Wireless Network

B.E. Sem. VIII [EXTC]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	3 Hrs.	100
Practical Exam	–	–
Oral Exam	–	25
Term Work	–	25

SYLLABUS

Objective: To understand the concept of wireless WAN, WAP and different IEEE standards.

1. **Wide Area Wireless Networks (WANs) – GSM Evolution**
   Introduction, GSM evolution for data, Third-Generation (3G) Wireless Systems.
   UMTS Network Reference Architecture, Channel Structure in UMTS Terrestrial Radio Access Network, UMTS Terrestrial Radio Access Network Overview, UMTS Core Network Architecture, Adaptive Multi-Rate Codec for UMTS, UMTS Bearer Service, HSDPA.

2. **Wide Area Wireless Networks (WANs) – CDMA One Evolution**
   Introduction, cdma2000 Layering Structure, Forward Link Physical Channels of cdma2000, Forward Link Features, Reverse Link Physical Channels of cdma2000.
   Evolution of cdmaOne (IS-95) to cdma2000, Technical Differences between cdma2000 and WCDMA.

3. **Planning and Design of Wide Area Wireless Networks**
   Introduction: Planning and Design of a Wireless Network, Radio Design for a Cellular Network, Receiver Sensitivity and Link Budget.

4. **Wireless Application Protocol (WAP)**
   Introduction, WAP and the World Wide Web (WWW) , Introduction to Wireless Application Protocol, The WAP Programming Model ,WAP Architecture, WAP Advantages and Disadvantages, Applications of WAP, imode, imode versus WAP.

5. **Wireless Personal Area Network – Bluetooth**
   Introduction, The Wireless Personal Area Network, Bluetooth (IEEE 802.15.1),
   Definitions of the Terms Used in Bluetooth, Bluetooth Protocol Stack, Bluetooth Link Types, Bluetooth Security, Network Connection Establishment in Bluetooth, Network Topology in Bluetooth, Bluetooth Usage Models, Bluetooth Applications, WAP and Bluetooth

   Wireless Personal Area Networks (WPAN): Low Rate (LR) and High Rate (HR)
   Wireless Sensor Network, Usage of Wireless Sensor Networks, Wireless Sensor Network Model, Sensor Network Protocol Stack, ZigBee Technology, IEEE 802.15.4 LR-WPAN Device Architecture, IEEE 802.15.3a 0 Ultra WideBand, Radio Frequency Identification.

6. **Wireless Local Area Networks (WLANs)**
   WLAN Equipment, WLAN Topologies, WLAN Technologies, IEEE 802.11 WLAN
   Joining an Existing Basic Service Set, IEEE 802.11n, IEEE 802 16, World Interoperability for MicroAccess, Inc. (WiMAX).

Reference Books:

1. Wireless communication and Networking (*Vijay Garg*) ELSEVIER Inc.
2. Wireless Communication (*Singal*) TMH
3. Next Generation Wireless Systems and Networks (*Hsiao – Hwa Chen, Mohsen Guizani*) Wiley.
4. Wireless and Mobile Networks-Concepts and protocols (*Dr Sunilkumar S. Manvi, Mahabaleshwar S. Kakkasageri*) Wiley.
5. Essentials of UMTS (*Christopher Cox*) Cambridge.

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