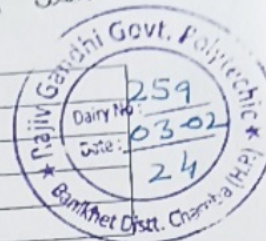


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Subject Teacher
3rd. Arun Kumar do upadhyay
to Publish on website.

R.G. Government Polytechnic Banikhet, Distt. Chamba H.P-176303
Department of Electrical Engineering
Lesson Plan

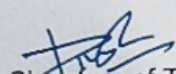


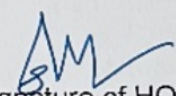
Name of Faculty	Er. Divya
Discipline	Electrical Engineering
Semester	4th
Subject	EPTD (L-4 Hrs./Week)
Lesson Plan Duration	Feb-May 2024

Week	Topic	Theory
1 st (8 Feb. – 15 Feb.)	Unit – I Basics of Transmission and Distribution	Single line diagrams with components of the electric supply transmission and distribution systems. Classification of transmission lines: Primary and secondary transmission; standard voltage level used in India. Classification of transmission lines: based on type of voltage, voltage level, length and others
2 nd (16 Feb. – 22 Feb.)	Unit – I Basics of Transmission and Distribution	Characteristics of high voltage for power transmission. Method of construction of electric supply transmission system – 110 kV, 220 kV, 400 kV. Method of construction of electric supply distribution systems – 220 V, 400V, 11 kV, 33 kV
3 rd (23 Feb-1 Mar.)	Unit – I Basics of Transmission and Distribution Unit – II Transmission Line Parameters and Performance	Method of construction of electric supply distribution systems – 220 V, 400V, 11 kV, 33 kV Line Parameters: Concepts of R, L and C of line parameters
4 th (2 Mar. – 11 Mar.)	Unit – II Transmission Line Parameters and Performance	types of lines. Performance of short line: Efficiency, regulation and its derivation, effect of power factor, vector diagram for different power factor.
5 th (12 Mar-18 Mar.)	Unit – II Transmission Line Parameters and Performance	Performance of medium line representation, nominal 'T', nominal 'π' and end condenser methods. Transposition of conductors and its necessity. Skin effect and proximity effect
6 th (19 Mar. – 26 Mar.)	Unit– III Extra High Voltage Transmission	Extra High Voltage AC (EHVAC) transmission line: Necessity, high voltage substation components such as transformers and other switchgears, advantages, limitations and applications and lines in India. Ferranti and Corona effect.
CLASS TEST -1		4 th week of March
7 th (27 Mar. – 3 April)	Unit– III Extra High Voltage Transmission	High Voltage DC (HVDC) Transmission Line: Necessity, components, advantages, Limitations and applications. Layout of mono-polar, bi-Polar and homo-polar transmission lines. Lines in India.
8 th (4 April. – 10 April.)	Unit– III Extra High Voltage Transmission	Features of EHVAC and HVDC transmission line. Flexible AC Transmission line: Features, d types of FACTS controller. New trends in wireless transmission of electrical power.

9 th (12 April – 22 April)	Unit- IV A.C Distribution System	AC distribution: Components classification, requirements of an ideal distribution system, primary and secondary distribution system. Feeder and distributor, factors to be considered in design of feeder and distributor
10 th (23 April. – 29 April.)	Unit- IV A.C Distribution System	Types of different distribution schemes: radial, ring, and grid, layout, advantages, disadvantages and applications. Voltage drop, sending end and receiving end voltage
CLASS TEST -2		4 th week of April 2024
11 th (30 April. – 6 May.)	Unit- IV A.C Distribution System	Distribution Sub-Station: Classification, site selection, advantages, disadvantages and applications. Single Line diagram (layout) of 33/11KV Sub-Station, 11KV/400V sub-station, Symbols and functions of their components.
12 th (7 May-15 May)	Unit- V Components of Transmission and Distribution Line	Overhead Conductors: Properties of material, types of conductor with trade names, significance of sag. Line supports: Requirements, types of line structures and their specifications, methods of erection. Line Insulators
13 th (16 May-22 May.)	Unit- V Components of Transmission and Distribution Line	Properties of insulating material, selection of material, types of insulators and their applications, 26 causes of insulator failure, derivation of equation of string efficiency for string of three suspension insulator, methods of improving string efficiency.
House Test		3 rd week of May 2024
14 th (24 May-30 May.)	Unit- V Components of Transmission and Distribution Line Revision & Doubt Clearance	Underground Cables: Requirements, classification, construction, comparison with overhead lines, cable laying and cable jointing. Revision & Doubt Clearance
15 th (31 May-1 June)	Revision & Doubt Clearance	Revision & Doubt Clearance

NOTE: Lesson Plan is Tentative, subject to availability of Time, Students & Faculty.


Signature of Teacher
(Er. Divya)


Signature of HOD
(Er. Amit Attri)

R.G.Government Polytechnic Banikhet, Distt. Chamba H.P-176303
Department of Electrical Engineering

Lesson Plan

Name of Faculty	Er. Divya Amit Attari
Discipline	Electrical Engineering
Semester	4th
Subject	Induction, Synchronous & Electric Machines(L-4 Hrs./Week)
Lesson Plan Duration	Feb-May 2024

Week	Topic	Theory
1 st (8 Feb. – 15 Feb.)	Unit – I Three Phase Induction Motor	Working principle: production of rotating magnetic field, Synchronous speed, rotor speed and slip. Constructional details of 3 phase induction motors: Squirrel cage induction motor and Slip ring induction motor.
2 nd (16 Feb. – 22 Feb.)	Unit – I Three Phase Induction Motor	Rotor quantities: frequency, induced emf, power factor at starting and running condition. Characteristics of torque versus slip (speed), Torques: starting, full load and maximum with relations among them. Induction motor as a generalized transformer with phasor diagram. Four quadrant operation, Power flow diagram.
3 rd (23 Feb-1 Mar.)	Unit – I Three Phase Induction Motor	Starters: need and types; stator resistance, auto transformer, star delta, rotor resistance and soft starters. Speed control methods: stator voltage, pole changing, rotor resistance and VVVF. Motor selection for different applications as per the load torque-speed requirements. Maintenance of three phase induction motors.
4 th (2 Mar. – 11 Mar.)	Unit – II Single phase induction motors	Double field revolving theory, principle of making these motors self-start. Construction and working: Resistance start induction run, capacitor start induction run, capacitor start capacitor run, shaded pole, repulsion type, series motor, universal motor, hysteresis motor.
5 th (12 Mar-18 Mar.)	Unit – II Single phase induction motors	Torque-speed characteristics for all of the above motors. Motor selection for different applications as per the load torque-speed requirements. Maintenance of single phase induction motors
6 th (19 Mar. – 26 Mar.)	Unit– III Three phase Alternators	Principle of working, moving and stationary armatures. Constructional details: parts and their functions, rotor constructions
CLASS TEST -1		4 th week of March
7 th (27 Mar. – 3 April)	Unit– III Three phase Alternators	Windings: Single and Double layer. E.M.F. equation of an Alternator with numerical by considering short pitch factor and distribution factor. Alternator loading: Factors affecting the terminal voltage of alternator;
8 th (4 April. – 10	Unit– III Three phase	Armature resistance and leakage reactance drops.

April.)	Alternators	Armature reaction at various power factors and synchronous impedance.
9 th (12 April – 22 April)	Unit– III Three phase Alternators	Voltage regulation: direct loading and synchronous impedance methods. Maintenance of alternators
10 th (23 April. – 29 April.)	Unit– IV Synchronous motors	Principle of working /operation, significance of load angle. Torques: starting torque
CLASS TEST -2		4 th week of April 2024
11 th (30 April. – 6 May.)	Unit– IV Synchronous motors	running torque, pull in torque, pull out torque. Synchronous motor on load with constant excitation (numerical); effect of excitation at constant load (numerical).
12 th (7 May-15 May)	Unit– IV Synchronous motors	V- Curves and Inverted V-Curves. Hunting and Phase swinging. Methods of Starting of Synchronous Motor. Losses in synchronous motors and efficiency (no numerical). Applications areas
13 th (16 May-22 May.)	Unit– V Fractional horse power (FHP) Motors	Construction and working: Synchronous Reluctance Motor, Switched Reluctance Motor, BLDC, Permanent Magnet Synchronous Motors,
House Test		3 rd week of May 2024
14 th (24 May-30 May.)	Unit– V Fractional horse power (FHP) Motors	stepper motors, AC and DC servomotors. Torque speed characteristics of above motors. Applications of above motors.
15 th (31 May-1 June)	Revision & Doubt Clearance	Revision & Doubt Clearance

NOTE: Lesson Plan is Tentative, subject to availability of Time, Students & Faculty.

Signature of Teacher
(Er.Amit Attri)

Signature of HOD
(Er. Amit Attri)

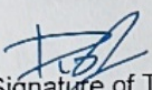
R.G. Government Polytechnic Banikhet, Distt. Chamba H.P-176303
Department of Electrical Engineering
Lesson Plan


Name of Faculty	Er. Divya
Discipline	Electrical Engineering
Semester	4th
Subject	FPE (L-4 Hrs./Week)
Lesson Plan Duration	Feb-May 2024

Week	Topic	Theory
1 st (8 Feb. – 15 Feb.)	Unit – I Power Electronic Devices	Power electronic devices Power transistor: construction, working principle, V-I characteristics and uses
2 nd (16 Feb. – 22 Feb.)	Unit – I Power Electronic Devices	IGBT: Construction, working principle, V-I characteristics and uses. Concept of single electron transistor (SET) - aspects of Nano-technology.
3 rd (23 Feb-1 Mar.)	Unit – II Thyristor Family Devices	SCR: construction, two transistor analogy, types, working and characteristics. SCR mounting and cooling. Types of Thyristors:
4 th (2 Mar. – 11 Mar.)	Unit – II Thyristor Family Devices	SCR, LASCR, SCS, GTO, UJT, PUT, DIAC and TRIAC
5 th (12 Mar-18Mar.)	Unit – II Thyristor Family Devices	Thyristor family devices: symbol, construction, operating principle and V-I characteristics. Protection circuits: over-voltage, over-current, Snubber, Crowbar.
6 th (19 Mar. – 26 Mar.)	Unit– III Turn-on and Turn-off Methods of Thyristors	SCR Turn-On methods: High Voltage thermal triggering, Illumination triggering, dv/dt triggering, Gate triggering. Gate trigger circuits – Resistance and Resistance-Capacitance circuits. SCR triggering using UJT, PUT: Relaxation Oscillator and Synchronized UJT circuit.
CLASS TEST -1		4 th week of March
7 th (27 Mar. – 3 April)	Unit– III Turn-on and Turn-off Methods of Thyristors	Pulse transformer and opto-coupler based triggering. SCR Turn-Off methods: Class A- Series resonant commutation circuit, Class B-Shunt Resonant commutation circuit, Class C-Complimentary Symmetry commutation circuit
8 th (4 April. – 10 April.)	Unit– III Turn-on and Turn-off Methods of Thyristors	Class D –Auxiliary commutation, Class E- External pulse commutation, Class F- Line or natural commutation.
9 th (12 April – 22 April)	Unit– IV Phase Controlled Rectifiers	Phase control: firing angle, conduction angle. Single phase half controlled, full controlled and midpoint controlled rectifier with R, RL load:
10 th (23 April. – 29 April.)	Unit– IV Phase Controlled Rectifiers	Circuit diagram, working, input- output waveforms, equations for DC output and effect of freewheeling diode.
CLASS TEST -2		4 th week of April 2024
11 th (30 April. – 6 May.)	Unit– IV Phase Controlled Rectifiers	Different configurations of bridge controlled rectifiers: Full bridge, half bridge with common anode, common cathode, SCRs in one arm and diodes in another arm.

12 th (7 May-15 May)	Unit- V Industrial Control Circuits	Applications: Burglar's alarm system, Battery charger using SCR, Emergency light system, Temperature controller using SCR
13 th (16 May-22 May.)	Unit- V Industrial Control Circuits	Illumination control / fan speed control TRIAC, SMPS. UPS: Offline and Online
House Test		3 rd week of May 2024
14 th (24 May-30 May.)	Unit- V Industrial Control Circuits Revision & Doubt Clearance	SCR based AC and DC circuit breakers. Revision & Doubt Clearance
15 th (31 May-1 June)	Revision & Doubt Clearance	Revision & Doubt Clearance

NOTE: Lesson Plan is Tentative, subject to availability of Time, Students & Faculty.


Signature of Teacher
(Er. Divya)


Signature of HOD
(Er. Amit Attri)

R.G. Government Polytechnic Banikhet, Distt. Chamba H.P-176303

Department of Electrical Engineering


Lesson Plan

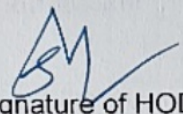
Name of Faculty	Mr.X
Discipline	Electrical Engineering
Semester	4th
Subject	EEAC (L-4 Hrs./Week)
Lesson Plan Duration	Feb-May 2024

Week	Topic	Theory
1 st (8 Feb. – 15 Feb.)	Unit I Electric Installation and Safety	Scope and features of National electric code 2011 Types of electrical installation Fundamental principles for electrical installation Permit to work
2 nd (16 Feb. – 22 Feb.)	Unit I Electric Installation and Safety Unit II Estimation and Costing	safety instructions and safety practices Purpose of estimating and costing. Meaning and purpose of - rough estimate, detailed estimate, supplementary estimate, annual maintenance estimate and revised estimate
3 rd (23 Feb-1 Mar.)	Unit II Estimation and Costing	Factors to be considered while preparation of detailed estimate and economical execution of work Contracts Concepts of contracts, types of contracts, contractor, role of contractor Tenders and Quotations- Type of tender, tender notice, preparation of tender document, and method of opening of tender, Quotation, quotation format, comparison between tender and quotation
4 th (2 Mar. – 11 Mar.)	Unit II Estimation and Costing	Comparative statement, format comparative statement. Order format, placing of purchasing order. Principles of execution of works, planning, organizing and completion of work, Billing of work
5 th (12 Mar-18Mar.)	Unit III Non-Industrial Installations	Types of Non-industrial installations– Office buildings, shopping and commercial centre, residential installation, Electric service and supply Design consideration of electrical installation in commercial buildings
6 th (19 Mar. – 26 Mar.)	Unit III Non-Industrial Installations	Design procedure of installation- steps involved in detail, Estimating and costing of unit earthing of commercial installation. Design electrical installation scheme of commercial complex. Erection, Inspection and testing of installation as per NEC
CLASS TEST -1		4 th week of March
7 th (27 Mar. – 3 April)	Unit IV Industrial Installation	Classification of industrial buildings Classification based on power consumption, Drawing of wiring diagram and single-line diagram for single phase and three phase Motors.
8 th (4 April. – 10 April.)	Unit IV Industrial Installation	Design consideration in industrial installations Design procedure of installation-detailed steps Design electrical installation scheme of factory/ small industrial unit, Preparation of material schedule and detailed

9 th (12 April – 22 April)	Unit V Public Lighting Installation	estimation Installation and estimation of agricultural pump and flourmill Classification of outdoor installations streetlight/ public lighting installation Street light pole structures. Selection of equipments, sources used in street light installations
10 th (23 April. – 29 April.)	Unit V Public Lighting Installation	Cables, recommended types and sizes of cable. Control of street light installation.
CLASS TEST -2		4 th week of April 2024
11 th (30 April. – 6 May.)	Unit V Public Lighting Installation Unit VI Distribution Lines and LT Substation	Design, estimation and costing of streetlight Preparation of tenders and abstracts Introduction to overhead and underground distribution line. Materials used for distribution line HT and LV Cables used for distribution line,
12 th (7 May-15 May)	Unit VI Distribution Lines and LT Substation	factors determining selection of LT/ HT power Cables, cable laying and cable termination method according to IS Design, estimation and costing of HT LT overhead line and underground cabling.
13 th (16 May-22 May.)	Unit VI Distribution Lines and LT Substation	Types of 11 KV Distribution substations their line diagram, Estimation of load, Load factor, diversity factor and determination of rating of distribution. Transformer. Design, estimation and costing of outdoor and indoor 11 KV substation.
House Test		3 rd week of May 2024
14 th (24 May-30 May.)	Revision & Doubt Clearance	Revision & Doubt Clearance
15 th (31 May-1 June)	Revision & Doubt Clearance	Revision & Doubt Clearance

NOTE: Lesson Plan is Tentative, subject to availability of Time, Students & Faculty.


Signature of Teacher/Prepared By
(Er. Divya)


Signature of HOD
(Er. Amit Attri)

SR NO	LESSON PLAN			
	Name of Faculty		Deepa Kapoor	
	Department		Electrical	
	Semester		4th	
	Subject		Essence of Indian Knowledge and Tradition	
	Lesson Plan for the Duration		8 Feb 2024 to 1 June 2024	
	Week		Theory	
1	1st(8 Feb.-15 Feb))	Topics to be covered	Himachal Pradesh	A Basic Information -Introduction and function of Indian Knowledge system (IKS).
2	2nd (16 Feb. - 22 Feb.))	Topics to be covered	Indian Knowledge System	The Basic Structure of Indian Knowledge System (IKS) only Introduction The 4 Vedas, Namely (Rigveda), (Yajurveda), (Samaveda), (Atharvaveda)
3	3rd(23Feb. -1March)	Topics to be covered	Indian Knowledge System	2. The 4 UpVedas, namely (Ayurveda (healthcare), Dhanurveda (archery), Gandharva-veda (dance, music etc) and Shiksha-veda (architecture)).
4	4th(2March - 11March)	Topics to be covered	Indian Knowledge System	The 6 Vedangas, namely Shiksha, Kalpa, Vyakarana, Chandas, Nirukta, and Jyotisha
5	5th(12 March -18 March)	Topics to be covered	Indian Knowledge System	Dharmashastra (Manusmriti, Yagnavalkya-smriti etc.) 6 Darshan: Nyaya (Logic and Epistemology)
6	6th(19March-26March)	Topics to be covered	Modern science -	Modern science: Introduction, Characteristics, importance and Example
7	7th(27March- 3April)	Topics to be covered	Traditional knowledge:	□ Difference between modern Science and Indian knowledge system
8	8th(4April- 10April)	Topics to be covered	Yoga and Holistic Health care	□ Traditional knowledge: Definition, nature, characteristics, scope and importance □ Indigenous Knowledge (IK): characteristics □ Traditional knowledge vis-a-vis indigenous knowledge □ Traditional knowledge Vs western
9	9th(12April-22April)	Topics to be covered	Yoga and Holistic Health care	□ Yoga: Meaning and Importance of Yoga □ Yoga and physical health, Yoga and psychological health, Yoga and intellectual health, Yoga and spiritual health, Yoga and social approach □ Introduction to Ashtanga Yoga, Physical Fitness, Health and wellness: Meaning and Importance of Wellness, □ Components of Wellness, Health and physical Fitness
10	10th(23April -29 April)	Topics to be covered	Yoga and Holistic Health care	□ Traditional sports & Regional Games for promoting wellness □ Leadership through Physical Activity and Sports, Introduction to First Aid
11	11th(30 April -6 May)	Topics to be covered	Himachal Pradesh	5: Himachal Pradesh: A Basic Information History, Culture, Heritage/ Tradition, Customs & Manners.
12	12th(7May -15 May)	Topics to be covered	Himachal Pradesh	□ Regional Knowledge, Geographical Features, Constitutional History
13	13th(16 May - 22May)	Topics to be covered	Himachal Pradesh	Tourism Place & Scope
14	14th(24 May - 30 May)	Topics to be covered	Himachal Pradesh	Festivals and Fairs
15	15th(31 May - 1June)	Topics to be covered	Revision and doubt clearance	Revision and doubt clearance

Deepa
Signature of Class Teacher

Signature of HOD/OIC