Lesson Plan

	Discipline: ETC	Semester-6th Summer-2024	Name of the Teachng Faculty: Smt.PRIYANKA DHAL(GUEST FACULTY ETC Engg)
Sl. No.	Subject-Th.3. (DIGITAL SIGNAL PROCESSING)2	No. Of Days/Week class alloted:04	Semester From date: 16.02.2024 To date: 26.04.2024 (No of weeks: 15)
	Weeks/Months	Class Day	Topic
1	3rd week 16 jan To 20 jan	1st	1.1 Basics of Signals, Systems & Signal processing- basic element of a digital signal processing system -Compare the advantages of digital signal processing over analog signal processing
		2nd	1.1 Basics of Signals, Systems & Signal processing- basic element of a digital signal processing system -Compare the advantages of digital signal processing over analog signal processing
		3rd	1.2 Classify signals - Multi channel& Multi-dimensional signals Continuous time verses Discrete -times Signal. -Continuous valued verses Discrete -valued signals
		4th	1.2 Classify signals - Multi channel& Multi-dimensional signals Continuous time verses Discrete -times Signal. -Continuous valued verses Discrete -valued signals
		5th	3 Concept of frequency in continuous time & discrete time signals Continuous-time sinusoidal signals-Discrete-time sinusoidal signals-Harmonically related complex exponential.
2	4th week 22 jan To 27 jan	1st	3 Concept of frequency in continuous time & discrete time signals Continuous-time sinusoidal signals-Discrete-time sinusoidal signals-Harmonically related complex exponential.
		2nd	1.4 Analog to Digital & Digital to Analog conversion & explain the following. a. Sampling of Analog signal, b. The sampling theorem.
		3rd	c. Quantization of continuous amplitude signals, d. Coding of quantized sample. e. Digital to analog conversion. f. Analysis of digital systems signals vs. discrete time signals systems.
		4th	c. Quantization of continuous amplitude signals, d. Coding of quantized sample. e. Digital to analog conversion. f. Analysis of digital systems signals vs. discrete time signals systems.
		5th	2.1.2 Classification Discrete time signal. 2.1.3 Simple manipulation of discrete time signal.
3	5th week 29 jan To 1st week 03 feb	1st	2.2 Discrete time system. 2.2.1 Input-output of system.
		2nd	1.2 Classify signals - Multi channel& Multi-dimensional signals Continuous time verses Discrete -times Signal. -Continuous valued verses Discrete -valued signals
		3rd	1.2 Classify signals - Multi channel& Multi-dimensional signals Continuous time verses Discrete -times Signal. -Continuous valued verses Discrete -valued signals
			3 Concept of frequency in continuous time & discrete time signals Continuous-time sinusoidal signals-Discrete-time sinusoidal signals-Harmonically related complex exponential.
		4th	3 Concept of frequency in continuous time & discrete time signals Continuous-time sinusoidal signals-Discrete-time sinusoidal signals-Harmonically related complex exponential.

4	2nd week 05 feb To 10 feb	1st	1.4 Analog to Digital & Digital to Analog conversion & explain the following. a. Sampling of Analog signal, b. The sampling theorem.
		2nd	1.4 Analog to Digital & Digital to Analog conversion & explain the following. a. Sampling of Analog signal, b. The sampling theorem.
		3rd	c. Quantization of continuous amplitude signals, d. Coding of quantized sample. e. Digital to analog conversion. f. Analysis of digital systems signals vs. discrete time signals systems.
		4th	c. Quantization of continuous amplitude signals, d. Coding of quantized sample. e. Digital to analog conversion. f. Analysis of digital systems signals vs. discrete time signals systems.
		5th	2.1 Concept of Discrete time signals. 2.1.1 Elementary Discrete time signals.
5	3rd week 12 feb To 17 feb	1st	2.1 Concept of Discrete time signals. 2.1.1 Elementary Discrete time signals.
		2nd	2.1.2 Classification Discrete time signal.
		3rd	2.1.3 Simple manipulation of discrete time signal.
		4th	2.2 Discrete time system. 2.2.1 Input-output of system.
		4th	2.2.2 Block diagram of discrete- time systems
6	4th week 19 feb To 24 feb	1st	2.2.3 Classify discrete time system.
		2nd	2.2.4 Inter connection of discrete -time system.
		3rd	2.3 Discrete time time-invariant system. 2.3.1 Different techniques for the Analysis of linear system.
		4th	2.3 Discrete time time-invariant system. 2.3.1 Different techniques for the Analysis of linear system.
		4th	2.3.2 Resolution of a discrete time signal in to impulse
7	2nd week 04 march To 09 march	1st	2.3.2 Resolution of a discrete time signal in to impulse
		2nd	2.3.3 Response of LTI system to arbitrary inputs using convolution sum
		3rd	2.3.3 Response of LTI system to arbitrary inputs using convolution sum
		4th	2.3.4 Convolution & interconnection of LTI system -properties.
		4th	2.3.5 Study systems with finite duration and infinite duration impulse response
8	3rd week 11 march To 16 march	1st	2.3.5 Study systems with finite duration and infinite duration impulse response
		2nd	2.4 Discrete time system described by difference equation. 2.4.1 Recursive & non-recursive discrete time system
		3rd	2.4 Discrete time system described by difference equation. 2.4.1 Recursive & non-recursive discrete time system
		4th	3.2 Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle.
		5th	3.2 Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle.
9	4th week 18 march To 23 march	1st	3.2 Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle.
		2nd	Draw a neat sketch for the timing diagram for 8085 instruction (MOV, MVI, LDA instruction
		3rd	2.4.3 Correlation of Discrete Time signals
		4th	2.4.3 Correlation of Discrete Time signals
		5th	3.1 Z-transform & its application to LTI system. 3.1.1 Direct Z-transform.

10	5th week 25 march To 30 march	1st	3.1.2 Inverse Z-transform
		2nd	3.2 Various properties of Z-transform.
		3rd	3.3 Rational Z-transform. 3.3.1 Poles & zeros
		4th	3.3 Rational Z-transform. 3.3.1 Poles & zeros
		5th	3.3.2 Pole location time domain behaviour for casual
11	1st week 01 april To 06 april	1st	3.3.2 Pole location time domain behaviour for casual signals
		2nd	3.3.3 System function of a linear time invariant system
		3rd	3.4.1 Inverse Z-transform by partial fraction expansion.
		4th	3.4.1 Inverse Z-transform by partial fraction expansion.
		5th	4.1 Concept of discrete Fourier transform. 4.2 Frequency domain sampling and reconstruction of discrete time signals
12	1st week 08 april To 13 april	1st	4.1 Concept of discrete Fourier transform. 4.2 Frequency domain sampling and reconstruction of discrete time signals
		2nd	4.3 Discrete Time Fourier transformation(DTFT)
		3rd	4.4 Discrete Fourier transformation (DFT).
		4th	4.5 Compute DFT as a linear transformation. 4.6 Relate DFT to other transforms.
		5th	4.5 Compute DFT as a linear transformation. 4.6 Relate DFT to other transforms.
13	2nd week 15 april To 20 april	1st	4.7 Property of the DFT. 4.8 Multiplication of two DFT & circular convolution
		2nd	4.7 Property of the DFT. 4.8 Multiplication of two DFT & circular convolution
		3rd	5.1 Compute DFT & FFT algorithm. 5.2 Direct computation of DFT.
		4th	5.1 Compute DFT & FFT algorithm. 5.2 Direct computation of DFT.
		5th	5.3 Divide and Conquer Approach to computation of DFT 5.4 Radix-2 algorithm. (Small Problems)
14	3rd week 22 april To 26 april	1st	5.3 Divide and Conquer Approach to computation of DFT 5.4 Radix-2 algorithm. (Small Problems)
		2nd	5.5 Application of FFT algorithms 5.6 Introduction to digital filters.(FIR Filters)& General considerations
		3th	5.5 Application of FFT algorithms 5.6 Introduction to digital filters.(FIR Filters)& General considerations
		4th	5.7 Introduction to DSP architecture, familiarisation of different types of processor
		5th	5.7 Introduction to DSP architecture, familiarisation of different types of processor

Signature of the Faculty

Lesson Plan

	Discipline: ETC	Semester-4th Summer-2024	Name of the Teachng Faculty: Smt.PRIYANKA DHAL(GUEST FACULTY ETC Engg) AND MISS PAYAL BINDIYA PARIDA(GUEST FACULTY IN ETC)
Sl. No.	Subject-Th.3. (MICROPROCESSOR&MICROCONTROLLER)2024 SUMMER	No. Of Days/Week class alloted:05	Semester From date: 16.01.2024To date: 26.04.2024(No of weeks: 15)
	Weeks/Months	Class Day	Topic
1	3rd week 16 jan To 20 jan	1st	1.1 Introduction to Microprocessor and Microcomputer & distinguish between them.
		2nd	1.2 Concept of Address bus, Data bus, Control bus & System Bus diode.
		3rd	1.2 Concept of Address bus, Data bus, Control bus & System Bus diode.
		4th	1.3 General Bus structure Block diagram
		5th	1.4 Basic Architecture of 8085 (8 bit) Microprocessor
2	4th week 22 jan To 27 jan	1st	1.51.4 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	1.6 Register Organizations,Distinguish between SPR & GPR, Timing & Control Module
		5th	1.6 Register Organizations,Distinguish between SPR & GPR, Timing & Control Module
3	5th week 29 jan To 1st week 03 feb	1st	1.7 Stack, Stack pointer &Stack top.
		2nd	1.7 Stack, Stack pointer &Stack top.
		3rd	1.8 Interrupts:-8085 Interrupts, Masking of Interrupt(SIM,RIM)
			1.8 Interrupts:-8085 Interrupts, Masking of Interrupt(SIM,RIM)
		4th	Unit-2: Instruction Set and Assembly Language Programming 2.1 Addressing data & Differentiate between one-byte, two-byte &three-byte instructions with examples.
4	2nd week 05 feb To 10 feb	1st	Unit-2: Instruction Set and Assembly Language Programming 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. 2.3 Instruction Set of 8085(Data Transfer, Arithmetic, Logical, Branching, Stack& I/O , Machine Control)
		3rd	2.2 Addressing modes in instructions with suitable examples. 2.3 Instruction Set of 8085(Data Transfer, Arithmetic, Logical, Branching, Stack& I/O , Machine Control)
		4th	2.2 Addressing modes in instructions with suitable examples. 2.3 Instruction Set of 8085(Data Transfer, Arithmetic, Logical, Branching, Stack& I/O , Machine Control)n
		5th	2.4 Simple Assembly Language Programming of 8085 2.4.1 Simple Addition & Subtraction
5	3rd week 12 feb To 17 feb	1st	2.4 Simple Assembly Language Programming of 8085 2.4.1 Simple Addition & Subtraction
		2nd	2.4.2 Logic Operations (AND, OR, Complement 1's & 2's) & Masking of bits
		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).
		4th	2.4.4 Looping, Counting & Indexing (Call/JMP etc).

6	4th week 19 feb To 24 feb	1st	2.4.4 Looping, Counting & Indexing (Call/JMP etc).
		2nd	2.4.5 Stack & Subroutine programes.
		3rd	2.4.5 Stack & Subroutine programes.
		4th	2.4.6 Code conversion, BCD Arithmetic & 16 Bit data Operation, Block Transfer
		4th	2.4.6 Code conversion, BCD Arithmetic & 16 Bit data Operation, Block Transfer
7	2nd week 04 march To 09 march	1st	2.4.7 Compare between two numbers
		2nd	2.4.8 Array Handling (Largest number & smallest number in the array)
		3rd	2.4.8 Array Handling (Largest number & smallest number in the array)
		4th	2.5 Memory & I/O Addressing,
		4th	2.5 Memory & I/O Addressing,
8	3rd week 11 march To 16 march	1st	Unit-3: TIMING DIAGRAMS. 3.1 Define opcode, operand, T-State, Fetch cycle, Machine Cycle, Instruction cycle & discuss the concept of timing diagram
		2nd	Unit-3: TIMING DIAGRAMS. 3.1 Define opcode, operand, T-State, Fetch cycle, Machine Cycle, Instruction cycle & discuss the concept of timing diagram
		3rd	Unit-3: TIMING DIAGRAMS. 3.1 Define opcode, operand, T-State, Fetch cycle, Machine Cycle, Instruction cycle & discuss the concept of timing diagram
		4th	3.2 Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle.
		5th	3.2 Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle.
9	4th week 18 march To 23 march	1st	3.2 Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle.
		2nd	Draw a neat sketch for the timing diagram for 8085 instruction (MOV, MVI, LDA instruction
		3rd	Draw a neat sketch for the timing diagram for 8085 instruction (MOV, MVI, LDA instruction
		4th	Draw a neat sketch for the timing diagram for 8085 instruction (MOV, MVI, LDA instruction
		5th	Unit-4 Microprocessor Based System Development Aids 4.1 Concept of interfacing
10	5th week 25 march To 30 march	1st	Unit-4 Microprocessor Based System Development Aids 4.1 Concept of interfacing
		2nd	4.2 Define Mapping &Data transfer mechanisms - Memory mapping & I/O Mappingl
		3rd	4.3 Concept of Memory Interfacing:- Interfacing EPROM & RAM Memory.
		4th	4.3 Concept of Memory Interfacing:- Interfacing EPROM & RAM Memory.
		5th	4.5 Programmable Peripheral Interface: 8255
11	1st week 01 april To 06 april	1st	4.6 ADC & DAC with Interfacing
		2nd	4.7 Interfacing Seven Segment Displays
		3rd	4.7 Interfacing Seven Segment Displays
		4th	4.8 Generate square waves on all lines of 8255
		5th	4.9 Design Interface a traffic light control system using 8255.

12	1st week 08 april To 13 april	1st	4.11 Basic concept of other Interfacing DMA controller,USART
		2nd	4.10 Design interface for stepper motor control using 8255..
		3rd	4.10 Design interface for stepper motor control using 8255..
		4th	Unit-5 Microprocessor (Architecture and Programming-8086-16 bit) 5.1 Register Organisation of 8086 5.2 Internal architecture of 8086
		5th	5.7 Interrupts and Interrupt Service Routines, Interrupt Cycle, Non-Maskable Interrupt, Maskable Interrupt
13	2nd week 15 april To 20 april	1st	5.7 Interrupts and Interrupt Service Routines, Interrupt Cycle, Non-Maskable Interrupt, Maskable Interrupt 5.8 8086 Instruction Set & Programming: Addressing Modes, Instruction Set, Assembler Directives and Operators,s.
		2nd	5.9 Simple Assembly language programmingusing 8086 instructions
		3rd	6.2 8 bit & 16 bit microcontroller 6.3 CISC & RISC processor
		4th	6.1 Distinguish between Microprocessor & Microcontroller
		5th	6.2 8 bit & 16 bit microcontroller 6.3 CISC & RISC processor
14	3rd week 22 april To 26 april	1st	6.4 Architectureof8051 Microcontroller.
		2nd	6.5 Signal Descriptionof8051Microcontrollers 6.5 Signal Descriptionof8051Microcontrollers
		3th	6.7 Registers,timers,interruptsof8051Microcontrollers 6.8 Addressing Modes of 8051
		4th	6.9 Simple 8051 Assembly Language ProgrammingArithmetic & Logic Instructions , JUMP, LOOP, CALL Instructions, I/O Port Programming
		5th	6.10 Interrupts, Timer & Counters 6.11 Serial Communication6.12 Microcontroller Interrupts and Interfacing to 8255

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