

LESSON PLAN (Winter-2024)

Discipline: Electrical	Semester: 5th	Name of the Teaching Faculty: RAJEEV RANJANSETH
Subject: DE& MP (TH-3)	No of Days /per week class allotted: 5	Semester From date: 01.07.2024 To 08.11.2024 No of Weeks:15
Week	Class Day	Theory Topics
1st	1st	1 Basics Of Digital Electronics (15) 1.1 Binary, Octal, Hexadecimal number systems and compare with Decimal system.
	2nd	1.2 Binary addition, subtraction, Multiplication and Division.
	3rd	1.3 1's complement and 2's complement numbers for a binary number
	4th	1.4 Subtraction of binary numbers in 2's complement method.
	5th	1.5 Use of weighted and Un-weighted codes & write Binary equivalent number for a number in 8421, Excess-3 and Gray Code and vice-versa.
2nd	1st	1.6 Importance of parity Bit.
	2nd	1.7 Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.
	3rd	1.8 Realize AND, OR, NOT operations using NAND, NOR gates.
	4th	Continue
	5th	1.9 Different postulates and De-Morgan's theorems in Boolean algebra.
3rd		PUJA HOLIDAYS
4th	1st	1.10 Use Of Boolean Algebra For Simplification Of Logic Expression
	2nd	1.11 Karnaugh Map For 2,3,4 Variable, Simplification Of SOP And POS Logic Expression Using K-Map
	3rd	Continue
	4th	2. Combinational Logic Circuits (15) 2.1 Give the concept of combinational logic circuits.
	5th	2.2 Half adder circuit and verify its functionality using truth table.
5th	1st	2.3 Realize a Half-adder using NAND gates only and NOR gates only.
	2nd	2.4 Full adder circuit and explain its operation with truth table.
	3rd	2.5 Realize full-adder using two Half-adders and an OR – gate and write truth table
	4th	Continue
	5th	2.6 Full subtractor circuit and explain its operation with truth table.
6th	1st	Continue
	2nd	2.7 Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer
	3rd	Continue
	4th	2.8 Working of Binary-Decimal Encoder & 3 X 8 Decoder.
	5th	Continue
	1st	2.9 Working of Two bit magnitude comparator.
	2nd	Continue

7th	3rd	3. Sequential Logic Circuits (15) 3.1 Give the idea of Sequential logic circuits.
	4th	3.2 State the necessity of clock and give the concept of level clocking and edge triggering,
	5th	3.3 Clocked SR flip flop with preset and clear inputs.
8th	1st	3.5 Construct level clocked JK flip flop using S-R flip-flop and explain with truth table
	2nd	3.6 Concept of race around condition and study of master slave JK flip flop.
	3rd	3.7 Give the truth tables of edge triggered D and T flip flops and draw their symbols.
	4th	3.8 Applications of flip flops.
	5th	3.9 Define modulus of a counter
9th	1st	3.10 4-bit asynchronous counter and its timing diagram.
	2nd	3.11 Asynchronous decade counter.
	3rd	3.12 4-bit synchronous counter.
	4th	3.13 Distinguish between synchronous and asynchronous counters.
	5th	3.14 State the need for a Register and list the four types of registers.
10th	1st	3.15 Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop.
	2nd	4. 8085 Microprocessor(20) 4.1 Introduction to Microprocessors, Microcomputers
	3rd	4.2 Architecture of Intel 8085A Microprocessor and description of each block.
	4th	Continue
	5th	4.3 Pin diagram and description.
11th	1st	4.4 Stack, Stack pointer & stack top
	2nd	4.5 Interrupts
	3rd	4.6 Opcode & Operand,
	4th	4.7 Differentiate between one byte, two byte & three byte instruction with example.
	5th	4.8 Instruction set of 8085 example
12th	1st	Continue
	2nd	4.9 Addressing mode
	3rd	4.10 Fetch Cycle, Machine Cycle, Instruction Cycle, T-State
	4th	4.11 Timing Diagram for memory read, memory write, I/O read, I/O write
	5th	Continue
13th	1st	4.12 Timing Diagram for 8085 instruction
	2nd	4.13 Counter and time delay.
	3rd	4.14 Simple assembly language programming of 8085.
	4th	Continue
	5th	Continue
14th	1st	5. Interfacing And Support Chips(10) 5.1 Basic Interfacing Concepts, Memory mapping & I/O mapping
	2nd	Continue
	3rd	5.2 Functional block diagram and description of each block of Programmable peripheral interface Intel 8255 ,

	4th	Continue
	5th	5.3 Application using 8255: Seven segment LED display,
15th	1st	Continue
	2nd	Square wave generator,
	3rd	Continue
	4th	Traffic light Controller
	5th	Continue

Signature of theFaculty

LESSON PLAN (WINTER-2024)		
Discipline: ETC	Semester: 5th	Name of the Teaching Faculty: RAJEEV RANJAN SETH
Subject: WAVE PROPAGATION & BROADBAND COMMUNICATION ENGINEERING	No of Days /per week class allotted: 4	Semester From date: 01.07.2024 To date: 08.11.2024 No of Weeks:19
Week	Class Day	Theory / Practical Topics
1st	1st	Unit-1: WAVE PROPAGATION & ANTENNA(12) 1.1 Effects of environments such as reflection, refraction, interference, diffraction, absorption and attenuation (Definition only)
	2nd	1.2 Classification based on Modes of Propagation-Ground wave, Ionosphere , Sky wave propagation, Space wave propagation
	3rd	1.3 Definition – critical frequency, max. useable frequency, skip distance, fading, Duct propagation & Troposphere scatter propagation actual height and virtual height
	4th	Continue
2nd	1st	1.4 Radiation mechanism of an antenna-Maxwell equation.
	2nd	1.5 Definition - Antenna gains, Directive gain, Directivity, effective aperture, polarization, input impedance, efficiency, Radiator resistance, Bandwidth, Beam width, Radiation pattern
	3rd	Continue
	4th	1.6 Antenna -types of antenna: Mono pole and dipole antenna and omni directional antenna
3rd	1st	Continue
	2nd	1.7 Operation of following antenna with advantage & applications. a) Directional high frequency antenna : , Yagi & Rohmbus only
	3rd	b) UHF & Microwave antenna.: Dish antenna (with parabolic reflector) & Horn antenna
	4th	1.8 Basic Concepts of Smart Antennas- Concept and benefits of smart antennas
4th	1st	Unit-2: TRANSMISSION LINES(10) 2.1 Fundamentals of transmission line.
	2nd	2.2 Equivalent circuit of transmission line & RF equivalent circuit
	3rd	2.3 Characteristics impedance, methods of calculations & simple numerical.
	4th	Continue
5th	1st	2.4 Losses in transmission line.
	2nd	2.5 Standing wave – SWR, VSWR,
	3rd	Reflection coefficient, simple numerical.
	4th	2.6 Quarter wave & half wavelength line
6th	1st	2.7 Impedance matching & Stubs – single & double
	2nd	2.8 Primary & secondary constant of X-mission line.
	3rd	Unit-3: TELEVISION ENGINEERING(13) 3.1 Define-Aspect ratio, Rectangular Switching. Flicker, Horizontal Resolution, Video bandwidth, Interlaced scanning, Composite video signal, Synchronization pulses
	4th	Continue

7th	1st	3.2 TV Transmitter – Block diagram & function of each block.
	2nd	3.3 Monochrome TV Receiver -Block diagram & function of each block.
	3rd	3.4 Colour TV signals (Luminance Signal & Chrominance Signal,(I & Q,U & V Signals).
	4th	3.5 Types of Televisions by Technology- cathode-ray tube TVs, Plasma Display Panels,
8th	1st	Digital Light Processing (DLP), Liquid Crystal Display (LCD)
	2nd	Organic Light-Emitting Diode (OLED) Display, Quantum Light-Emitting Diode (QLED) – only Comparison based on application
	3rd	3.6 Discuss the principle of operation - LCD display,
	4th	Large Screen Display.
9th	1st	3.7 CATV systems & Types & networks
	2nd	3.8 Digital TV Technology-Digital TV Signals, Transmission of digital TV signals & Digital TV receiver Video programme processor unit.
	3rd	Continue
	4th	4.1 Define Microwave Wave Guides.
10th	1st	4.2 Operation of rectangular wave guides and its advantage.
	2nd	4.3 Propagation of EM wave through wave guide with TE & TM modes.
	3rd	Continue
	4th	4.4 Circular wave guide.
11th	1st	4.5 Operational Cavity resonator.
	2nd	4.6 Working of Directional coupler, Isolators & Circulator.
	3rd	4.7 Microwave tubes-Principle of operation of two Cavity Klystron.
	4th	Continue
12th	1st	4.8 Principle of Operations of Travelling Wave Tubes
	2nd	Continue
	3rd	4.9 Principle of Operations of Cyclotron
	4th	4.10 Principle of Operations of Tunnel Diode & Gunn diode
13th	1st	Unit-5: Broadband communication (10) 5.1 Broadband communication system-Fundamental of Components and
	2nd	Continue
	3rd	Network architecture
	4th	Continue
14 th	1st	5.2 Cable broadband data network- architecture
	2nd	Continue
	3rd	importance &future of broadband telecommunication internet based network.
	4th	Continue
15th		PUJA HOLIDAY
16th	1st	5.3 SONET(Synchronous Optical Network)-Signal frame components topologies
	2nd	Continue
	3rd	advantages applications, and disadvantages
	4th	Continue
17th	1st	5.4 ISDN - ISDN Devices interfaces,
	2nd	ISDN Devices services
	3rd	ISDN Devices Architecture

	4th	ISDN Devices applications
18th	1st	5.5 BISDN -interfaces & Terminals
	2nd	BISDN protocol
	3rd	BISDN architecture
	4th	BISDN applications
19 th	1 st	Revision
19th	2 nd	Revision
19th	3 rd	Revision
19th	4 th	Revision

Signature of the Faculty