

LESSON PLAN (SUMMER-2025)

Discipline: MECHANICAL	Semester: 2nd	Name of the Teaching Faculty: P.BHAWANI
Subject: Fundamentals of Electrical & Electronics Engineering	No of Days /per week class allotted:2	Semester From date: 04/02/2025 to 17/05/2025 No of Weeks:15
Week	Class Day	Theory Topics
1st	1st	UNIT I Overview of Electronic Components & Signals: Passive Active Components: Resistances, Capacitors, Inductors and their Applications (Concept)
	2nd	simple problems of Resistance, Capacitor & Inductor
2nd	1st	Diodes and their Applications (Concept)
	2nd	Transistors and their Applications (Concept)
3rd	1st	FET and their Applications (Concept)
	2nd	MOS, CMOS and their Applications (Concept)
4th	1st	Definition, classification and Working of diode(PN junction)
	2nd	Definition, classification and Working of diode(LED, Zener)
5th	1st	Definition, classification and Working of transistor
	2nd	Definition, classification and Working of transistor
6th	1st	Definition, classification and Working of FET
	2nd	Signals: DC/AC, voltage/current, periodic/non-periodic signals, average, rms, peak values
7th	1st	different types of signal waveforms, Ideal/non-ideal voltage/current sources, independent/dependent voltage current sources. (Definitions)
	2nd	UNIT II Overview of Analog Circuits: Operational Amplifiers-Ideal Op-Amp
8th	1st	Practical op amp, Open loop and closed loop configurations
	2nd	Application of Op-Amp as amplifier, adder
9th	1st	Application of Op-Amp as differentiator
	2nd	Application of Op-Amp as integrator.
10th	1st	UNIT III Overview of Digital Electronics: Introduction to Boolean Algebra
	2nd	Electronic Implementation of Boolean Operations
11th	1st	Gates-Functional Block Approach (Simple problems of Number system)
	2nd	Simple problems of Number system
12th	1st	Simple problems of Number system
	2nd	Storage elements-Flip Flops-A Functional block approach
13th	1st	Counters: Ripple
	2nd	Ripple Counter
14th	1st	Up/down counter
	2nd	decade counter
15th	1st	decade counter
	2nd	Introduction to digital IC Gates (of TTL Type)



Signature of the Faculty

LESSON PLAN		
ACADEMIC LESSON PLAN OF SUMMER-2025		
Discipline:Electrical	Semester: 4th	Name of the Teaching Faculty: P BHAWANI
Subject:Analog Electronics & Op-amp	No of Days / per week class allotted: 4	Semester from date: 04/02/2025 to 17/05/2025 No of weeks: 15
Week	Class Day	Theory Topics
1st	1st	1.P-N JUNCTION DIODE(6) 1.1 P-N Junction Diode
	2nd	1.2 Working of Diode
	3rd	1.3 V-I characteristic of PN junction Diode , 1.4 DC load line
	4th	1.5 Important terms such as Ideal Diode, Knee voltage 1.6 Junctions break down. 1.6.1 Zener breakdown, 1.6.2 Avalanche breakdown
2nd	1st	1.7 P-N Diode clipping Circuit.
	2nd	1.8 P-N Diode clamping Circuit
	3rd	2.SPECIAL SEMICONDUCTOR DEVICES(5) 2.1 Thermistors, Sensors & barretters
	4th	2.2 Zener Diode
3rd	1st	2.3 Tunnel Diode
	2nd	2.3 Tunnel Diode
	3rd	2.4 PIN Diode
	4th	3.RECTIFIER CIRCUITS & FILTERS(7) 3.1 Classification of rectifiers
4th	1st	Analysis of half wave and calculate: 3.2.1 DC output current and voltage, 3.2.2 RMS output current and voltage
	2nd	3.2.3 Rectifier efficiency, 3.2.4 Ripple factor
	3rd	3.2.5 Regulation, 3.2.6 Transformer utilization factor 3.2.7 Peak inverse voltage
	4th	Analysis of full wave centre tapped and Bridge rectifiers and calculate: 3.2.1 DC output current and voltage 3.2.2 RMS output current and voltage
5th	1st	3.2.3 Rectifier efficiency, 3.2.4 Ripple factor 3.2.5 Regulation 3.2.6 Transformer utilization factor, 3.2.7 Peak inverse voltage
	2nd	3.3 Filters: 3.3.1 Shunt capacitor filter ,3.3.2 Choke input filter,3.3.3 π filter
	3rd	4.TRANSISTORS(7) 4.1 Principle of Bipolar junction transistor
	4th	4.2 Different modes of operation of transistor
6th	1st	4.3 Current components in a transistor
	2nd	4.4 Transistor as an amplifier
	3rd	4.5 Transistor circuit configuration & its characteristics,4.5.1 CB Configuration
	4th	4.5.2 CE Configuration
7th	1st	4.5.3 CC Configuration
	2nd	5.TRANSISTOR CIRCUITS(7) 5.1 Transistor biasing
	3rd	5.2 Stabilization
	4th	5.3 Stability factor
8th	1st	5.4 Different method of Transistors Biasing : 5.4.1 Base resistor method
	2nd	5.4.2 Collector to base bias
	3rd	5.4.3 Self bias or voltage divider method

	4th	5.4.3 Self bias or voltage divider method
9th	1st	6. TRANSISTOR AMPLIFIERS & OSCILLATORS(13) 6.1 Practical circuit of transistor amplifier
	2nd	6.2 DC load line and DC equivalent circuit
	3rd	6.3 AC load line and AC equivalent circuit
	4th	6.4 Calculation of gain, 6.5 Phase reversal
10th	1st	6.6 H-parameters of transistors 6.7 Simplified H-parameters of transistors
	2nd	6.8 Generalised approximate model Analysis of CB, CE, CC amplifier using generalised approximate model 6.9
	3rd	6.10 Multi stage transistor amplifier, 6.10.1 R.C. coupled amplifier
	4th	6.10.2 Transformer coupled amplifier
11th	1st	6.11 Feed back in amplifier 6.11.1 General theory of feed back 6.11.2 Negative feedback circuit 6.11.3 Advantage of negative feed back
	2nd	6.12 Power amplifier and its classification 6.12.1 Difference between voltage amplifier and power amplifier 6.12.2 Transformer coupled class A power amplifier
	3rd	6.12.3 Class A push – pull amplifier, 6.12.4 Class B push – pull amplifier
	4th	6.13 Oscillators 6.13.1 Types of oscillators, 6.13.2 Essentials of transistor oscillator
12th	1st	6.13.3 Principle of operation of tuned collector, Hartley, colpitt, phase shift, weinbridge oscillator (no mathematical derivations)
	2nd	7. FIELD EFFECT TRANSISTOR(6) 7.1 Classification of FET , 7.2 Advantages of FET over BJT
	3rd	7.3 Principle of operation of FET
	4th	7.4 FET parameters (no mathematical derivation) 7.4.1 DC drain resistance, 7.4.2 AC drain resistance 7.4.3 Trans-conductance
13th	1st	7.4 FET parameters
	2nd	7.5 Biasing of FET
	3rd	7.5 Biasing of FET
	4th	8. OPERATIONAL AMPLIFIERS(9) 8.1 General circuit simple of OP-AMP and IC – CA – 741 OP AMP
14th	1st	8.2 Operational amplifier stages
	2nd	8.3 Equivalent circuit of operational amplifier 8.4 Open loop OP-AMP configuration
	3rd	8.5 OPAMP with fed back, 8.6 Inverting OP-AMP
	4th	8.7 Non inverting OP-AMP
15th	1st	8.8 Voltage follower & buffer
	2nd	8.9 Differential amplifier , 8.9.1 Adder or summing amplifier
	3rd	8.9.2 Sub tractor 8.9.3 Integrator
	4th	8.9.4 Differentiator 8.9.5 Comparator



Signature of the faculty

LESSON PLAN		
ACADEMIC LESSON PLAN OF SUMMER-2025		
Discipline:IT	Semester: 4th	Name of the Teaching Faculty: P BHAWANI
Subject: Microprocessor & Microcontroller	No of Days / per week class allotted: 5	Semester from date: 04/02/2025 to 17/05/2025 No of weeks: 15
Week	Class Day	Theory Topics
1st	1st	Unit-1:Microprocessor (Architecture and Programming-8085-8-bit) (15) 1.1 Introduction to Microprocessor and Microcomputer & distinguish between them.
	2nd	1.2 Concept of Address bus, Data bus, Control bus & System Bus
	3rd	1.3 General Bus structure Block diagram.
	4th	1.4 Basic Architecture of 8085 (8 bit) Microprocessor
	5th	1.4 Basic Architecture of 8085 (8 bit) Microprocessor
2nd	1st	1.4 Basic Architecture of 8085 (8 bit) Microprocessor
	2nd	1.5 Signal Description (Pin diagram) of 8085 Microprocessor
	3rd	1.5 Signal Description (Pin diagram) of 8085 Microprocessor
	4th	1.5 Signal Description (Pin diagram) of 8085 Microprocessor
	5th	1.6 Register Organizations,Distinguish between SPR & GPR,
3rd	1st	Timing & Control Module,
	2nd	1.7 Stack, Stack pointer &Stack top.
	3rd	1.7 Stack, Stack pointer &Stack top.
	4th	1.8 Interrupts:-8085 Interrupts, Masking of Interrupt(SIM,RIM)
	5th	1.8 Interrupts:-8085 Interrupts, Masking of Interrupt(SIM,RIM)
4th	1st	Unit-2: Instruction Set and Assembly Language Programming (15) 2.1 Addressing data & Differentiate between one-byte, two-byte &three-byte instructions with examples.
	2nd	2.2 Addressing modes in instructions with suitable examples.
	3rd	2.2 Addressing modes in instructions with suitable examples.
	4th	2.3 Instruction Set of 8085(Data Transfer, Arithmetic, Logical)
	5th	2.3 Instruction Set of 8085(Branching, Stack& I/O , Machine Control)
5th	1st	2.4 Simple Assembly Language Programming of 8085 2.4.1 Simple Addition
	2nd	2.4 Simple Assembly Language Programming of 8085 2.4.1 Simple Subtraction
	3rd	2.4.2 Logic Operations (AND, OR, Complement 1's & 2's) & Masking of bits
	4th	2.4.3 Counters & Time delay (Single Register, Register Pair, More than Two Register)
	5th	2.4.4 Looping, Counting & Indexing (Call/JMP etc).
6th	1st	2.4.5 Stack & Subroutine programmes.
	2nd	2.4.6 Code conversion, BCD Arithmetic &16 Bit data Operation,Block Transfer.
	3rd	2.4.7 Compare between two numbers
	4th	2.4.8 Array Handling (Largest number & smallest number in the array)
	5th	2.5 Memory & I/O Addressing,
7th	1st	Unit-3: TIMING DIAGRAMS. (8) 3.1 Define opcode, operand, T-State, Fetch cycle, Machine Cycle, Instruction cycle & discuss the concept of timing diagram.
	2nd	3.1 Define opcode, operand, T-State, Fetch cycle, Machine Cycle, Instruction cycle & discuss the concept of timing diagram.
	3rd	3.2 Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle.
	4th	3.2 Draw timing diagram for memory read, memory write,
	5th	3.2 Draw timing diagram for I/O read, I/O write machine cycle.

8th	1st	3.3 Draw a neat sketch for the timing diagram for 8085 instruction MOV instruction).
	2nd	3.3 MVI instruction
	3rd	3.3 LDA instruction.
	4th	Unit-4 Microprocessor Based System Development Aids (10) 4.1 Concept of interfacing
	5th	4.2 Define Mapping & Data transfer mechanisms - Memory mapping & I/O Mapping
9th	1st	4.3 Concept of Memory Interfacing:- Interfacing EPROM & RAM Memories
	2nd	4.4 Concept of Address decoding for I/O devices
	3rd	4.5 Programmable Peripheral Interface: 8255
	4th	4.5 Programmable Peripheral Interface: 8255
	5th	4.6 ADC & DAC with Interfacing.
10th	1st	4.6 ADC & DAC with Interfacing.
	2nd	4.7 Interfacing Seven Segment Displays
	3rd	4.8 Generate square waves on all lines of 8255
	4th	4.9 Design Interface a traffic light control system using 8255.
	5th	4.9 Design Interface a traffic light control system using 8255.
11th	1st	4.10 Design interface for stepper motor control using 8255.
	2nd	4.11 Basic concept of other Interfacing DMA controller, USART
	3rd	Unit-5 Microprocessor (Architecture and Programming-8086-16 bit) (12) 5.1 Register Organisation of 8086
	4th	5.2 Internal architecture of 8086
	5th	5.2 Internal architecture of 8086
12th	1st	5.3 Signal Description of 8086
	2nd	5.3 Signal Description of 8086
	3rd	5.4 General Bus Operation & Physical Memory Organisation
	4th	5.5 Minimum Mode & Timings, 5.6 Maximum Mode & Timings,
	5th	5.7 Interrupts and Interrupt Service Routines, Interrupt Cycle, Non-Maskable Interrupt, Maskable Interrupt
13th	1st	5.8 8086 Instruction Set & Programming: Addressing Modes, Instruction Set, Assembler Directives and Operators,
	2nd	5.9 Simple Assembly language programming using 8086 instructions.
	3rd	Unit-6 Microcontroller (Architecture and Programming-8 bit) (15) 6.1 Distinguish between Microprocessor & Microcontroller
	4th	6.2 8 bit & 16 bit microcontroller 6.3 CISC & RISC processor
	5th	6.4 Architecture of 8051 Microcontroller
14th	1st	6.4 Architecture of 8051 Microcontroller
	2nd	6.5 Signal Description of 8051 Microcontrollers
	3rd	6.6 Memory Organisation-RAM structure, SFR
	4th	6.7 Registers, timers, interrupts of 8051 Microcontrollers
	5th	6.8 Addressing Modes of 8051
15th	1st	6.9 Simple 8051 Assembly Language Programming Arithmetic & Logic Instructions, JUMP, LOOP, CALL Instructions, I/O Port Programming
	2nd	6.9 Simple 8051 Assembly Language Programming Arithmetic & Logic Instructions, JUMP, LOOP, CALL Instructions, I/O Port Programming
	3rd	6.10 Interrupts, Timer & Counters
	4th	6.11 Serial Communication
	5th	6.12 Microcontroller Interrupts and Interfacing to 8255


 Signature of the faculty