

LECTURE PLAN

Lecture	Topic
L1	INTRODUCTION TO SUBJECT
L2	EVOLUTION OF MOBILE RADIO COMMUNICATIONS
L3	EXAMPLES OF WIRELESS COMM. SYSTEMS, PAGING SYSTEMS
L4	CORDLESS TELEPHONE SYSTEMS, COMPARISON OF VARIOUS WIRELESS SYSTEMS.
L5	SECOND GENERATION CELLULAR NETWORKS, THIRD GENERATION WIRELESS NETWORKS
L6	WIRELESS IN LOCAL LOOP, WIRELESS LOCAL AREA NETWORKS
L7	BLUETOOTH AND PERSONAL AREA NETWORKS.
L8	REVISION OF UNIT 1
L9	SPECTRUM ALLOCATION, BASIC CELLULAR SYSTEMS
L10	PERFORMANCE CRITERIA, OPERATION OF CELLULAR SYSTEMS
L11	ANALOG CELLULAR SYSTEMS, DIGITAL CELLULAR SYSTEMS.
L12	FREQUENCY REUSE, CHANNEL ASSIGNMENT STRATEGIES,
L13	HANDOFF STRATEGIES, INTERFERENCE AND SYSTEM CAPACITY,
L14	TRACKING AND GRADE OFF SERVICE
L15	IMPROVING COVERAGE AND CAPACITY.
L16	REVISION OF UNIT 2
L17	DISCUSSION OF SESSIONAL 1
L18	INTRODUCTION TO MULTIPLE ACCESS
L19	FDMA
L20	TDMA
L21	SPREAD SPECTRUM MULTIPLE ACCESS
L22	SPACE DIVISION MULTIPLE ACCESS
L23	PACKET RATIO, CAPACITY OF A CELLULAR SYSTEMS.
L24	REVISION OF UNIT 3
L25	GSM
L26	IS-95
L27	UMTS-IMT-2000
L28	SIGNALING, CALL CONTROL
L29	MOBILITY MANAGEMENT AND LOCATION TRACING.
L30	REVISION OF UNIT 4
L31	DISCUSSION OF SESSIONAL 2
L32	CONTENT BEYOND CURRICULUM

LECTURE PLAN

Lecture	Topic
L1	Microwave Resonators: Brief description of waveguides
L2	Coplanar waveguides
L3	Cavity resonators: rectangular, cylindrical,
L4	Cavity resonators: spherical and coaxial
L5	Excitation and coupling of cavities
L6	Q-factor.
L7	Microwave Measurements: Measurement of Frequency
L8	Measurement of Impedance (using slotted section), attenuation,
L9	Microwave Measurements: power, dielectric constant
L10	Measurement of V.S.W.R.
L11	Measurement of Insertion loss and permeability
L12	Microwave Generators: Construction, characteristics
L13	operating principle and typical applications of Klystron (two cavity, multicavity)
L14	Reflex Klystron
L15	Magnetron (Cylindrical magnetron and description of Π mode applications)
L16	Magnetron (Cylindrical magnetron and description of Π mode applications) contd.
L17	Traveling Wave Tube(TWT).
L18	Matrix Description of Microwave Circuits: Scattering Matrix: properties
L19	Measurement of scattering coefficients
L20	Scattering matrices for common microwave systems
L21	Microwave Components: Waveguide tees- E-plane
L22	H-plane, magic tee
L23	rat race, directional coupler
L24	Tuning screws and stubs
L25	Isolators and circulators- their constructional features
L26	Isolators and circulators- Applications
L27	Microwave filters, Phase shifters
L28	Attenuators and frequency meter.
L29	Solid State Microwave Devices: Transferred Electron Devices-Gunn Effect
L30	Negative differential resistance phenomenon
L31	Field domain formation
L32	Gunn diode structure
L33	Avalanche transit time devices
L34	IMPATT diode
L35	TRAPATT, BARITT diodes
L36	Parametric amplifiers.

LECTURE PLAN

LECTURE	TOPIC
L1	Definition of Transducer
L2	Advantages of an Electrical Signal as Output
L3	Basic Requirements of Transducers
L4	Primary and Secondary Transducer.
L5	Analog or Digital Types of Transducers
L6	Resistive
L7	Inductive
L8	Capacitive
L9	Piezoelectric
L10	Photoelectric
L11	Hall Effect Transducers
L12	Measurement of Pressure- Manometers
L13	Force Summing Devices and Electrical Transducers
L14	Measurement of Temperature- Metallic Resistance Thermometers
L15	Semi Conductor Resistance Sensors
L16	Thermistors
L17	Thermoelectric Sensors
L18	Pyrometers
L19	Measurement of Displacement- Potentiometric Resistance Type Transducers
L20	Inductive Type Transducers
L21	Differential Transformer (LVDT)
L22	Capacitive Transducers
L23	Hall Effect Devices
L24	Strain Gauge Transducers
L25	Measurement of Velocity- Variable Reluctance Pick Up
L26	Electromagnetic Tachometers
L27	Photoelectric Tachometer
L28	Toothed Rotor Tachometer Generator
L29	Measurement of Force - Strain Gauge Load Cells
L30	Pneumatic Load Cell
L31	LVDT Type Force Transducer
L32	Measurement of Torque- Torque Meter
L33	Torsion Meter
L34	Absorption Dynamometers
L35	Inductive Torque Transducer
L36	Digital Methods

LECTURE PLAN

LECTURE	TOPIC
L1	Radar Basics: Radar Block Diagram & operation
L2	Application of Radar
L3	Simple form of Radar Equation,
L4	Minimum Detectable Signal
L5	Receiver Noise
L6	Signal to Noise Ratio
L7	Transmitter Power
L8	Pulse Repetition Frequency
L9	Range Ambiguities
L10	System Losses
L11	Propagation effects
L12	CW & Frequency Modulated Radar, The Doppler Effect
L13	CW Radar
L14	FM- CW Radar
L15	Multiple Frequency CW Radar
L16	Introduction to MTI and Pulse Doppler Radar
L17	Delay Line Cancellors, Multiple or Staggered
L18	Pulse Repetition frequencies
L19	Range-Gated Doppler Filters
L20	MTI Delay Line
L21	Limitation of MTI performance
L22	Noncoherent MTI Pulse, Doppler Radar
L23	MTI from a moving platform
L24	Tracking with Radar
L25	Sequential Lobbing
L26	Conical Scan
L27	Monopulse Tracking Radar
L28	Tracking in range
L29	Acquisition
L30	Introduction to Receivers, Displays & Duplexers
L31	Radar Receivers
L32	Noise Figure
L33	Mixer
L34	Low-Noise Front Ends
L35	Displays
L36	Duplexer, Receiver Protectors