LESSON PLAN (SUMMER-2026)

Discipline:ETC	**Semester:6th**	**Name of the Teaching Faculty: P.Bhawani**
Subject: Control System	**No of Days /per week class allotted:4**	**Semester From date: 22/12/2025 to 18/04/2026 No of Weeks:15**
Week	**Class Day**	**Theory Topics**
1st	1st	**UNIT:I Fundamental of Control System(05)** 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)
2nd	1st	1.5 Servomechanism 1.6 Regulators (Regulating systems)
	2nd	**UNIT: II Transfer Functions(08)** 2.1 Transfer Function of a system & Impulse response
	3rd	2.2 Properties,Advantages& Disadvantages of Transfer Function
	4th	2.3 Poles & Zeroes of transfer Function,
3rd	1st	2.5 Simple problems of transfer function of network
	2nd	2.5 Simple problems of transfer function of network
	3rd	2.5 Simple problems of transfer function of network
	4th	2.5 Simple problems of transfer function of network
4th	1st	2.5 Simple problems of transfer function of network
	2nd	**UNIT:III Control system Components & mathematical modelling of physical System(05)** 3.1 Components of Control System
	3rd	3.2 Potentiometer
	4th	3.2Synchros, 3.3 DC motors, AC Servomotors
5th	1st	3.4 Modelling of Electrical Systems(R, L, C, Analogous systems)
	2nd	3.4 Modelling of Electrical Systems(R, L, C, Analogous systems)
	3rd	**UNIT:IV Block Diagram & Signal Flow Graphs(SFG)(08)** 4.1 Definition of Basic Elements of a Block Diagram
	4th	4.2 Canonical Form of Closed loop System
6th	1st	4.3 Rules for Block diagram Reduction,
	2nd	4.3 Rules for Block diagram Reduction,
	3rd	4.6 Basic Definition in SFG & properties
	4th	4.7 Mason's Gain formula, 4.8 Steps for solving Signal flow Graph
7th	1st	4.9 Simple problems in Signal flow graph for network
	2nd	4.9 Simple problems in Signal flow graph for network
	3rd	**UNIT:V Time Domain Analysis of Control Systems(08)** 5.1 Definition of Time, Stability, steady-state response, accuracy, transient
	4th	5.2 System Time Response
8th	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	5.5 Parameters of first order system & second-order systems
9th	1st	5.6 Derivation of time response Specification (Delay time, Rise time)
	2nd	5.6 Derivation of time response Specification (Peak time,Setting time,Peak over

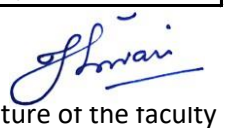
9th	3rd	**UNIT:VI FeedbackCharacteristics of Control Systems(06)** 6.1 Effect of parameter variation in Open loop System & Closed loop Systems
	4th	6.2 Introduction to Basic control Action
10th	1st	Basic modes of feedback control: proportional, integral and derivative
	2nd	6.3 Effect of feedback on overall gain, Stability
	3rd	6.4 Realisation of Controllers(P, PI) with OPAMP
	4th	6.4 Realisation of Controllers(PD,PID) with OPAMP
11th	1st	**UNIT:VII Stability concept& Root locus Method(08)** 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)
12th	1st	7.4 Root locus method of design(Simple problem)
	2nd	7.4 Root locus method of design(Simple problem)
	3rd	7.4 Root locus method of design(Simple problem)
	4th	7.4 Root locus method of design(Simple problem)
13th	1st	**UNIT:VIII Frequency-response analysis&Bode Plot(07)** 8.1 Frequencyresponse,Relationship between time & frequency
	2nd	8.2 Methods of Frequency response, 8.3 Polar plots & steps for polar plot
	3rd	8.4 Bodes plot & steps for Bode plots
	4th	8.5 Stability in frequency domain, Gain Margin& Phase margin
14th	1st	8.6 Nyquist plots. Nyquiststability criterion.
	2nd	8.7 Simple problems as above
	3rd	8.7 Simple problems as above
	4th	**UNIT-IX State variable Analysis(05)** 9.1 Concepts of state, state variable, state model,
15th	1st	9.1 Concepts of state, state variable, state model,
	2nd	9.2 state modelsfor linear continuous time functions(Simple)
	3rd	9.2 state modelsfor linear continuous time functions(Simple)
	4th	9.2 state modelsfor linear continuous time functions(Simple)

Signature of the faculty

LESSON PLAN (SUMMER-2026)

Discipline:ETC	**Semester:4th**	**Name of the Teaching Faculty: P.Bhawani**
Subject: TH:3-MICROPROCESSORS &	**No of Days /per week class allotted:3**	**Semester From date: 22/12/2025 to 18/04/2026 No of Weeks:15**
Week	**Class Day**	**Theory Topics**
1st	1st	**UNIT-I: Architecture of 8085 Microprocessor(06)** Functional Block Diagram – Registers,
	2nd	ALU, Bus systems,
	3rd	Timing and control signals,
2nd	1st	Machine cycles
	2nd	timing diagrams
	3rd	timing diagrams
3rd	1st	**UNIT-II: Programming of 8085(08)** Instruction formats, addressing modes
	2nd	Instruction set,
	3rd	Instruction set,
4th	1st	programmes.
	2nd	Development of Assembly language programmes
	3rd	Development of Assembly language programmes
5th	1st	Development of Assembly language programmes
	2nd	Development of Assembly language programmes
	3rd	**UNIT-III: Memory Interfacing-Interface requirements(06)** Address space partitioning
6th	1st	Buffering of Buses – timing constraints
	2nd	Memory control signals – Read and write cycles
	3rd	Memory control signals – Read and write cycles
7th	1st	interfacing SRAM, EPROM and DRAM sections.
	2nd	interfacing SRAM, EPROM and DRAM sections.
	3rd	**UNIT-IV: I/O Interfacing- Memory mapped I/O Scheme(07)** I/O mapped I/O scheme – Input and Output cycles – Simple I/O ports
8th	1st	Programmable peripheral interface (8255)
	2nd	Programmable peripheral interface (8255)
	3rd	Data transfer schemes: Programmable data transfer, DMA data transfer
9th	1st	Synchronous, Asynchronous and interrupt driven data transfer schemes
	2nd	Interfacing – Simple keyboards and LED displays
	3rd	DMA controller 8237
10th	1st	**UNIT-V: Applications(06)** Interfacing of A/D converters (ADC 0800/ADC 0808/ADC 0809)
	2nd	Interfacing of A/D converters (ADC 0800/ADC 0808/ADC 0809)
	3rd	Interfacing of D/A converters (DAC 0800) – Waveform generators
11th	1st	Multiplexed seven segment LED display systems – Measurement of frequency, phase angle and power factor
	2nd	Traffic light controller
	3rd	Stepper motor Control.

12th	1st	**UNIT-VI: Intel 8051 Microcontroller(06)** Architecture of 8051
	2nd	Architecture of 8051
	3rd	Memory Organization – Addressing modes
13th	1st	Instruction set – Boolean processing
	2nd	Simple program
	3rd	Simple program
14th	1st	**UNIT-VII: 8051 Peripheral Functions(06)** 8051 interrupt structures
	2nd	Timer and serial functions
	3rd	parallel port features : Modes of operation
15th	1st	Power control, features – Interfacing of 8051
	2nd	Interfacing of 8051
	3rd	Typical applications – MCS 51 family features 8031/8051/8751



Signature of the faculty

LESSON PLAN (SUMMER-2026)

Discipline:ETC	Semester:4th	Name of the Teaching Faculty: P.Bhawani
Subject: TH:5(B)-FUNDAMENTALS OF POWER ELECTRONICS	No of Days /per week class allotted:3	Semester From date: 22/12/2025 to 18/04/2026 No of Weeks:15
Week	**Class Day**	**Theory Topics**
1st	1st	**UNIT:1-Power Electronic Devices(10)** 1.1 Power electronic devices
	2nd	1.2 Power transistor 1.2.1 construction
	3rd	1.2.1 working principle
2nd	1st	1.2.2 V-I characteristics and uses
	2nd	1.3 IGBT 1.3.1 Construction
	3rd	1.3.1 working principle
3rd	1st	1.3.2 V-I characteristics and uses
	2nd	1.4 Concept of single electron transistor (SET)
	3rd	1.5 Aspects of Nano- technology
4th	1st	1.5 Aspects of Nano- technology
	2nd	**UNIT:II- Thyristor Family Devices(10)** 2.1 SCR 2.1.1 Construction of SCR
	3rd	2.1.2 Two transistor analogy of SCR
5th	1st	2.1.3 Types, working and characteristics
	2nd	2.1.4 SCR mounting and cooling 2.2 Types of Thyristors: SCR, LASCR, SCS, GTO, UJT, PUT, DIAC and TRIAC
	3rd	2.3 Thyristor family devices 2.3.1 Symbol and construction 2.3.2 Operating principle 2.3.3 V-I characteristics - SCR
6th	1st	LASCR, SCS
	2nd	GTO, UJT, PUT
	3rd	DIAC and TRIAC
7th	1st	2.4 Protection circuits 2.4.1 Over-voltage 2.4.2 Over-current
	2nd	2.4.3 Snubber 2.4.4 Crowbar
	3rd	**UNIT:III-Turn-on and Turn-off Methods of Thyristors(08)** 3.1 SCR Turn-On methods 3.1.1 High Voltage thermal triggering, 3.1.2 Illumination triggering 3.1.3 dv/dt triggering
8th	1st	3.2 Gate trigger circuits 3.2.1 Resistance and Resistance-Capacitance circuits
	2nd	3.3 SCR triggering using UJT
	3rd	3.4 PUT: Relaxation Oscillator and Synchronized UJT circuit 3.5 Pulse transformer and opto-coupler based triggering.
9th	1st	3.6 SCR Turn-Off methods: 3.6.1 Class A- Series resonant commutation circuit
	2nd	3.6.2 Class B-Shunt Resonant commutation circuit
	3rd	3.6.3 Class C-Complimentary Symmetry commutation circuit 3.6.4 Class D-Auxiliary commutation
10th	1st	3.6.5 Class E-External pulse commutation 3.6.6 Class F-Line or natural commutation
	2nd	**UNIT-IV: Phase Controlled Rectifiers(10)** 4.1 Phase control: firing angle, conduction angle. 4.2 Single phase half controlled rectifier with R load

	3rd	4.2 Single phase full controlled rectifier with R load
11th	1st	4.2 Single phase midpoint-controlled rectifier with R load
	2nd	4.2 Single phase half controlled rectifier with RL load
	3rd	4.2 Single phase full controlled and midpoint-controlled rectifier with RL load
12th	1st	4.2 Single phasemidpoint-controlled rectifier with RL load
	2nd	4.2.1 Circuit diagram, working, input- output waveforms, equations for DC output and effect of freewheeling diode
	3rd	4.2.1 Continue
13th	1st	4.3 Different configurations of bridge controlled rectifiers: Full bridge, half bridge with common anode, common cathode, SCRs in one arm and diodes in another arm
	2nd	4.3 Continue
	3rd	**UNIT-V: Industrial Control Circuits(07)** 5.1 Applications: Burglar's alarm system,
14th	1st	Battery charger using SCR
	2nd	Emergency light system, Temperature controller using SCR
	3rd	Illumination control/fan speed control TRIAC
15th	1st	5.2 SMPS
	2nd	5.3 UPS: Offline and Online
	3rd	5.4 SCR based AC and DC circuit breakers.

Signature of the faculty