

PAPER – XIII – ELECTIVE – II – WIRELESS COMMUNICATIONS

UNIT – I

Fundamental Concepts: Introduction – Brief History of Wireless Communication – Elements of a Wireless Communication System – Signals and noise – The Frequency Domain – The Radio Frequency Spectrum.

Analog Modulation Schemes: Introduction – Amplitude Modulation – Suppressed – Carrier AM Systems – Frequency and Phase Modulation.

Digital Communication: Introduction – Sampling – Pulse – Code Modulation – Delta Modulation – Data Compression.

UNIT – II

Digital Modulation: Introduction – frequency – shift keying – Phase – Shift keying – Quadrature Amplitude Modulation – Multiplexing and Multiple Access.

Basic Telephony: Introduction – Network topology – The Local loop and its Signals – Digital Telephony – Telephone – Network Signaling – Digital Local Loops.

Transmission Lines and Wave Guides: Introduction – Electromagnetic Waves – Propagation on Transmission Lines.

UNIT – III

Radio Propagation : Introduction – Free space propagation Terrestrial Propagation – Satellite Propagation.

Antennas: Introduction – Simple Antennas – Antenna characteristics – Other simple antennas – Antenna Arrays – Reflectors – Cellular and PCS Antennas.

Transmitter and Receiver Circuitry: Introduction – Transmitters – Receivers – Transceivers.

UNIT – IV

Cellular Radio: Introduction – Historical overview – Introduction to the Advanced Mobile Phone System (AMPS) – AMPS control system – Security and Privacy – Cellular Telephone Specifications and Operations – Cell – Site Equipment – Fax and Data Communication using cellular phones – Digital Cellular Systems.

Personal Communication Systems: Introduction – Differences Between Cellular Systems and PCS – IS – B6 (TDMA) PCS – GSM – IS -95 CDMA PCS.

UNIT – V

Satellite – Based Wireless Systems: Introduction – Satellite Orbits – Use of satellites for communication – Satellites and Transponders – Signal and Noise Calculation.

Paging and Wireless and Networking: Introduction – Paging and Messaging Systems – Wireless Local Area Networks – Wireless Pocket – Data Services.

Text Book:

Toy Blake, “Wireless Communications Technology”, Delman Thomson learning, 2001.

Reference Books:

1. Andress F.Molisch, “Wideband Wireless Digital Communications”, Pear Education Asia, 2001.
2. Dr.Kamilo Feher, “Wireless Digital Communications – Modulation & Spread Spectrum Application”, PHI 2001.