Castle courses.

Objectives:

- List and describe the functionality of the network elements related to air interface operation
- State the key radio performance and functional capability requirements of a GSM mobile station
- Describe the radio spectrum bands and radio channel organization for GSM
- Explain how Gaussian Minimum Shift Keying (GMSK) modulation operates and relate this to the radio channel characteristics
- Describe the TDMA slot, multiframe, superframe and hyperframe structures
- List the burst structures used in GSM and explain their structures and their application
- Identify and describe physical layer changes required for the support of the General Packet Radio Service (GPRS) and Enhanced Data Rates for Global Evolution (EDGE)
- List and relate the logical channels to air interface signalling flows and traffic flows
- State the functions of Link Access Protocol on the Dm Channel (LAPDm) and describe the frame structures used in logical channels
- Describe layer 3 signalling flows for call control and mobility management
- Describe idle mode and dedicated mode processes and system behaviour
- Outline the procedures for gaining access to the network for the GPRS mode of operation

Prerequisites:

In order to achieve the maximum benefit from this course, it is recommended that students are familiar with the architecture and general operation of a GSM network. This is best obtained through attendance on our GSM System Overview course.

Follow-on-Courses:

Those involved in network planning and optimization will benefit from following this course with our Cell Planning for GSM Networks, 2G/3G Indoor Coverage Planning and Introduction to UMTS Optimization courses. Network design, switching and transmission is covered in our GSM Architecture and Protocols course, while related technologies are covered in our IP, MPLS, ATM, SDH or CAMEL courses.
Further Information:
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