

Day 1

FN:

9.30 to 11.30 a.m (2 hrs)

Introduction to 802.16/WiMax

- ✍ Wireless Scene
- ✍ Need for 802.16/WiMax
- ✍ Role of 802.16 / WiMax forum
- ✍ Evolution of 802.16/WiMax
- ✍ Overview of WiMax Network
- ✍ Spectrum and Deployment issues

11.30 to 11.45 a.m – Tea Brea

11.45 to 1 p.m (1 hr 15 mins)

RF Basics

- ✍ Basics of wireless transmission and reception
- ✍ Measurement units
- ✍ Antennas
- ✍ Sample link budget

1 to 2 p.m – Lunch

AN:

2 to 3.45 p.m (1 hr 45 mins)

OFDM Basics

- ✍ Motivation for OFDM
- ✍ Basic steps in OFDM
- ✍ OFDM parameters
- ✍ Tx/Rx operation in OFDM

3.45 to 4.00 p.m – Tea Break

4 to 5.30 (1 hr 30 mins)

OFDMA Basics

- ✍ OFDM and multiple access
- ✍ OFDMA in action
- ✍ Issues in OFDMA
- ✍ Comparisons with CDMA
- ✍ Multicellular operations

Day 2

FN:

9.30 to 11 a.m (1 hr 30 mins)

OFDMA in WiMax

- ✍ Key OFDMA parameters in WiMax
- ✍ Subchannel formation in WiMax
- ✍ Types of subchannel formations: PUSC, FUSC, Band AMC

11 to 11.15 a.m – Tea Break

11.15 a.m to 1 p.m (1 hr 45 mins)

OFDMA in WiMax - contd.

- ✍ Interference and frequency diversity
- ✍ Example of PUSC subchannel formation
- ✍ Power control
- ✍ Multicellular operation

1 to 2 p.m – Lunch

AN:

2 to 3.15 p.m (1 hr 15 mins)

Medium Access Control in WiMax

- ✍ Broad role of MAC
- ✍ Concept of connections and CID
- ✍ MAC packet formation; role of headers
- ✍ Analysis on a typical WiMax frame

3.15 to 3.30 p.m – Tea Break

3.30 to 5.30 p.m (2 hrs)

Medium Access Control in WiMax – contd.

- ✍ DL MAP, ULMAP, DCD, UCD, DIUC, UIUC messages
- ✍ Network Entry steps
- ✍ Initial Ranging operations

Day 3

FN:

9.30 to 11 a.m (1 hr 30 mins)

Security in WiMax

- ✍ Introduction to Network security requirements (CIA)
- ✍ Understanding security algorithms - AES, RSA and MD5/SHA
- ✍ Digital certificates (X.509)
- ✍ WiMax security features

11 to 11.15 a.m – Tea Break

11.15 to 1 p.m (1 hr 45 mins)

Security in WiMax – contd.

- ✍ PKMv1 and PKMv2
- ✍ Mutual Authentication with EAP-TLS, EAP-SIM methods
- ✍ Security keys in WiMax
- ✍ Security Associations
- ✍ Security during mobility
- ✍ Double EAP

1 to 2 p.m - Lunch

AN:

2 to 3.30 p.m (1 hr 30 mins)

QoS in WiMax

- ✍ Overview of QoS
- ✍ Types of QoS in WiMax
- ✍ Grant mechanisms for different QoS classes
- ✍ Tools to measure QoS performance

3.30 to 4 p.m – Tea Break

4 to 5.30 p.m (1hr 30 mins)

Mobility in WiMax

- ✍ Types of radio handovers
- ✍ Steps in hard handover
- ✍ Network Mobility
- ✍ Mobile IP

Practical Demonstrations:

Security aspects – Digital certificates, EAP-TLS, 802.1x, RADIUS etc.,

Testing tools – Chariot, iperf/jperf, tstat, Wireshark etc.,