

EL- 802: Modern Communication System

Core Paper
Total Periods: 48

Unit-1 (P-15)

Advanced Digital Modulation Technique: DPCM, DM, ADM.
Binary Line Coding Technique, Multi level coding, QAM (Modulation and Demodulation) Multiple Access Techniques: Concept, FDMA, TDMA, CDMA.

Unit-2 (P-11)

Optical Communication: Introduction of Optical Fiber, Types of Fiber, Guidance in Optical Fiber, Attenuation and Dispersion in Fiber, Optical Sources and Detectors, Block Diagram of optical communication system, optical power budgeting

Unit-3 (P-11)

Mobile communication: Introduction to Wireless Communication Systems, Second Generation(2G) and Third Generation(3G) network standards, Concept of Frequency Reuse, Cellular Modulation Techniques for Mobile Radio, Multiple Access Techniques for Wireless Communications, ALOHA Protocols, IEEE standard for wireless Systems, GSM & CDMA System.

Unit-4 (P-11)

Satellite Communication: Ground wave propagation, sky wave propagation-the ionosphere, space waves, tropospheric scatter propagation, extraterrestrial communications, Orbital motion, geostationary orbits, low earth orbiting satellites, Satellite Frequency(S,C,KU,KA), Satellite communication Systems-Block Diagram and its application.

Essential Text:

Unit-1

Chapter 15&19 W. Tomasi, Electronic Communication Systems: Fundamentals through Advanced, Pearson Education, 3rd Edition

Chapter 7(7.7) & 8 (8.7) Martin S. Roden, Analog & Digital Communication Systems, Prentice Hall, Englewood Cliffs, 3rd Edition

Unit-2

Chapter 7 Thiagarajan Vishwanathan, Telecommunication Switching Systems and Networks, Prentice Hall of India.

Unit-3

Chapter 1-3 Theodore S. Rappaport, Wireless Communications Principles and Practice, 2nd Edition, Pearson Education Asia.

Unit-4

Chapter 18 W. Tomasi, Electronic Communication Systems: Fundamentals through Advanced, Pearson Education, 3rd Edition

Suggested Books :

1. Dennis Roddy, Satellite Communications, 4th Edition, Tata McGraw-Hill.
2. G. Kennedy and B. Davis, Electronic Communication Systems, Tata McGraw Hill
3. L. E. Frenzel, Communication Electronics, Principles and Applications, Tata McGraw Hill
4. L. W. Couch, II, Digital and Analog Communication Systems, Pearson Education

5. S. Haykin, communication systems, 2nd edition, Wiley Eastern.

Practicals: (Any five to be done)- Modern Communication Systems

1. Modulation of LED and detection through Photo detector.
2. Calculation of the transmission losses in an optical communication system.
3. Study of 16 QAM modulation and Detection with generation of Constellation Diagram
4. Study of DPCM and demodulation.
5. Study of DM, ADM
6. Study of architecture of Mobile phone.