

DEPARTMENT OF INFORMATION TECHNOLOGY ENGINEERING



LESSION PLAN

SUBJECT: MOBILE COMPUTING THEORY

BRANCH: 5TH SEM, IT

FACULTY NAME: MR. DINESH GUPTA

Jharsuguda Engineering School, Jharsuguda

LEARNING OUTCOMES:

After completing this course, student will be able to:

- Explain mobile and wireless network,
- Demonstrate the working principles of infrared, cellular and wireless networks,
- Explain various type of multiplexing schemes,
- Explain voice and data compression,
- Explain Global System for Mobile architecture,
- Explain connectivity technologies like Bluetooth, Wi-Fi.

Sl. No.	Period / Class	Time (min)	Unit	Topic to be covered	Teaching method
1.	1.	60	I	Unit No. 1 Introduction to Wireless and Mobile Network: Historic background	Marker & talk
2.	2.	60	I	Cellular Industry	Marker & talk
3.	3.	60	I	Advantages &disadvantages of Mobile systems	Marker & talk , Live demo
4.	4.	60	I	Cell concepts	Marker & talk
5.	5.	60	I	Wireless Network	Marker, Questioner + Revision+ Discussion
6.	6.	60	II	Unit No. 2 Basics of Wireless & Mobile System: Wire based and wireless systems	Marker & talk
7.	7.	60	II	Infrared systems	Marker & talk
8.	8.	60	II	Cellular radio	Marker, Questioner + Revision+ Discussion
9.	9.	60	II	Concepts of wireless LANS	Marker & talk
10.	10.	60	II	Voice signals-its characteristics	Marker & talk + Live Demo
11.	11.	60	II	Frequency spectrum, digital signal	Marker & talk + Live Demo

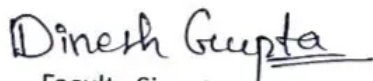
Sl. No.	Period / Class	Time (min)	Unit	Topic to be covered	Teaching method
12.	12.	60	II	Broadband and base band signals	Marker & talk + Question discussion + Revision
13.	13.	60	III	Unit No. 3 Cellular Systems: Cell layout, path-loss, propagation delay	Marker & talk
14.	14.	60	III	Fading, size and shape of cell, Concepts of frequency reuse	Marker & talk + PPT
15.	15.	60	III	Spectrum efficiency	Marker & talk + Real life example
16.	16.	60	III	Cell capacity to handle calls	Marker & talk
17.	17.	60	III	Call demand in a cell, channel requirement	Marker & talk + Case Study
18.	18.	60	III	Cell splitting, cell sectoring concept	Marker & talk, discussion + Revision
19.	19.	60	IV	Unit No. 4 Channel Utilization Schemes: Concepts of Multiplexing	Marker & talk
20.	20.	60	IV	FDM, FDMA	Marker & talk, Diagram Example
21.	21.	60	IV	TDD, TDM	Marker & talk, Diagram Example
22.	22.	60	IV	TDMA, CDMA	Marker & talk, Diagram Example

Sl. No.	Period / Class	Time (min)	Unit	Topic to be covered	Teaching method
23.	23.	60	IV	Concepts of spread spectrum	Marker & talk
24.	24.	60	IV	Concepts of frequency hopping	Marker & talk
25.	25.	60	IV	Introductory idea on AMPS	Marker & talk
26.	26.	60	IV	Compression operations	Marker & talk + Real life Examples
27.	27.	60	IV	Voice compression and data compression	Marker & talk + Live demo
28.	28.	60	IV	V.42, Fax compression- introductory idea	Marker + talk, Revision + Doubt clear
29.	29.	60	V	Unit No. 5 Global System for Mobile Communication (GSM)	Marker & talk
30.	30.	60	V	Historical background	Marker & talk + Live demo
31.	31.	60	V	SIM	Marker & talk
32.	32.	60	V	GSM	Marker + talk, Doubt clear
33.	33.	60	V	Overview of GSM operations- Registration	Marker & talk
34.	34.	60	V	Call Establishment	Marker & talk + case study
35.	35.	60	V	Roaming	Marker & talk

Sl. No.	Period / Class	Time (min)	Unit	Topic to be covered	Teaching method
36.	36.	60	V	GSM channel and operations	Marker & talk, Examples, Questioner + Revision
37.	37.	60	VI	Unit No. 6 Blue tooth and Wireless LANS: Need of compatibility	Marker & talk
38.	38.	60	VI	Bluetooth concepts, Comparison with IR system,	Marker & talk + Live demo
39.	39.	60	VI	Architecture, potential applications	Marker & talk, case study
40.	40.	60	VI	IEEE802.11x Wireless LAN standard-basic configuration and architecture	Marker & talk,
41.	41.	60	VI	Concept of wireless home networking	Marker & talk, Questioner + Revision
42.	42.	60	VII	Unit No. 7 Security and Privacy: Introduction	Marker & talk
43.	43.	60	VII	frequency hopping spread spectrum, Encryption concepts	Marker & talk
44.	44.	60	VII	Public Key Encryption, Authentication Model,	Marker & talk
45.	45.	60	VII	Smart Card, Biometric Authentication	Marker & talk, Questioner + Final Revision

REFERENCE BOOKS:

1. Mobile Communications by Jochen H Schiller, Pearson Education
2. Mobile and Wireless Networks by Uyless D Black, Prentice Hall
3. Data over Wireless Networks- Blue tooth, WAP & Wireless by Gil Held, TMH
4. The TCP/IP Guide: A Comprehensive, Illustrated Internet Protocols Reference by Charles M. Kozierok, No Strach Press


Faculty Signature


HOD Signature