



DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

LESSON PLAN & WORKDONE DIARY 2026-27 ODD SEMESTER

Course with Code: Wireless Communication – BEC703							Semester: 7th A sec	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
Pre-Requisites								
1		Introduction to the course and course outline	Chalk & Talk					
2		Signals & Systems Basics						
3		Linear Algebra Refresher						
4		Linear Algebra Refresher						
MODULE-1								
5		Introduction and The Wireless Communication Environment, Modelling of Wireless Systems	PPT					
6		System Model for Narrowband Signals	PPT					
7		Rayleigh fading Wireless Channel	PPT					

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8	Rayleigh fading Wireless Channel. Baseband Model of a Wireless System	PPT						
9	Basics of Wireless Channel Modelling, Maximum Delay Spread, RMS Delay Spread	PPT						
10	RMS Delay Based on Average Power Profile	PPT						
11	Average Delay Spread in Outdoor Cellular Channels, Coherence Bandwidth in Wireless Communications	PPT						
12	Relation Between ISI and Coherence Bandwidth	PPT						
13	Doppler Fading in Wireless Systems, Doppler Shift Computation	PPT						
14	Doppler Impact on a Wireless Channel, Coherence Time of the Wireless Channel Quiz -1	PPT						

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15		Introduction to CDMA, Basic CDMA Mechanism, Fundamentals of CDMA Codes	PPT					
16		Spreading Codes based on Pseudo-Noise (PN) Sequences, Properties of PN Sequences	PPT					
17		Correlation Properties of Random CDMA Spreading Sequences	PPT					
18		Advantages of CDMA Advantage 1: Jammer Margin Advantage 2: Graceful Degradation Advantage 3: Universal Frequency Reuse	PPT					
19		Multipath Diversity and Rake Receiver	PPT					
20		Introduction Motivation and Multicarrier Basics Multicarrier Transmission	PPT					
21		Cyclic Prefix in OFDM, Impact of Cyclic Prefix on Data Rate	PPT					

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22		OFDM Example, MIMO-OFDM	PPT					
23		OFDM–Peak-to-Average Power Ratio (PAPR)	PPT					
24		SC-FDMA, Quiz-2	PPT					
MODULE -3								
25		First Generation Cellular Systems Advanced Mobile Phone Service (AMPS)	PPT					
26		2G Digital Cellular Systems GSM and Its Evolution 3G Broadband Wireless Systems	PPT					
27		Key Enabling Technologies and Features of LTE Orthogonal Frequency Division Multiplexing (OFDM) SC-FDE and SC-FDMA	PPT					

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28	Channel Dependent Multi-user Resource Scheduling Multiantenna Techniques IP-Based Flat Network Architecture	PPT						
29	LTE Network Architecture	PPT						
30	Multiple Access for OFDM Systems Multiple Access Overview Random Access vs. Multiple Access	PPT						
31	Frequency Division Multiple Access (OFDM-FDMA) Time Division Multiple Access (OFDM-TDMA) Code Division Multiple Access (OFDM-CDMA or MC-CDMA)	PPT						
32	Orthogonal Frequency Division Multiple Access (OFDMA)	PPT						

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		OFDMA: How It Works OFDMA Advantages and Disadvantages						
33		Single-Carrier Frequency Division Multiple Access (SC-FDMA) SC-FDMA: How It Works SC-FDMA Advantages and Disadvantages	PPT					
Module-4								
34		Introduction to MIMO Wireless Communications MIMO System Model	PPT					
35		MIMO Zero-Forcing (ZF) Receiver	PPT					
36		Properties of the Zero-Forcing Receiver Matrix	PPT					

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		Principle of Orthogonality Interpretation of ZF Receiver						
37		MIMO MMSE Receiver	PPT					
38		Robustness of MMSE to Noise Amplification Low and High SNR Properties of the MMSE Receiver	PPT					
39		Singular Value Decomposition (SVD) of the MIMO Channel	PPT					
40		Singular Value Decomposition and MIMO Capacity	PPT					
41		Optimal MIMO Capacity	PPT					
42		Alamouti and Space-Time Codes Alamouti Code: Procedure	PPT					
43		Another OSTBC Example	PPT					
44		Nonlinear MIMO Receiver: V- BLAST	PPT					

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		Quiz-3						
Module -5								
45		Introduction to LTE Design Principles	PPT					
46		Network Architecture Radio Interface Protocols	PPT					
47		Hierarchical Channel Structure of LTE Logical Channels: What to Transmit Transport Channels: How to Transmit	PPT					
48		Physical Channels: Actual Transmission Channel Mapping	PPT					
49		Downlink OFDMA Radio Resources	PPT					



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		Frame Structure						
50		Physical Resource Blocks for OFDMA Resource Allocation Supported MIMO Modes	PPT					
51		Uplink SC-FDMA Radio Resources Frame Structure Physical Resource Blocks for SC-FDMA	PPT					
52		Resource Allocation Supported MIMO Modes (Quiz)	PPT					



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Sl. No	Activity	Planned	Actual	Remarks
1	Theory Classes			
2	Assignments/ Quizzes/ Self-study			
3	Tutorials/ Extra classes			
4	Internal Assessments			
5	ICT based Teaching (% of usage in Curriculum)			
Planning		Execution		
Faculty Signature:		Faculty Signature:		
HoD Signature:		HoD Signature:		