

GOVT. MILLENNIUM POLYTECHNIC CHAMBA

LESSON PLAN : PLC & SCADA (SESSION: AUG.-DEC. 2026)

MECHATRONICS ENGINEERING (SEMESTER - 5th)

S.NO.	MONTH	WEEK	CONTENT (THEORY)	REMARKS
1	AUG.	2nd	Unit-1 Relay system and relay based logic; PLC Fundamentals - (Block diagram of PLC's) Applications and Types of Transformers; Selection of PLC components (Power supply, CPU, I/Os List , Communication bus Various ranges available in PLC's); I/O list selection ; Open-Circuit and Short-Circuit Tests; Types of Inputs & outputs / Source Sink Concepts Parallel Operation of Transformers; Wiring of the I/O devices Architectural Evolution of PLC Introduction to the field devices; Types of Inputs & outputs / Source Sink Concepts Wiring of the I/O devices Concept of flags and Scan cycle execution.	
		3rd		
		4th		
		5th		
2	SEPT.	1st	Unit-2 Concept of flags and Scan cycle execution; Setting up PLCs / Connecting CPU, I/O modules, Rack, Backplane and Communication bus Connecting Field devices to PLCs I/Os 3 Programming Instructions arithmetic and logical; Load /and /or/out / and Read / Write Compare / Add/ Sub; /And /Or – Blocks; Edge / trailing edge instructions; MOVE block application, Timer, and Counter Blocks programming Advanced instructions; File handling and Comment functions Master control /set /reset function	
		2nd		
		3rd		
		4th		
		5th	Unit-4 Monitoring Arrays & Tags of User-Defined Data Types Editing Ladder Logic Online; Troubleshooting Controller Problems Monitoring GSV/SSV Instructions Forcing I/O & Toggling Bits Troubleshooting I/O Module Problems CPU, I/O module replacements; Fault detection and error handling	
3	OCT.	1st	Unit-5 SCADA system application (Oil GAS/factory/Metro/Solar Power Plant/Steel Plant; Calculation SCADA tag.; Selection of Software basis of SCADA Tag. Creating Database of Tags Unit-6 SCADA Screen /Creating & Editing graphic display with animation; Data Entry / Start Stop command Analog entry; Sizing, Movement, Blinking, Visibility, Filling Trending; Creating & Accessing Real-time Creating & Accessing Historical Trend	
		2nd		
		3rd		
		4th		
		5th		
4	NOV.	1st	Unit-7 Introduction & History of DCS; Hierarchical Architecture of DCS; System Elements of DCS (Field Station, Intermediate Station and Central Computer Station); Advantages and Disadvantages of DCS Comparison of PLC, SCADA and DCS Unit-8 Software Features PLC software of: ABB / Allen Bradley: Micrologix, SLC 500, Compact Logix; Siemens S7 SIMATIC Software SIMATIC SCADA Systems Automation Software- Siemens AVEVA SCADA Systems Automation Software; ABB DCS Software.	
		2nd		
		3rd		
		4th		

Signature of Teacher

HOD/OIC

GOVT.MILLENNIUM POLYTECHNIC CHAMBA

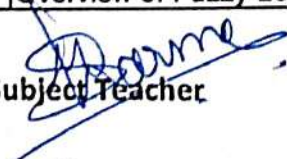
LESSON PLAN : ADVANCED MANUFACTURING PROCESSES				(SESSION: AUG.-DEC. 2026)
MECHATRONICS ENGINEERING (SEMESTER - 5th)				
S.NO.	MONTH	WEEK	CONTENT (THEORY)	REMARKS
1	AUG.	2nd	UNIT-I: Jigs & Fixtures: Definition of jig; Types of jigs: Leaf jig, Box and Handle jig, Template jig, Plate jig, Indexing jig, Universal jig, Vice jigs; General consideration in the design of drill jigs; Drill bush; Types of fixtures: Vice fixtures, Milling fixtures, Boring fixtures, Grinding fixtures; Basic principles of location; Locating methods and devices; Basic principles of the clamping; Types of clamps: Strap clamps, Cam clamps, Screw clamps, Toggle clamps, Hydraulic and Pneumatic clamps.	
		3rd		
		4th		
		5th		
2	SEPT.	1st	Unit-II: Plastic Processing: Processing of plastics; Moulding processes: Injection moulding, Compression moulding, transfer moulding; Extruding; Casting; Fabrication methods-Sheet forming, Blow moulding, Laminating plastics (sheets, rods & tubes), Reinforcing; Applications of Plastics.	
		2nd		
		3rd		
		4th	Unit-III: Modern Machining Processes: Principle, Description and applications of Ultrasonic Machining, Electric Discharge Machining, Wire cut EDM, Abrasive Jet Machining, Laser Beam Machining, Electro Chemical Machining.	
		5th		
3	OCT.	1st	Unit-IV: CNC Milling Machines: Vertical and horizontal machining center: Constructional features, Axis identification, Electronic control system. Automatic tool changer and tool magazine. CNC programming: Preparatory functions (G code) , miscellaneous functions (M code), Part programming.	
		2nd		
		3rd		
		4th		
		5th		
4	NOV.	1st	Unit-V: Special Purpose Machines (SPM): Concept, General elements of SPM, Productivity improvement by SPM, Principles of SPM design. Maintenance of Machine Tools: Types of maintenance, Repair cycle analysis, Repair complexity, Maintenance manual, Maintenance records, Housekeeping. Introduction to Total Productive Maintenance(TPM).	
		2nd		
		3rd		
		4th		


HOD/OIC

Mechatronics Engg. Department 5th Semester
Neural Network & Fuzzy Logic Lesson plan for the Session Aug-Dec 2026

Lecture No	Topic Name
	Unit-1 (15 hrs) 16 marks
1	Introduction to Neural network
2	Introduction to AI
3	Biological Neurons and Memory
4	Structure & Function of a single Neuron
5	Artificial Neural Networks (ANN)
6	Typical Application of ANN
7	Classification of ANN
8	Clustering in ANN
9	Pattern Recognition
10	Function Approximation
11	Basic approach of the working of ANN
12	Training in ANN
13	Learning in ANN
14	Generalization in ANN
15	Overview of ANN
	Unit-2 (20 hrs) 18marks
16	Supervised Learning
17	Single-layer Networks
18	Linear Separability
19	Handling linearly non-separable sets
20	Training algorithms
21	Working of training algorithms
22	Error correction Rule
23	Gradient decent rules
24	Multi-layer network
25	Architecture of multi layer network
26	Back Propagation algorithm
27	(BPA) – Various parameters and their selection
28	Applications of BPA
29	Feed Forward algorithm
30	Applications of Feed forward algorithm
31	Radial- Basis Function (RBF) network
32	RBF learning strategies

33	RBF applications
34	Comparison of BPA, FFA & RBF
35	Overview of BPA, FFN & RBF
	Unit-3 (14 Hrs) 10 Marks
36	Search Algorithms
37	Terminology of search algorithms
38	Brute Force Search Strategies
39	Example of Brute Force Search Strategies
40	Working of Brute Force Search Strategies
41	Breadth First Search
42	Example of Breadth First Search
43	Depth First Search
44	Example of Depth First Search
45	Heuristic Search Strategies
46	Example of Heuristic Search Strategies
47	Local Search Algorithms
48	Example of Local Search Algorithms
49	Overview of Search algorithms
	Unit-4 (15 Hrs) 16 Marks
50	Basic concepts of Fuzzy Logic
51	Fuzzy Vs. Crisp set
52	Linguistic variables
53	Membership functions
54	Operations of fuzzy sets
55	Crisp relations
56	Fuzzy relations
57	Approximate reasoning
58	Fuzzy IF THEN rule
59	Variable inference
60	Various techniques
61	Defuzzification techniques
62	Fuzzy rule based systems
63	Applications of fuzzy logic
64	Overview of Fuzzy Logics


Subject Teacher


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Mechatronics Engg. Department 5th Semester

Renewable Energy Technologies Lesson plan For the session Aug-Dec 2026

Lecture No.	Topic Name
	Unit 1 : Introduction (12 Hrs.) 12 Marks
1	World Energy Use
2	Reserves of Energy Resources
3	Reserves of Energy Resources
4	Environmental Aspects of Energy Utilization
5	Environmental Aspects of Energy Utilization
6	Renewable Energy Scenario in India and around the World
7	Renewable Energy Scenario in India and around the World
8	Renewable Energy Scenario in India and around the World
9	Potentials
10	Achievements
11	Applications; Economics of renewable energy systems.
12	Applications; Economics of renewable energy systems.
	Unit 2 : Solar Energy (13 Hrs.) 12 Marks
13	Solar Radiation
14	Measurements of Solar Radiation
15	Flat Plate and Concentrating Collectors
16	Flat Plate and Concentrating Collectors
17	Solar direct Thermal Applications;
18	Solar direct Thermal Applications;
19	Solar thermal Power Generation
20	Solar thermal Power Generation
21	Fundamentals of Solar Photo Voltaic Conversion
22	Fundamentals of Solar Photo Voltaic Conversion
23	Solar Cells
24	Solar PV Power Generation
25	Solar PV Applications.
	Unit 3: Wind Energy (13 Hrs.) 12 Marks
26	Wind Data and Energy Estimation
27	Wind Data and Energy Estimation
28	Types of Wind Energy Systems
29	Types of Wind Energy Systems
30	Performance; Site Selection
31	Performance; Site Selection
32	Performance; Site Selection
33	Details of Wind Turbine Generator

34	Details of Wind Turbine Generator
35	Details of Wind Turbine Generator
36	Details of Wind Turbine Generator
37	Safety and Environmental Aspects.
38	Safety and Environmental Aspects.

	Unit 4 : Bio Energy (13hrs) 12 Marks
39	Biomass direct combustion
40	Biomass direct combustion
41	Biomass direct combustion
42	Biomass gasifiers
43	Biomass gasifiers
44	Biogas plants
45	Biogas plants
46	Digesters
47	Digesters
48	Ethanol production
49	Biodiesel
50	Cogeneration
51	Biomass Applications
	Unit 5 : Other Renewable Energy Sources (13 hrs) 12 Marks
52	Tidal energy
53	Tidal energy
54	Wave Energy;
55	Wave Energy;
56	Open and Closed OTEC Cycles
57	Open and Closed OTEC Cycles
58	Small Hydro-Geothermal Energy
59	Small Hydro-Geothermal Energy
60	Small Hydro-Geothermal Energy
61	Hydrogen and Storage
62	Hydrogen and Storage
63	Fuel Cell Systems
64	Hybrid Systems.


Subject Teacher


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Mechatronics Engg. Department 5th Semester
Robotics & Applications Lesson plan for the Session Aug-Dec 2026

Lecture NO	Topic Name
	Unit-1 Introduction (6 hrs) 06 marks
1	Robot definition and its need
2	Robot terminology
3	Robot motion
4	Robot classification based on physical configuration
5	Advantages of robot
6	Limitations of robot
	Unit-2 Basic Elements of Robots (24 hrs) 18 marks
7	Basic structure of Robot
8	Classification of robotic systems- accordingly to types of system
9	Classification of robotic systems- accordingly to types of control loop
10	Classification of robotic systems- accordingly to types of structure of manipulator
11	Cartesian
12	Cylindrical
13	Spherical
14	Articulated
15	Degree of freedom
16	End effectors- types
17	Working principle and applications Drives
18	Types and application with working principle
19	Sensing Devices
20	Optical sensor
21	Proximity sensor
22	LVDT
23	Force sensor
24	Strain gauges
25	Piezoelectric
26	RTD
27	Thermocouple
28	Motion encoders
29	Selection Criteria for Robot
30	Overview of Chapter
	Unit-3 Robot controls (12 Hrs) 09 Marks
31	Purpose of Robot control

32	Level of controls
33	Device controller Work cell controller
34	Servo Control systems types, basic principle and block diagrams
35	Non-Servo Control systems types, basic principle and block diagrams
36	Working, advantages, limitations of some control system
37	Adaptive control
38	Computed Torque Technique
39	New minimum time control
40	Resolved motion Control
41	Summary of the chapter
42	Revision of the chapter
Unit-4 Robot Programming (10 Hrs) 15 Marks	
43	Need of robot programming
44	Function of robot programming
45	Methods of robot programming
46	Manual Teaching
47	Lead through Programming languages
48	VAL
49	RAIL
50	Lead through Programming languages types
51	Lead through Programming languages features
52	Lead through Programming languages advantages and limitations
Unit-5 Robotic Applications (06 Hrs) 12 Marks	
53	Material transfer
54	Machine loading and unloading
55	Painting
56	Packaging
57	Inspection
58	Welding


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GOVT.MILLENNIUM POLYTECHNIC CHAMBA

LESSON PLAN FOR : BASIC OF MECHANICAL ENGINEERING

(SESSION: AUGUST-DEC. 2026)

MECHATRONICS ENGINEERING (SEMESTER - 3RD)

S.NO.	MONTH	WEEK	CONTENT (THEORY)	REMARKS
1	AUGUST	1st	UNIT-I:	
		2nd	Introduction to Thermodynamics - Role of Thermodynamics in Engineering and science, Types of Systems, Thermodynamic Equilibrium, Properties, State, Process and Cycle, Elementary Introduction to Zeroth, First and Second laws of thermodynamics, Heat and Work Interactions for various processes; Concept of Heat Engine, Heat Pump & Refrigerator, Efficiency/COP; Kelvin-Planck and Clausius Statements, Carnot Cycle, Carnot Efficiency, T-S and P-V Diagrams, Concept of Entropy	
		3rd		
		4th		
2	SEPT.	1st	Unit-II:	
		2nd	Heat transfer & Thermal Power Plant: Heat Transfer, Modes of Heat Transfer; Conduction: Fourier Equation, Conduction heat transfer through Composite Walls, Simple Numerical Problems, Convection Heat transfer: Natural and forced convection, Radiation: Absorption, Reflection and transmission of radiation, Concept of black body, Stefan-Boltzman Law (concept only, No derivation), Thermal Power Plant Layout; Rankine Cycle; Fire Tube and Water Tube boilers, Babcock & Wilcox, Cochran Boilers	
		3rd		
		4th		
		5th		
3	OCT.	1st	Unit-III:	
		2nd	Steam Turbines: Impulse and Reaction Turbines; Condensers: Jet & Surface Condensers, Cooling Towers; Internal Combustion Engines: Otto, Diesel and Dual cycles; P-V and T-S Diagrams; IC Engines: 2-Stroke and 4-Stroke I.C. Engines, S.I. and C.I. Engines.	
		3rd		
		4th		
		5th		
4	NOV.	1st	Unit-IV:	
		2nd	Materials and Manufacturing Processes (derivations and Problems omitted): Engineering Materials, Classification and their Properties; Metal Casting, Moulding, Patterns, Metal Working: Hot Working and Cold Working, Metal Forming: Extrusion, Forging, Rolling, Drawing, Gas Welding, Arc Welding, Soldering, and Brazing.	
		3rd		
		4th	Unit-V:	
			Machine Tools and Machining Processes: Machine Tools: Lathe Machine and types, Lathe Operations, Milling Machine and types, Milling Operations, Shaper and Planer Machines: Differences, Quick Return Motion Mechanism, Drilling Machine: Operations, Grinding Machine: Operations.	
		5th		


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LESSON PLAN FOR : MANUFACTURING ENGINEERING

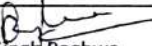
(SESSION: AUGUST-DEC. 2026)

MECHATRONICS ENGINEERING (SEMESTER - 3RD)				
S.NO.	MONTH	WEEK	CONTENT (THEORY)	REMARKS
1	AUGUST	1st	UNIT-I: Cutting Fluids & Lubricants: Introduction; Types of cutting fluids, Fluids and coolants required in turning, drilling, shaping, sawing & broaching; Selection of cutting fluids, methods of application of cutting fluid; Classification of lubricants(solid, liquid, gaseous), Properties and applications of lubricants.	
		2nd		
		3rd	Lathe Operations: Types of lathes – light duty, Medium duty and heavy duty geared lathe, CNC lathe (Concept only); Specifications; Basic parts and their functions; Operations and tools–Turning, parting off, Knurling, facing, Boring, drilling, threading, step turning, taper turning.	
		4th		
2	SEPT.	1st	Unit-II:Broaching Machines: Introduction to broaching; Types of broaching machines–Horizontal type (Single ram & duplex ram), Vertical type, Pull up, pull down, and push down; Elements of broach tool; Nomenclature; Tool materials for broaching.	
		2nd		
		3rd	Drilling: Classification; Basic parts and their functions; Radial drilling machine; Types of operations; Specifications of drilling machine; Types of drills and reamers.	
		4th		
3	OCT.	1st	Unit-III:Welding: Classification; Gas welding techniques; Types of welding flames; Arc Welding –Principle, Equipment, Applications; Shielded metal arcwelding; Submerged arc welding; TIG / MIG welding; Resistance welding - Spot welding, Seam welding, Projection welding; Welding defects; Brazing and soldering.	
		2nd		
		3rd	Milling: Introduction; Types of milling machines: plain, Universal, vertical; constructional details	
		4th	Unit-IV:Gear Making: Manufacture of gears–by Casting, Moulding, Stamping, Coining, Extruding, Rolling, Machining; Gear generating methods: Gear Shaping with pinion cutter & rack cutter; Gear hobbing; Description of gear hob; Operation of gear hobbing machine; Gear finishing processes;	
		5th		
4	NOV.	1st	Gear materials and specification; Heat treatment processes applied to gears. Press working (derivations and problems omitted): Types of presses and Specifications, Press working operations-Cutting, bending, drawing, punching, blanking, notching, lancing; Die set components- punch and dieshoe, guide pin, bolster plate, stripper, stock guide, feed stock, pilot; Punch and die clearances for blanking and piercing, effect of clearance.	
		2nd	Unit-V : Grinding and finishing processes: Principles of metal removal by Grinding; Abrasives –Natural &Artificial; Bonds and binding processes: Vitrified, silicate, shellac, rubber, bakelite; Factors affecting the selection of grind wheels: size and shape of wheel, kind of abrasive, grain size, grade and strength of bond,structure of grain, spacing, kinds of bind material; Grinding machines classification: Cylindrical, Surface, Tool & Cutter grinding machines; Construction details; Principle of centerless grinding; Advantages & limitations of centerless grinding; Finishing by grinding: Honing, Lapping, Super finishing;	
		3rd		
		4th	Electroplating: Basic principles,Plating metals, applications; Hot dipping: Galvanizing, Tin coating, Parkerising, Anodizing; Metal spraying: wire process, powder process and applications; Organic coatings;Finishing specifications.	


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GMP Chamba			Lesson Plan Subject: EDC	
Dept. of Mechatronics			Mechatronics. 3rd Semester Session : Aug to Nov 2026	
			Total theory periods /week: 3+1	
S.no/unit	Month /week	Lecture		Reference books
1	Aug 2nd	1	UNIT-I Semiconductor and Diodes : introduction	1.Basic Electronics and linear Circuits By:NN Bhargava
		2	Definition: Extrinsic/Intrinsic, N-type & P-type.	
		3	PN Junction Diode – Forward and Reverse Bias Characteristics	
	Aug 3rd	4	Zener Diode – Principle, characteristics, construction, and working.	
		5	Half Wave Rectifier	
		6	Full Wave rectifier:Center tapped	
	Aug 4th	7	Full Wave rectifier:Bridge	
		8	Filters – C, LC, and PIE Filters.	
2	Aug 4th	9	UNIT-II Bipolar Junction Transistor (BJT) Introduction	2.Analog Circuits By: A.K. Maini
		10	NPN and PNP Transistor – Operation and characteristics.	
	Sept/1st	11	Common Base Configuration – characteristics and working	
		12	Common Emitter Configuration–characteristics and working	
		13	Common Collector Configuration– characteristics and working	
	Sept/2nd	14	High frequency model of BJT	
		15	Classification of amplifiers, negative feedback	
		16	UNIT -III Field Effect Transistors Introduction	
3	Sept/2nd	17	FET – Working Principle, Classification	3 Electronics Devices and circuit theory By: Boyestad & Nashelsky
		18	MOSFET Small Signal model.	
		19	N-Channel/ P- Channel MOSFETs – characteristics	
	Sept/3rd	20	N-Channel/ P- Channel MOSFETs – characteristics	
		21	enhancement, and depletion mode	
		22	MOS-FET as a Switch	
	Sept/4th	23	Common Source Amplifiers	
		24	Uni-Junction Transistor – equivalent circuit and operation	
4	Sept/4th	25	UNIT-IV SCR DIAC & TRIAC Introduction	3 Electronics Devices and circuit theory By: Boyestad & Nashelsky
		26	SCR – Construction, operation, working, characteristics	
		27	DIAC - Construction, operation, working, characteristics.	
	Oct/1st	28	TRIAC - Construction, operation, working, characteristics.	
		29	SCR and MOSFET as a Switch	
		30	DIAC as bidirectional switch	

		31	Comparison of SCR, DIAC, TRIAC, MOSFET.	
5	Oct/2nd	32	UNIT-V Amplifiers and Oscillators:Introduction	
		33	Feedback Amplifiers – Properties of negative Feedback	4. Electronics Devices and circuits
		34	impact of feedback on different parameters.	
	Oct/3rd	35	Basic Feedback Amplifier Topologies	By: J B Gupta
		36	Voltage Series, Voltage Shunt	
		37	Current Series, Current Shunt.	
		38	Oscillator – Basic Principles	
	Oct/4th	39	Crystal Oscillator	
		40	Non-linear/ Pulse Oscillator	
		41	Revision	
	Nov/1st	42	HT	5. Electronics Devices and circuits
		43	HT	By: Dr.R S Sedha
		44	HT	
	Nov/2nd	45	Revision	
		46	Revision	
		47	Revision	
	Nov/3rd	48	Revision	
		49	Revision	
		50	Revision	
		51	Revision	
	Nov/4th	53	Revision	
		54	Revision	
		55	Revision	
		56	Revision	


 Vijay Singh Raghwa
 Lecturer Electronics


 HOD /OIC

Government Millennium Polytechnic Chamba Distt Chamba (H.P) -176310
Department of Mechatronics

Lesson Plan

Subject: Digital Electronics

Semester- 3rd

Session: (Aug – Dec, 2026)

Total Planned Periods: 56

Start From: 01/08/2026

Sr. No	Month	Week	Chapter	Contents	Remarks
1	August	1 st	Number Systems & Boolean Algebra	• Introduction to different number systems • Conversion from one number system to another	
2		2 nd		• Boolean variables – Rules • Laws of Boolean algebra • De-Morgan's Theorem	
3		3 rd		• Karnaugh Maps • Their use for simplification of Boolean expressions	
4		4 th	Logic Gates	• AND, OR, NOT, NAND, NOR, XOR, XNOR: Symbolic representation and truth table	
4	September	1 st		• Implementation of Boolean expressions • Logic Functions using gates • Simplification of expressions	
		2 nd	Combinational Logic Circuits	• Arithmetic Circuits – Addition, Subtraction • 1's & 2's Complement Half Adder, Full Adder	
8		3 rd		• Half Subtractor, Full Subtractor • Parallel and Series Adders	Class Test-1
9		4 th		• Encoder, Decoder • Multiplexer – 2 to 1 MUX, 4 to 1 MUX, 8 to 1 MUX and their Applications	

Sr. No	Month	Week	Chapter	Contents	Remarks
1	October	1 st	Sequential Logic Circuits	- Demultiplexer – 1-2 DEMUX, 1-4 DEMUX, 1- 8 DEMUX - Flip Flops – SR, JK, T, D	
2		2 nd		- JK-MS, Triggering - Counters – 4bit Up – Down Counters, Asynchronous/ Ripple Counter	
3		3 rd		Decade Counter- Mod 3, Mod 7 Counter, Johnson Counter, Ring Counter	Class Test-2
4		4 th		Registers – 4bit Shift Register: Serial In Serial Out, Serial In Parallel Out, Parallel In Serial Out, Parallel In Parallel Out	
4	November	1 st	Memory Devices	Classification of Memories – RAM Organization, Address Lines and Memory Size, Static RAM, Bipolar RAM, Cell Dynamic RAM, D RAM, DDR RAM	
		2 nd		House Test	
8		3 rd		Read only memory – ROM organization, Expanding memory, PROM, EPROM, EEPROM, Flash memory	
9		4 th		Data Converters – Digital to Analog converters, Analog to Digital Converters	


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 Mechatronics


 Teacher's Signature

Mechatronics Engg. Department 3rd Semester

Electric Circuits & Network Lesson plan For the session Aug-Dec 2026

Lecture No.	Topic Name
	Unit 1 : Basic of Network and Network Theorem (12 Hrs.) 12 Marks
1	Node and Mesh Analysis
2	Node and Mesh Analysis
3	Superposition Theorem,
4	Superposition Theorem,
5	Thevenin Theorem
6	Thevenin Theorem
7	Norton Theorem
8	Norton Theorem
9	Maximum Power transfer theorem
10	Maximum Power transfer theorem
11	Reciprocity Theorem.
12	Reciprocity Theorem.
	Unit 2 : Graph Theory (14 Hrs.) 12 Marks
13	Concept of Graph,
14	Concept of Graph,
15	Node Tree of network
16	incidence matrix
17	incidence matrix
18	Analysis of resistive network using cut-set and tie-set
19	Analysis of resistive network using cut-set and tie-set
20	Analysis of resistive network using cut-set and tie-set
21	Duality Theorem
22	Duality Theorem
23	Application in the electrical circuits.
24	Application in the electrical circuits.
25	Revision of all theorems
26	Revision of all theorems
	Unit 3: Time domain and Frequency Domain Analysis (12 Hrs.) 12 Marks
27	Solution of first and second order differential equations for Series and parallel R-L, R-C, R-L-C circuits.
28	Solution of first and second order differential equations for Series and parallel R-L, R-C, R-L-C circuits.
29	Solution of first and second order differential equations for Series and parallel R-L, R-C, R-L-C circuits.
30	Solution of first and second order differential equations for Series and parallel R-L, R-C, R-L-C circuits.
31	Initial and Final conditions in network elements
32	Initial and Final conditions in network elements
33	Forced and Free response
34	Time constants.
35	State and Transient State Response
36	State and Transient State Response

37	Analysis of electrical circuits using Laplace Transform for standard inputs (unit, Ramp, Step).
38	Analysis of electrical circuits using Laplace Transform for standard inputs (unit, Ramp, Step).

	Unit 4 : Trigonometric and exponential Fourier series (14hrs) 12 Marks
39	Discrete spectra
40	Discrete spectra
41	symmetry of waveform
42	symmetry of waveform
43	Steady state response of a network to non-sinusoidal periodic inputs
44	Steady state response of a network to non-sinusoidal periodic inputs
45	Steady state response of a network to non-sinusoidal periodic inputs
46	power factor
47	effective values
48	Fourier transform
49	Fourier transform
50	Fourier transform
51	Continuous spectra.
52	Continuous spectra.
	Unit 5 : Two Port Network (12 hrs) 12 Marks
53	Introduction of the Two Port Network
54	Introduction of the Two Port Network
55	various network parameters
56	various network parameters
57	Open Circuit Impedance Parameters
58	Open Circuit Impedance Parameters
59	Short Circuit Admittance Parameters
60	Short Circuit Admittance Parameters
61	Transmission Parameters,
62	Transmission Parameters,
63	Introduction of Hybrid Parameters.
64	Introduction of Hybrid Parameters.


Subject Teacher


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