

M-SCHEME DETAILED SYALLABUS

34051 ADVANCED COMMUNICATION SYSTEMS

UNIT I RADAR AND NAVIGATIONAL AIDS

Basic Radar System– Applications – Radar Range Equation (Qualitative Treatment Only) – Factors Influencing Maximum Range – Basic Pulsed Radar System – Block Diagram – Display Methods- A - Scope, PPI Display - Instrument Landing System – Ground Controlled Approach System.

TELEPHONY AND FAX

Telephone System–Public Switched Telephone Network (PSTN) - Electronic Switching System – Block Diagram – ISDN – Architecture, Features - Video Phone – Block Diagram.

FACSIMILE COMMUNICATION SYSTEM

Facsimile Sender-Cylindrical Scanning – Facsimile Receiver- Synchronization – Phasing - Index Of Cooperation (IOC) - Direct Recording.

UNT II DIGITAL COMMUNICATION

Basic Elements Of Digital Communication System - Block Diagram- Characteristics Of Data Transmission Circuits Bandwidth Requirement – Speed - Baud Rate - Noise - Crosstalk – Distortion

DIGITAL CODES

ASCII Code – EBCDIC Code - Error Detection Codes – Parity Check Codes – Redundant Codes - Error Correction Codes – Retransmission- Forward Error Correcting Code – Hamming Code - Digital Modulation Techniques – ASK, FSK, PSK, QPSK Modulation/Demodulation Techniques (Only Block Diagram And Operation).

UNIT III OPTICAL COMMUNICATION

Optical Communication System – Block Diagram – Advantages Of Optical Fiber Communication Systems – Principles Of Light Transmission In A Fiber Using Ray Theory – Single Mode Fibers, Multimode Fibers – Step Index Fibers, Graded Index Fibers (Basic Concepts Only) – Attenuation In Optical Fibers – Absorption Losses, Scattering Losses, Bending Losses, Core And Cladding Losses Optical Sources – LED - Semiconductor LASER – Principles – Optical Detectors – PIN And APD Diodes - Connectors - Splices – Couplers – Optical Transmitter – Block Diagram –

For Notes, Syllabus, Question Papers and Many more

Optical Receiver – Block Diagram - Application Of Optical Fibers – Networking, Industry And Military Applications.

UNIT IV SATELLITE COMMUNICATION

Satellite system

Kepler's I,II,III laws – orbits – launching orbits – types - Geostationary synchronous satellites - Advantages – Apogee – Perigee - Active and passive satellite - Earth eclipse of satellite

Antenna

Parabolic reflector antenna – cassegrain antenna. Space segment: Power supply- Attitude control- station keeping – Transponders – TT and C subsystem – Antenna subsystem

Earth segment

Block diagram of Transmit receive earth station - Satellite mobile services - Basics of GPS.

MICROWAVE COMMUNICATION

Microwave frequency ranges - microwave devices – Parametric amplifiers – Travelling wave tubes – simple block diagram of microwave transmitter, receiver and microwave link repeater

UNIT V MOBILE COMMUNICATION

(Qualitative Treatment only) Cellular telephone– fundamental concepts – Simplified Cellular telephone system - frequency reuse – Interference – Co-channel Interference – Adjacent Channel Interference – Improving coverage and capacity in cellular systems - cell splitting – sectoring – Roaming and Handoff – Basics of blue tooth technology

SATELLITE MULTIPLE ACCESS TECHNIQUES

TDMA, FDMA, CDMA. Digital cellular system – Global system for mobile communications (GSM) –GSM services - GSM System Architecture – Basics of GPRS.

Reference Books

□ Electronic communication systems - Kennedy - Davis -Fourth Edition - Tata McGraw Hill - 1999.