Lesson Plan

Discipline: ETC	Semester-6th Summer-2022	Name of the Teachng Faculty: Sri Jogeswar Naik (Lecture ETC Engg)
Sl. No.	Subject-Th-1 ADVANCE COMMUNICATION ENGINEERING	No. Of Days/Week class alloted:05	Semester From date:14.03.2022 To date: 10.06.2022 ,No. of weeks: 15

Sl. No.	Weeks/Months	Class Day	Topic
1	3rd week of march	1st	1. RADAR & NAVIGATION AIDS. 1.1 Basic Radar, advantages & applications
		2nd	1.2 Working principle of Simple Radar system , its types
		3rd	1.3 Radar range equation &Performance factor of radar.
		4th	1.4 Working principle of Pulsed Radar system.
2	4th week of march	1st	1.5 Function of radar indication and Working principle of moving target indicator.
		2nd	1.6 Define Doppler effect&Working principle of C.W Radar.
		3rd	1.7 Radar aids to Navigation
		4th	1.8 MTI Radar- working principle
		5th	1.9 Aircraft landing system.
3	5th week of march/ 1st week of april	1st	1.10 Navigation Satellite System.(NAVSAT) & GPS System
		2nd	2. SATELLITE COMMUNICATION 2.1 Basic Satellite Transponder & Kepler's Laws
		3rd	2.2 Satellite Orbital patterns and elevation(LEO,MEO & GEO) categories
		4th	2.3 Concept of Geostationary Satellite, calculate its height, velocity & round
		5th	2.4 Working of the Satellite sub system
4	2nd week of april	1st	2.5 Satellite frequency allocation and frequency bands
		2nd	2.6 General structure of satellite Link system (Uplink, Down link, Transponder, Crosslink)
		3rd	2.7 Working principle of direct broadcast system (DBS)
		4th	2.8 Working principle of VSAT system
		5th	4.7 FDM synchronous TDM
5	3rd week of april	1st	4.8 Statistical TDM
		3rd	4.7 FDM synchronous TDM
		3rd	4.8 Statistical TDM
		4th	2.9 Define multiple accessing & name various types
		5th	2.10 Time Division Multiple Accessing(TDMA) & Code Division Multiple Accessing (CDMA) – block diagram, its
6	4th week of april	1st	2.11 Satellite Application- Communication Satellite(MSAT), Digital Satellite Radio.
		2nd	2.12 Working principle of GPS Receiver & Transmitter& applications.
		3rd	2.13 Optical Satellite Link transmitter & Receiver

		4th	3. OPTICAL FIBER COMMUNICATION. 3.1 Basic principle of Optical communication.
		5th	3.2 Compare the advantage and disadvantage of optical fibres&metallic cables
7	5th week of april	1st	3.3 Electromagnetic Frequency and wave line spectrum
		2nd	3.4 Types of optical fibres&principles of propogation in a fibre using Ray Theory
		3rd	3.5 Optical fiber construction
		4th	3.6 Define terms: Velocity of propagation, Critical angle, Acceptance angle numericalaperture
		5th	3.7 Optical fibre communication system- block diagram & working principle
8	1st week of may	1st	3.8 Modes of propagation and index profile of optical fiber
		2nd	3.9 Types optical fiber configuration: Single-mode step index, Multi-mode step index, Multi-mode Graded index
		3rd	Unit-7. TCP/IP 7.1 TCP/IP Protocol Suite
		4th	3.10 Attenuation in optical fibers – Absorption losses, scattering, losses, bending losses, core and cladding losses- Dispersion – material Dispersion, waveguide dispersion, Intermodal dispersion
		5th	3.11 Optical sources(Transmitter) & types – LED- semiconductor laser diodes
9	2nd week of may	1st	3.12 LASER -its working principles, block diagram using laser feedback control circuit
		2nd	3.13 Optical detectors – PIN and APD diodes &Block diagram using APDConnectors and splices –Optical cables- Couplers
		3rd	3.14 Optical repeater & Single Channel system
		4th	3.15 Applications of optical fibres – civil, Industry and Military application
		5th	3.16 Concept of Wave Length Division Multiplexing (WDM) principles
10	3rd week of may	1st	4. TELECOMMUNICATION SYSTEM 4.1 Working of Electronic Telephone System. (Telephone Set)
		2nd	4.2 Function of switching system.& Call procedures
		3rd	4.3 Space and time switching.
		4th	4.4 Numbering plan of telephone networks (National Schemes & International Numbering)
		5th	4.5 Working principle of a PBX & Digital EPABX.
11	4th week of may	1st	4.6 Units of Power Measurement.
		2nd	4.7 Working principle of Internet Protocol Telephone
		3rd	4.8 Working principle of Internet Telephone
		4th	5. Data Communication 5.1 Basic concept of Data Communication
		5th	5.2 Architecture, Protocols and Standards
12	5th week of may	1st	5.3 Data Communication Circuits
		2nd	5.4 Types of Transmission & Transmission Modes
		3rd	5.5 Data Communication codes
		4th	5.6 Basic idea of Error control & Error Detection5.7 MODEM & its basic block diagram& common features Voice Band Modem
13	1st week of june		

		5th	6. WIRELESS COMMUNICATION 6.1 Basic concept of Cell Phone,frequency reuse channel assignment strategic handoff co-channel Interference and system capacity of a Cellular Radio systems.
14	2nd week of june	1st	6.2 Concept of improving coverage and capacity in cellular system (Cell Splitting, Sectoring)
		2nd	6.3 Wireless Systems and its Standards
		3rd	6.4 Discuss the GSM (Global System for Mobile) service and features. 6.5 Architecture of GSM system & GSM mobile station &channel types of GSM system.
		4th	6.6 working of forward and reveres CDMA channel,the frequency and channel specifications
15	3rd week of june	1st	6.7 Architecture and features of GPRS.
		2nd	6.8 Discuss the mobile TCP, IP protocol.
		3rd	6.9 Working of Wireless Application Protocol (WAP)
		4th	6.10 Features of SMS, MMS, 1G,2G, 3G, 4G& 5G Wireless network. 6.11 Smart Phone and discuss its features indicate through Block diagram

Lesson Plan

	Discipline: ETC	Semester-6th Summer-2022	Name of the Teachng Faculty: Sri Jogeswar Naik (Lecture ETC Engg)
Sl. No.	Subject-Th-2 CONTROL SYSTEM & COMPONENTS	No. Of Days/Week class alloted:04	Semester From date:14.03.2022 To date: 10.06.2022 ,No. of weeks: 15
	Weeks/Months	Class Day	Topic
1	3rd week of march	1st	1. Fundamental of Control System 1.1 Classification of Control system
		2nd	1.2 Open loop system & Closed loop system and its comparison
		3rd	1.3 Effects of Feed back
		4th	1.4 Standard test Signals(Step, Ramp, Parabolic, Impulse Functions)
2	4th week of march	1st	1.5 Servomechanism
		2nd	1.6 Regulators (Regulating systems)
		3rd	2. Transfer Functions 2.1 Transfer Function of a system & Impulse response
		4th	2.2 Properties,Advantages& Disadvantages of Transfer Function
3	5th week of march/ 1st week of april	1st	2.3 Poles & Zeroes of transfer Function
		2nd	2.4 Representation of poles & Zero on the s-plane
		3rd	2.5 Simple problems of transfer function of network
		4th	3. Control system Components & mathematical modelling of physical System
4	2nd week of april	1st	3. Control system Components & mathematical modelling of physical System 3.1 Components of Control System
		2nd	3.2 Potentiometer, Synchros, Diode modulator & demodulator ,
		3rd	3.3 DC motors, AC Servomotors
		4th	3.4 Modelling of Electrical Systems(R, L, C, Analogous systems)
5	3rd week of april	1st	4. Block Diagram & Signal Flow Graphs(SFG) 4.1 Definition of Basic Elements of a Block Diagram
		3rd	3.4 Analog data digital signals
		3rd	4.2 Canonical Form of Closed loop Systems
		4th	4.3 Rules for Block diagram Reduction
6	4th week of april	1st	4.4 Procedure for of Reduction of Block Diagram
		2nd	4.5 Simple Problem for equivalent transfer function
		3rd	4.6 Basic Definition in SFG & properties
		4th	4.7 Mason's Gain formula
7	5th week of april	1st	4.8 Steps foe solving Signal flow Graph
		2nd	4.9 Simple problems in Signal flow graph for network
		3rd	5. Time Domain Analysis of Control Systems 5.1 Definition of Time, Stability, steady-state response, accuracy, transient accuracy,

		4th	5.2 System Time Response
8	1st week of may	1st	5.3 Analysis of Steady State Error
		2nd	5.4 Types of Input & Steady state Error(Step ,Ramp, Parabolic)
		3rd	5.5 Parameters of first order system & second-order systems
		4th	5.6 Derivation of time response Specification (Delay time, Rise time, Peak time,Setting time,Peak over shoot)
9	2nd week of may	1st	6. FeedbackCharacteristics of Control Systems 6.1 Effect of parameter variation in Open loop System & Closed loop Systems
		2nd	6.2 Introduction to Basic control Action& Basic modes of feedback control: proportional, integral and derivative
		3rd	6.3 Effect of feedback on overall gain, Stability
		4th	6.4 Realisation of Controllers(P, PI,PD,PID) with OPAMP
10	3rd week of may	1st	7. Stability concept& Root locus Method 7.1 Effect of location of poles on stability
		2nd	7.2 RouthHurwitz stability criterion.
		3rd	7.3 Steps for Root locus method
		4th	7.4 Root locus method of design(Simple problem)
11	4th week of may	1st	8. Frequency-response analysis&Bode Plot 8.1 Frequencyresponse,Relationship between time & frequency response
		2nd	8.2 Methods of Frequency response
		3rd	8.3 Polar plots & steps for polar plot
		4th	8.3 Polar plots & steps for polar plot
12	5th week of may	1st	8.4 Bodes plot & steps for Bode plots
		2nd	8.4 Bodes plot & steps for Bode plots
		3rd	8.5 Stability in frequency domain, Gain Margin& Phase margin
13	1st week of june	4th	8.5 Stability in frequency domain, Gain Margin& Phase margin
14	2nd week of june	1st	8.6 Nyquist plots. Nyquiststability criterion.
		2nd	8.6 Nyquist plots. Nyquiststability criterion.
		3rd	8.7 Simple problems as above
15	3rd week of june	1st	8.7 Simple problems as above
		2nd	9. State variable Analysis 9.1 Concepts of state, state variable, state model,
		3rd	9.2 state modelsfor linear continuous time functions(Simple)
		4th	9.2 state modelsfor linear continuous time functions(Simple)