

**B.TECH III YEAR; SESSION: JAN-JUNE 2024
EC35511: MOBILE COMMUNICATION**

LECTURE PLAN

Lecture No.	Topic / Sub Topic planned to teach
1.	Introduction and overview of syllabus
2.	Unit 1: Introduction to radio communication and review of cellular architecture
3.	Concept of Frequency reuse, its significance and reuse distance
4.	Channel assignment strategies, handoff and its strategies, Practical handoff considerations
5.	Types of Interference and system capacity: CCI and ACI
6.	Improving coverage and capacity: Cell splitting, sectoring and Microcell zone concept
7.	Trunked Radio system and Grade of Service
8.	Unit 2: Introduction to radio wave propagation (Large-Scale Fading) & Propagation Mechanisms: Reflection, Diffraction and Scattering
9.	Large-scale path loss Models: Free Space Propagation model & Numericals
10.	Ground Reflection (Two-Ray) Model
11.	Practical Link Budget Design using Path Loss Models
12.	Log-normal shadowing and Log-distance path loss model
13.	Unit 3: Small-Scale Fading and Multipath Propagation, Time-dispersion parameters
14.	Parameters of Multipath Channels: Delay spread, Coherence time, coherence Bandwidth
15.	Types of Small-Scale Fading: slow, fast, flat and frequency selective
16.	Rayleigh and Ricean Distributions, Statistical models
17.	Level crossing and Fading Statistics & Numericals
18.	Unit 4: Fading Mitigation Techniques, Concept of Diversity & different Diversity techniques
19.	Fundamentals of Equalization, techniques & Principle of Adaptive Equalization
20.	Performance Analysis of Rayleigh Fading Channels
21.	CDMA principle and implementation, CDMA codes
22.	Basic CDMA elements, Spread Spectrum and Modulation Techniques
23.	Basics of Multicarrier Modulation
24.	OFDM principle and implementation
25.	Unit 5: Speech Coding, properties of Speech signals
26.	Time-domain and Frequency-domain coding of speech
27.	Vocoders and its types, Linear Predictive Coders
28.	Digital Modulation techniques & their performance
29.	GSM: architecture, GSM Radio Subsystem, GSM logical channels
30.	Types of data bursts and GSM Frame structure