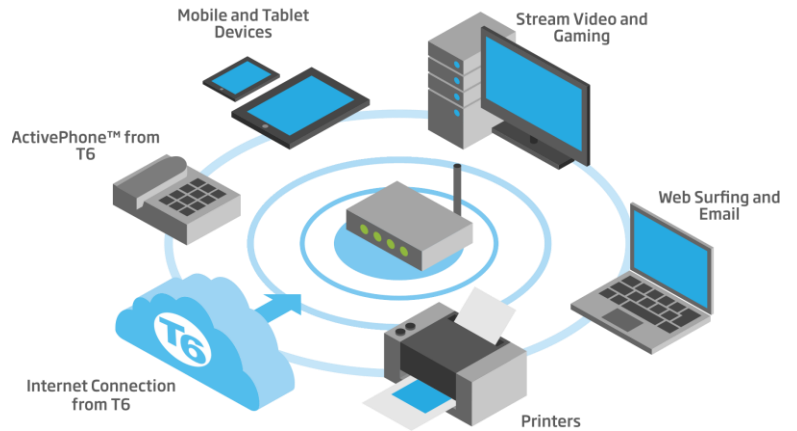


DIPLOMA IN WIRELESS COMMUNICATION TECHNOLOGY



COURSE CONTENT

Electronics use in Telecommunication

Introduction to Transmission Technologies

Wireless Communication Technology

Wireless Communication Techniques

Wireless Communication System

Mobile Communication

Infrared, Blue Tooth, ATM, DSL Communications

EDGE, GPRS, GPS, HSCSD Communications

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SKILL DEVELOPMENT COUNCIL

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BASIC ELECTRICITY AND /ELECTRONICS USE IN TELECOMMUNICATION THEORY

BASIC ELECTRICITY

- 1) Introduction to Basic Electricity
- 2) A.C Supply
- 3) D.C Supply
- 4) Ohms Law with derivation
- 5) Coulomb law
- 6) Kirchoffs laws
- 7) Conductors, Insulators, Dielectrics
- 8) Current, Voltage, Resisters, Capacitors
- 9) Series and Parallel circuits
- 10) Colors coding of Resisters
- 11) Rectifier

DIGITAL ELECTRONICS

- 1) Introduction to Digital Electronics
- 2) Advantages of digital Electronics and uses
- 3) Analog and Digital Signal
- 4) Numbering system and its conversion
- 5) What is clock?
- 6) Digital logic gates
- 7) Flip Flop
- 8) Digital Multiplexer
- 9) Counters
- 10) Adders and Substracters

LIGHT

- 1) Nature of Light
- 2) Reflection of Light
- 3) Refraction of Light
- 4) Refractive Index
- 5) Snell's Law
- 6) Diffraction of Light
- 7) Total Internal Reflection
- 8) Reflection between Frequency Spectrums
- 9) LED and LASER Diode



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10) Photo Diode, Avalanche and Pin Diode

INTEGRATED CIRCUITS

- 1) Type of Integrated Circuits
- 2) How to Integrated Circuits are Made
- 3) Identification of Integrated Circuits
- 4) Advantages of Integrated Circuits
- 5) Disadvantages of Integrated Circuits

INTRODUCTION TO TRANSMISSION TECHNOLOGIES THEORY

- 1) Basic Telecommunication
- 2) Introduction Transmission
- 3) Fundamental Elements of Communication System
- 4) Telephone Network
- 5) Local Line Connection for a Telephone Subscriber
- 6) Conversion of Analog Single into Digital Single
- 7) Media
- 8) Attenuation
- 9) Bandwidth
- 10) Microwave Communication Digital and Analog
(NEC, DRS, NEAR, SRAL)
- 11) High Frequency Communication
- 12) Very High Frequency Communication
- 13) Ultra High Frequency Communication
- 14) Super High Frequency Communication
- 15) Satellite Communication

MULTIPLEXING

- 1) Introduction to Multiplexing
- 2) Frequency Division Multiplexing (F.D.M)
- 3) Time Division Multiplexing (T.D.M)
- 4) Wavelength Division Multiplexing (W.D.M)
- 5) Space Division Multiplexing (S.D.M)
- 6) Code Division Multiplexing (C.D.M)
- 7) P.M



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- 8) F.M
- 9) A.M
- 10) I.M
- 11) Q.A.M

PLUS CODE MODULATION

- 1) Introduction to Plus Code Modulation
- 2) Quantization
- 3) En-Coding and De coding
- 4) Block Diagram of PCM – 30 System

INTRODUCTION TO WIRELESS COMMUNICATION

Introduction to Wireless Communication

- 1) Waves Fronts and Mechanical Waves
- 2) Characteristics Waves and Polarization
- 3) Transfer of Electromagnetic Filed in Atmosphere
- 4) Electrical Properties of Earth Surface
- 5) Reflect Wave Interference and Diffraction
- 6) Frozen Wave Inference and Earth Reflective Zone
- 7) Introduction to Telecommunication
- 8) History of Wireless Communication
- 9) Advantages of Wireless Communication
- 10) Wireless Local Looping
- 11) Technical Requirement of Wireless Communication
- 12) Wireless Communication Tradition
- 13) Introduction to Network Wireless Communication Access Techniques

Introduction to Wireless Communication Technology

- 1) Radiation Patterns.
- 2) Antenna Types.
- 3) Antenna Gain.
- 4) Ground Wave Propagation.
- 5) Sky Wave Propagation.
- 6) Line – of – sight propagation.
- 7) Attenuation and free – space loss.
- 8) Noise, Multi-path and refraction



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WIRELESS COMMUNICATION TECHNIQUES THEORY

- 1) Frequency Division Multiple Access (F.D.M.A)
- 2) Time Division Multiple Access (T.D.M.A)
- 3) Wave Division Multiple Access (W.D.M.A)
- 4) Code Division Multiple Access (C.D.M.A)
- 5) Global System for Mobile Communication (G.S.M)
- 6) Design of Antenna Techniques
- 7) Cordless Techniques
- 8) DECT Communication Techniques
- 9) Personal Communication Network Techniques
- 10) Design of Space Diversity
- 11) BTS Installation Techniques
- 12) Comparison Between Wireless Communication System and Traditional Wireless Access Network
- 13) Comparison Between Wireless and Cellular Communication
- 14) Block Diagram of Wireless Communication System
- 15) Typical Diagram of Wireless Communication System
- 16) Cellular Network Organization.
- 17) Frequency Re – use.
- 18) Increasing Capacity.
- 19) Operation of cellular system
- 20) Signal encoding criteria.
- 21) Digital Data Analog Signals

WIRELESS COMMUNICATION SYSTEM THEORY

- 1) Analog Communication System
- 2) Digital Communication System
- 3) Design of Antenna System
- 4) Cordless System
- 5) DECT Communication System
- 6) Personal Communication Service System
- 7) Satellite Communication System
- 8) Advance Mobile Phone Service (AMPS) System
- 9) Narrow Band Analog Mobile Phone Service (NAMPS) System



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CDMA AND CDMA 2000 SYSTEM

- 1) Introduction Code Division Multiple Access (CDMA)
- 2) Wireless Multi Access Using CDMA
- 3) Cellular Concept
- 4) Frequency Re – Use
- 5) Static Access System
- 6) Demand Assigned Multi Access
- 7) Random Multi Access
- 8) Components of DS – CDMA
- 9) DS Spread Spectrum System With Multi User
- 10) Abstract of Air interface.
- 11) CDMA Number Planning.
- 12) CSWS (CDMA Switch Sub – rack)
- 13) CIPS (CDMA Integrated Processing Sub – rack)
- 14) BTS system and structure.
- 15) Function of all BTS 3606 boards.
- 16) Antenna and feeder system.
- 17) Wireless Communication Channels
- 18) CDMA 2000

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