Lesson Plan

Name of Teacher: **Geeta Nand** Subject : **Student Centered Activities** Class : **3rd Semester Elect. Engg.**

S. No.	Month	Date	Activity to be covered
1	**August**	1st Aug to 30th Aug	Declamation Contest Cleanliness Drive aroud college campus Various Gym activities
2	**September**	1st Sept to 30 Sept	Sports activities - Table tennis compitition Music contests Yoga
3	**Oct & Nov**	1st Oct to 26th Nov	Group discussion on varios topics Parliamentory discussions Exposure to new Technologies.

01/8/25

Faculty Incharge

11/8/2025

H.O.D. - Electrical Engg.

13th (29-04Nov.)	**Unit– V Network Theorems**	Superposition theorem. Thevenin's theorem.
House Test		**2nd week of November 2025**
14th (10 Nov to 17 Nov.)	**Unit– V Network Theorems**	Norton's theorem Maximum power transfer theorem Reciprocity theorem Duality in electric circuits.
15th (18 to 26 Nov)		**Revision**

- **NOTE:** Lesson Plan is Tentative, subject to availability of Time. Studens & Faculty.

Prepared by:
(Er. Devender Kumar)

01/12/2025
Signature of HOD
(Er Aman Anand)

Government Polytechnic Kullu,Distt. Kullu H.P.

Department of Electrical Engineering

Lesson Plan

Name of Faculty	Er. Devender kumar
Discipline	Electrical Engineering
Semester	3rd Sem
Subject	Electrical Circuits (L-3,Ds-1, Hrs./Week)
Lesson Plan Duration	August – November 2025

Week	Chapter	Topic to be covered
1st (1Aug.– 7Aug.)	**Unit – I Single Phase A.C Series Circuits**	Generation of alternating voltage, Phasor representation of sinusoidal quantities R, L, C circuit elements its voltage and current respons
2nd (08Aug. – 14Aug.)	**Unit – I Single Phase A.C Series Circuits**	R-L, R-C, R-L-C combination of A.C series circuit, impedance, reactance, impedance triangle, Power factor, active power, reactive power, apparent powe
3rd (16 Aug. – 22Aug.)	**Unit – I Single Phase A.C Series Circuits**	power triangle and vector diagram, Resonance, Bandwidth, Quality factor and voltage magnification in series R-L, R-C, RL-C circuit
4th (23Aug to 29 Aug.)	**Unit – II Single Phase A.C Parallel Circuits**	R-L, R-C and R-L-C parallel combination of A.C. circuits, Impedance, reactance, phasor diagram, impedance triangle
5th (30 Aug to 5 Sep.)	**Unit – II Single Phase A.C Parallel Circuits**	R-L, R-C, R-L-C parallel A.C. circuits power factor, active power, apparent power, reactive power, power triangle Resonance in parallel R-L, R-C, R-L-C circuit,
Class Test – 1		**2nd week of September 2025**
6th (6 Sep to 12 Sep)	**Unit – II Single Phase A.C Parallel Circuits**	Bandwidth, Quality factor and voltage magnification
7th (13Sep to 19 Sep.)	**Unit– III Three Phase Circuits**	Phasor and complex representation of three phase supply, Phase sequence and polarity
8th (20 Sep to 26 Sep)	**Unit– III Three Phase Circuits**	Types of three-phase connections, Phase and line quantities in three phase star and delta system, Balanced and unbalanced load
9th (27Sep to 03 Oct)	**Unit– III Three Phase Circuits**	neutral shift in unbalanced load. Three phase power, active, reactive and apparent power in star and delta system.
10th (4Oct to 10 Oct.)	**Unit– IV Network Reduction and Principles of Circuit Analysis**	Source transformation, and numericals
Class Test –2		**3rd week of October 2025**
11th (11 Oct to17 Oct.)	**Unit– IV Network Reduction and Principles of Circuit Analysis**	Star/delta and delta/star transformation.
12th (21Oct to 28Oct)	**Unit– IV Network Reduction and Principles of Circuit Analysis**	Mesh Analysis, Node Analysis.

Government Polytechnic Kullu,Distt. Kullu H.P.

Department of Electrical Engineering

Lesson Plan

Name of Faculty	Er. Devender Kumar
Discipline	Electrical Engineering
Semester	3rd
Subject	IEGS Lab
Lesson Plan Duration	August – November 2025

Week	Practical No.	Practical Name
1st (1Aug. – 7Aug.)	Practical-I	Identify the routine maintenance parts of the gas fired thermal power plant after watching a video programme
2nd (08Aug. –14Aug.)	Practical-II	. Assemble and dismantle a small diesel generator power plant
3rd (16 Aug. –22aug.)	Practical-III	Identify the routine maintenance parts of the nuclear fired thermal power plant after watching a video programme.
4th (23Aug to 29 Aug.)	Practical-IV	. Identify the routine maintenance parts of the large hydro power plant after watching a video programme
5th (30 Aug to 5 Sep.)	Practical-V	Identify the routine maintenance parts of the micro hydro power plant after watching a video programme
6th (6 Sep to 12 Sep)	Practical-VI	Assemble a micro hydro power plant and then dismantle it.
7th (13Sep to 19 Sep.)	Practical-VII	Assemble the parabolic trough or parabolic dish Concentrated Solar Power (CSP) plant.
8th (20 Sep to 26 Sep)	Practical-VIII	Dismantle the parabolic trough or parabolic dish CSP plant.
9th (27Sep to 03 Oct)	Practical-IX	. Assemble the solar PV plant to produce electric power and then dismantle it
10th (4Oct to 10 Oct.)	Practical-X	Identify the routine maintenance parts of the large wind power plant after watching a video programme.
11th (11 Oct to17 Oct.)	Practical-XI	Assemble a horizontal axis small wind turbine to produce electric power

12th (21Oct to 28Oct)	Practical-XII	Dismantle a horizontal axis small wind turbine.
13th (29Oct-04Nov.)	Practical-XIII	Assemble a vertical axis small wind turbine to produce electric power and then dismantle it.
14th (10Nov to 17 Nov.)		Revision and evaluation
15th (18 to 26 Nov)		Revision and evaluation

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

Prepared by
(Er. Devender Kumar)

11/12/2025
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(Er. Aman Anand)

Government Polytechnic Kullu at Seobagh ,Distt. Kullu H.P-175138

Department of Electrical Engineering

Lesson Plan

Name of Faculty	Er. Devender Kumar
Discipline	Electrical Engineering
Semester	3rd
Subject	Introduction to Electrical Generation System
Lesson Plan Duration	August– November 2025

Week	Chapters	Topics
1st (01Aug. - 07Aug.)	UNIT–1. THERMAL POWER PLANTS	Coal, Gas/ Diesel and Nuclear-based Layout and working of a typical thermal power plant with steam turbines and electric generators.
2nd 08Aug. – 14Aug.)	UNIT–1. THERMAL POWER PLANTS	Properties of conventional fuels used in the energy conversion equipment used in thermal power plants: Coal, Gas/ diesel, Nuclear fuels–fusion and fission action. Safe Practices and working of various thermal power plants: coal-based, gas-based, diesel-based, nuclear-based.
3rd (16Aug. – 22Aug.)	UNIT–1. THERMAL POWER PLANTS	Functions of the following types of thermal power plants and their major auxiliaries: Coal fired boilers, fire tube and water tube. Gas/diesel based combustion engines. Types of nuclear reactors: Disposal of nuclear waste and nuclear shielding. Thermal power plants in India.
4th (23 Aug. – 29Aug.)	UNIT–2. LARGE AND MICRO-HYDRO POWER PLANTS	Energy conversion process of hydropower plant. Classification of hydropower plant: High, medium, and low head. Construction and working of hydro turbines used in different types of hydropower plant: a. High head – Pelton turbine b. Medium head – Francis turbine c. Low head – Kaplan turbine.
5th (30Aug. 05 Sept.)	UNIT–2. LARGE AND MICRO-HYDRO POWER PLANTS	Safe Practices for hydropower plants. Different types of micro-hydro turbines for different heads: Pelton, Francis, and Kaplan turbines. Locations of these different types of large and micro-hydro power plants in Himachal. Potential locations of micro-hydro power plants in Himachal
Class Test – 1		In 2nd Week of September 2025.
6th (06 Sept. – 12 Sept.)	UNIT–III SOLAR AND BIOMASS-BASED POWER PLANTS	Solar Map of India: Global solar power radiation. Solar Power Technology a. Concentrated Solar Power (CSP) plants, construction and working of: Power Tower, Parabolic Trough, b. Parabolic Dish, Fresnel Reflectors.

Government Polytechnic Kullu at Seobagh ,Distt. Kullu H.P-175138

Department of Electrical Engineering

Lesson Plan

Name of Faculty	Er. Devender Kumar
Discipline	Electrical Engineering
Semester	3rd
Subject	Introduction to Electrical Generation System
Lesson Plan Duration	August– November 2025

Week	Chapters	Topics
1st (01Aug. - 07Aug.)	UNIT–1. THERMAL POWER PLANTS	Coal, Gas/ Diesel and Nuclear-based Layout and working of a typical thermal power plant with steam turbines and electric generators.
2nd 08Aug. – 14Aug.)	UNIT–1. THERMAL POWER PLANTS	Properties of conventional fuels used in the energy conversion equipment used in thermal power plants: Coal, Gas/ diesel, Nuclear fuels–fusion and fission action. Safe Practices and working of various thermal power plants: coal-based, gas-based, diesel-based, nuclear-based.
3rd (16Aug. – 22Aug.)	UNIT–1. THERMAL POWER PLANTS	Functions of the following types of thermal power plants and their major auxiliaries: Coal fired boilers, fire tube and water tube. Gas/diesel based combustion engines. Types of nuclear reactors: Disposal of nuclear waste and nuclear shielding. Thermal power plants in India.
4th (23 Aug. – 29Aug.)	UNIT–2. LARGE AND MICRO-HYDRO POWER PLANTS	Energy conversion process of hydropower plant. Classification of hydropower plant: High, medium, and low head. Construction and working of hydro turbines used in different types of hydropower plant: a. High head – Pelton turbine b. Medium head – Francis turbine c. Low head – Kaplan turbine.
5th (30Aug. 05 Sept.)	UNIT–2. LARGE AND MICRO-HYDRO POWER PLANTS	Safe Practices for hydropower plants. Different types of micro-hydro turbines for different heads: Pelton, Francis, and Kaplan turbines. Locations of these different types of large and micro-hydro power plants in Himachal. Potential locations of micro-hydro power plants in Himachal
Class Test – 1		In 2nd Week of September 2025.
6th (06 Sept. – 12 Sept.)	UNIT–III SOLAR AND BIOMASS-BASED POWER PLANTS	Solar Map of India: Global solar power radiation. Solar Power Technology a. Concentrated Solar Power (CSP) plants, construction and working of: Power Tower, Parabolic Trough, b. Parabolic Dish, Fresnel Reflectors.

7th (13 Sept. – 19 Sept)	UNIT–III SOLAR AND BIOMASS-BASED POWER PLANTS	Solar Photovoltaic (PV) power plant: layout, construction, working. Bio mass based Power Plants . Layout of a Bio-chemical based (e.g. biogas) power plant;
8th (20 Sep. –26 Sep.)	UNIT–III SOLAR AND BIOMASS-BASED POWER PLANTS	Layout of a Thermo-chemical based (e.g. Municipal waste) power plant . Layout of an Agro-chemical based (e.g. bio-diesel) power plant. Features of the solid, liquid and gas biomasses as fuel for biomass power plant.
9th (27 Sep – 03Oct.)	UNIT– IV WIND POWER PLANTS	Wind Map of India: Wind power density in watts per square meter Layout of Horizontal axis large wind power plant: Geared wind power plant. Direct-drive wind power plant.
10th (04 Oct. – 10 Oct.)	UNIT– IV WIND POWER PLANTS	Salient Features of electric generators used in large wind power plants: Constant Speed Electric Generators: Squirrel Cage Induction Generators (SCIG), Wound Rotor Induction Generator (WRIG)
Class Test - 2		**In 3rd Week of October 2025.**
11th (11 Oct. – 17 Oct.)	UNIT– IV WIND POWER PLANTS	Variable Speed Electric Generators: Doubly-fed induction generator (DFIG), wound rotor synchronous generator (WRSG), permanent magnet synchronous generator (PMSG)
12th (21Oct. – 28 Oct.)	UNIT– V ECONOMICS OF POWER GENERATION AND INTERCONNECTED POWER SYSTEM	Related terms: connected load, firm power, cold reserve, hot reserve, spinning reserve. Base load and peak load plants; Load curve, load duration curve
House Test		**In 2nd Week of November 2025.**
13th (29 Oct. –04Nov.)	UNIT– V ECONOMICS OF POWER GENERATION AND INTERCONNECTED POWER SYSTEM	Integrated duration curve Cost of generation: Average demand, maximum demand, demand factor, plant capacity factor, plant use factor, diversity factor, load factor and plant load factor.
14th (10 Nov. – 17 Nov.)	UNIT– V ECONOMICS OF POWER GENERATION AND INTERCONNECTED POWER SYSTEM	Choice of size and number of generator units, combined operation of power station. Causes, Impact and reasons of Grid system fault: State grid, national grid, brown out and black out; sample blackouts at national and international level.
15th (18 Nov- 26 Nov)	REVISION AND DOUBT CLEARANCE	Revision and doubt clearance.

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

Signature of Teacher
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Signature of HOD
(Er. Aman Anand)

14th (10 Nov. – 17 Nov.)	Practical-XIII	Use digital multi-meter for measurement of AC/DC current, AC/DC voltage
15th (18 Nov- 26 Nov)	Practical-XIII	Use digital multi-meter for measurement of AC/DC current, AC/DC voltage

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Signature of Teacher
Er. Satish Kumar)

01/08/2025
Signature of HOD
(Er. Aman Anand)

Government Polytechnic Kullu,Distt. Kullu H.P.

Department of Electrical Engineering

Lesson Plan

Name of Faculty	Er. Devender kumar
Discipline	Electrical Engineering
Semester	3rd
Subject	Electric circuits lab (P-2 Hrs./Week)
Lesson Plan Duration	Aug – Nov 2025

Week	Practical No.	Practical Name
1st (1Aug. – 7Aug.)	**Practical-I**	Use dual trace oscilloscope to determine A.C voltage and current response in given R, L, C circuit
2nd (08Aug. –14Aug.)	**Practical-II**	Use voltmeter, ammeter, wattmeter to determine active, reactive and apparent power consumed in given R-L series circuit. Draw phasor diagram
3rd (16 Aug. –22Aug.)	**Practical-III**	Use voltmeter, ammeter to determine active, reactive and apparent power consumed in given R-C series circuit. Draw phasor diagram
4th (23Aug to 29 Aug.)	**Practical-IV**	Use voltmeter, ammeter, wattmeter to determine active, reactive and apparent power consumed in given R-L- C series circuit. Draw phasor diagram
5th (30 Aug to 5 Sep.)	**Practical-V**	Use variable frequency supply to create resonance in given series R-L-C circuit or by using variable inductor or variable capacitor
6th (6 Sep to 12 Sep)	**Practical-VI**	Use voltmeter, ammeter, and wattmeter to determine current, p.f., active, reactive and apparent power in R-C parallel A.C. circuit.
7th (13Sep to 19 Sep.)	**Practical-VII**	Use variable frequency supply create resonance in given parallel R-L-C circuit or by using variable inductor or capacitor.
8th (20 Sep to 26 Sep)	**Practical-VIII**	Use voltmeter, ammeter, wattmeter, p.f meter to determine line and phase quantities of voltage and current for balanced three phase star and delta connected load and calculate active, reactive, and apparent power. Draw phasor diagram.
9th (27Sep to 03 Oct)	**Practical-IX**	Use voltmeter, ammeter, wattmeter, p.f meter to determine line and phase quantities of voltage and current for unbalanced three phase star and delta connected load and calculate active, reactive, and apparent power. Draw phasor diagram.
10th (4Oct to 10 Oct.)	**Practical-X**	Use voltmeter, ammeter to determine current through the given branch of a electric network by applying mesh analysis
11th (11 Oct to17 Oct.)	**Practical-XI**	Use voltmeter, ammeter to determine current through the given branch of a electric network by applying node analysis.
12th (21Oct to 28Oct)	**Practical-XII**	Use voltmeter, ammeter to determine current through the given branch and voltage across the given element of circuit by applying superposition theorem.
13th (29Oct-04Nov.)	**Practical-XIII**	Use voltmeter, ammeter to determine equivalent circuit parameter in a given circuit by applying Thevenin's Theorem
14th (10Nov to 17 Nov.)		**Revision and evaluation**
15th (18 to 26 Nov)		**Revision and evaluation**

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Prepared by
(Er. Devender kumar)

10/2/25
Signature of HOD
(Er Aman Anand)

13th (29 Oct. – 04 Nov.)	Practical-IX	Develop a simulation model for Current Series and Current Shunt Feedback Amplifiers.
14th (10 Nov. – 17 Nov.)	Practical-X	Develop circuits for Current Series and Current Shunt Feedback Amplifiers and obtain output plots. Compare the results with the simulation model.
15th (18 Nov- 26 Nov)	Practical-X	Develop circuits for Current Series and Current Shunt Feedback Amplifiers and obtain output plots. Compare the results with the simulation model.

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Signature of Teacher
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(Er. Aman Anand)

Government Polytechnic Kullu,Distt. Kullu H.P.

Department of Electrical Engineering

Lesson Plan

Name of Faculty	Er. Satish Kumar
Discipline	Electrical Engineering
Semester	3rd
Subject	Electrical & Electronics measurement lab
Lesson Plan Duration	August – November 2025

Week	Practical No.	Practical Name
1st (01Aug. –07Aug.)	Practical-I	Identify measuring instruments on the basis of symbols on dial, type, accuracy, class position and scale
2nd (08Aug. – 14 Aug.)	Practical-II	Identify the components of PMMC and MI instruments
3rd (16Aug. – 22Aug.)	Practical-III	Troubleshoot PMMC and MI instruments.
4th (23Aug– 29Aug.)	Practical-IV	Measure AC and DC quantities in a working circuit
5th (30 Aug. –05 Sept.)	Practical-V	Extend range of ammeter and voltmeter by using (i) shunt and multiplier (ii) CT and PT
6th (06 Sept. – 12 Sept.)	Practical-VI	Use Clamp-on meter for measurement of AC/DC current, AC/DC voltage.
7th (13 Sept. – 19 sept)	Practical-VII	Use electro-dynamic watt-meter for measurement of power in a single phase circuit
8th (20 Sept. – 26Sept.)	Practical-VIII	Troubleshoot electrodynamic watt-meter for measurement of power in a single phase circuit
9th (27 Sept. – 03 Oct.)	Practical-IX	. Use single wattmeter for measurement of active and reactive power of three phase balanced load.
10th (04 Oct. – 10 Oct.)	Practical-X	Use two watt-meters for measuring active power of three-phase balanced load
11th (11 Oct. – 17 Oct.)	Practical-XI	Calibrate single phase electronic energy meter by direct loading
12th (21 Oct. – 28 Oct.)	Practical-XII	Troubleshoot single phase electronic energy meter.
13th (29 Oct. – 04 Nov.)	Practical-XII	Troubleshoot single phase electronic energy meter.

8th (20 Sept. – 26Sept.)	Unit– IV Measurement of Electric Energy	Calibration of single phase electronic energy meter using direct loading
9th (27 Sept. – 03 Oct.)	Unit– V Circuit Parameter Measurement, CRO and Other Meters	Measurement of resistance: Low resistance: Kelvin's double bridge, Medium Resistance: Voltmeter and ammeter method, High resistance: Megger and Ohm meter: Series and shunt Measurement of inductance using Anderson Bridge (no derivation and phasor diagram)
10th (04 Oct. – 10 Oct.)	Unit– V Circuit Parameter Measurement, CRO and Other Meters	Measurement of capacitance using Schering bridge (no derivation and phasor diagram) Single beam/single trace CRO, Digital storage Oscilloscope: Basic block diagram, working, Cathode ray tube
Class Test – 2		**In Third Week of October 2025.**
11th (11 Oct. – 17 Oct.)	Unit– V Circuit Parameter Measurement, CRO and Other Meters	Electrostatic deflection, vertical amplifier, time base generator, horizontal amplifier, measurement of voltage/ amplitude/ time period/ frequency/ phase angle delay line, specifications
12th (21 Oct. – 28 Oct.)	Unit– V Circuit Parameter Measurement, CRO and Other Meters	Other meters: Earth tester, Digital Multi-meter; L-C-R meter, Frequency meter (ferromagnetic and Weston type)
House Test		**In Second Week of November 2025.**
13th (29 Oct. – 04 Nov.)	Unit– V Circuit Parameter Measurement, CRO and Other Meters	Phase sequence indicator, power factor meter (single phase and three phase dynamometer type, Synchroscope
14th (10 Nov. – 17 Nov.)	Unit– V Circuit Parameter Measurement, CRO and Other Meters	Tri-vector meter, Signal generator need, working and basic block diagram. Function generator: need, working and basic block diagram, function of symmetry.
15th (18 Nov- 26 Nov)	**Revision**	

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

Signature of Teacher
(Er. Satish Kumar)

01/08/2025

Signature of HOD
(Er. Aman Anand)

Government Polytechnic Kullu, Distt. Kullu H.P.

Department of Electrical Engineering

Lesson Plan

Name of Faculty	Er. Satish Kumar
Discipline	Electrical Engineering
Semester	3rd
Subject	Electronics & Devices & Circuit lab
Lesson Plan Duration	August – November 2025

Week	Practical No.	Practical Name
1st (01Aug. –07Aug.)	Practical-I	Construct the circuit and plot the VI characteristics of the PN Junction Diode, find the cut in voltage.
2nd (08Aug. – 14 Aug.)	Practical-II	Construct the circuit and plot the characteristics of a Zener Diode. Find the breakdown voltage.
3rd (16Aug. – 22Aug.)	Practical-III	Construct a Half Wave Rectifier and obtain regulation characteristics – Without Filters and with Filters Compare the results.
4th (23Aug– 29Aug.)	Practical-IV	Construct a Full Wave center tap Rectifier and obtain regulation characteristics – Without Filters and with Filters Compare the results
5th (30 Aug. –05 Sept.)	Practical-V	Construct a Bridge Rectifier and obtain regulation characteristics – Without Filters and with Filters.
6th (06 Sept. – 12 Sept.)	Practical-VI	Obtain the characteristics of DIAC and TRIAC.
7th (13 Sept. – 19 sept)	Practical-VI	Obtain the characteristics of DIAC and TRIAC.
8th (20 Sept. – 26Sept.)	Practical-VII	Simulate half wave, full wave and bridge rectifier using simulation tool like PSpice/ ORCAD/ Multisim.
9th (27 Sept. – 03 Oct.)	Practical-VII	Simulate half wave, full wave and bridge rectifier using simulation tool like PSpice/ ORCAD/ Multisim.
10th (04 Oct. – 10 Oct.)	Practical-VIII	Develop a simulation model for Voltage Series and Voltage Shunt Feedback Amplifiers
11th (11 Oct. – 17 Oct.)	Practical-VIII	Develop a simulation model for Voltage Series and Voltage Shunt Feedback Amplifiers
12th (21 Oct. – 28 Oct.)	Practical-IX	Develop a simulation model for Current Series and Current Shunt Feedback Amplifiers.

9th (27 Sept. – 03 Oct.)	Unit 4 SCR DIAC & TRIAC	SCR – Construction, operation, working, characteristics DIAC - Construction, operation, working, characteristics
10th (04 Oct. – 10 Oct.)	Unit 4 SCR DIAC & TRIAC	TRIAC - Construction, operation, working, characteristics
Class Test – 2		In Third Week of October 2025.
11th (11 Oct. – 17 Oct.)	Unit 4 SCR DIAC & TRIAC	SCR and MOSFET as a Switch
12th (21 Oct. – 28 Oct.)	Unit 4 SCR DIAC & TRIAC	DIAC as bidirectional switch Comparison of SCR, DIAC, TRIAC, MOSFET
13th (29 Oct. – 04 Nov.)	Unit 5 Amplifiers and Oscillators	Feedback Amplifiers – Properties of negative Feedback impact of feedback on different parameters Basic Feedback Amplifier Topologies: Voltage Series
House Test		In Second Week of November 2025.
14th (10 Nov. – 17 Nov.)	Unit 5 Amplifiers and Oscillators	Voltage Shunt Current Series, Current Shunt Oscillator Basic Principles,
15th (18 Nov- 26 Nov)	Unit 5 Amplifiers and Oscillators	Crystal Oscillator, Non-linear/ Pulse Oscillator & Revision

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

01/09/2025

Signature of Teacher
(Er. Satish Kumar)

Signature of HOD
(Er. Aman Anand)

Government Polytechnic Kullu, Distt. Kullu (H.P)175138
Department of Electrical Engineering
Lesson Plan

Name of Faculty	Er. Satish Kumar
Discipline	Electrical Engineering
Semester/Year	3rd /2nd Year
Subject	EEM (L-4 Hrs./Week)
Lesson Plan Duration	August – Novemberr 2025

Week	Topic	Theory
1st (01Aug. –07Aug.)	Unit – I Fundamentals of Measurements	Measurement: Significance, units, fundamental quantities and standards Classification of Instrument Systems: Null and deflection type instruments Absolute and secondary instruments Analog and digital instruments Static and dynamic characteristics, types of errors
2nd (08Aug. – 14 Aug.)	Unit – I Fundamentals of Measurements	Calibration: need and procedure Classification of measuring instruments: indicating, recording and integrating instruments. Essential requirements of an indicating instruments
3rd (16Aug. – 22Aug.)	Unit – II Measurement of voltage and current	DC Ammeter: Basic, Multi range, Universal shunt, DC Voltmeter: Basic, Multi-range, concept of loading effect and sensitivity AC voltmeter: Rectifier type (half wave and full wave)
4th (23Aug– 29Aug.)	Unit – II Measurement of voltage and current	CT and PT: construction, working and applications. Clamp-on meter.
5th (30 Aug. –05 Sept.)	Unit– III Measurement of Electric Power	Analog meters: Permanent magnet moving coil (PMMC) and Permanent magnet moving iron (PMMI) meter, their construction, working, salient features, merits and demerits. Dynamometer type wattmeter: Construction and working
6th (06 Sept. – 12 Sept.)	Unit– III Measurement of Electric Power	Range: Multiplying factor and extension of range using CT and PT Errors and compensations. Active and reactive power measurement: One, two and three wattmeter method. Effect of Power factor on wattmeter reading in two wattmeter method. Maximum Demand indicator
Class Test – 1		In Second Week of September 2025.
7th (13 Sept. – 19 sept)	Unit– IV Measurement of Electric Energy	Single and three phase electronic energy meter: Constructional features and working principle, Errors and their compensations.

Government Polytechnic Kullu at Seobagh ,Distt. Kullu H.P-175138

Department of Electrical Engineering

Lesson Plan

Name of Faculty	Er. Naval Kishor
Discipline	Electrical Engineering
Semester	3rd
Subject	EMT (P-2 Hrs./Week)
Lesson Plan Duration	Aug- November 2025

Week	Practical No.	Practical Name
1st (4Aug. –11Aug.)	Practical I	Dismantle a DC machine
2nd (12Aug. – 18Aug.)	Practical II	Reverse the direction of rotation of the DC shunt motor.
3rd (19Aug. – 25 Aug.)	Practical III	Perform brake test on DC shunt motor.
4th (26 Aug – 01Sep.)	Practical IV	Control the speed of DC shunt motor by different methods
5th (2Sept. –8 Sept.)	Practical V	Control the speed of DC series motor by different methods.
6th (9Sept. –15Sept)	Practical VI	Perform the brake test on DC series motor.
7th (16Sept. – 22 Sept)	Practical VII	Check the functioning of single phase transformer.
8th (23Sept. – 29Sept.)	Practical VIII	Determine regulation and efficiency of single phase transformer by direct loading
9th (30Sept. – 6 Oct.)	Practical IX	Perform open circuit and short circuit test on single phase transformer to determine equivalent circuit constants, voltage regulation and efficiency
10th (8 Oct. – 14 Oct.)	Practical X	Perform parallel operation of two single phase transformers to determine the load current sharing.
11th (15 Oct. – 22 Oct.)	Practical XI	Perform parallel operation of two single phase transformers and determine the apparent and real power load sharing.
12th (23 Oct. – 29 Oct.)		
13th (30Oct. – 7 Nov.)	Practical XII	Perform polarity test on a single phase transformer whose polarity markings are masked.
14th (17 Nov. – 23Nov.)		
15th (24Nov-26 Nov)		Revision

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Signature of Teacher
(Er. Naval Kishor)

Signature of HOD
(Er. Aman Anand

Government Polytechnic Kullu, Distt. Kullu (H.P)175138
Department of Electrical Engineering
Lesson Plan

Name of Faculty	Er. Satish Kumar
Discipline	Electrical Engineering
Semester	3rd
Subject	EDC (L-4 Hrs./Week)
Lesson Plan Duration	August –November 2025

Week	Topic	Theory
1st (01Aug. –07Aug.)	Unit 1 Semiconductor and Diodes	Definition, Extrinsic/Intrinsic, N-type & p-type PN Junction Diode – Forward and Reverse Bias
2nd (08Aug. – 14 Aug.)	Unit 1 Semiconductor and Diodes	Characteristics Zener Diode – Principle, characteristics, construction, working
3rd (16Aug. – 22Aug.)	Unit 1 Semiconductor and Diodes Unit 2 Bipolar Junction Transistor (BJT)	Diode Rectifiers – Half Wave and Full Wave Filters – C, LC and PI Filters NPN and PNP Transistor – Operation and characteristics
4th (23Aug– 29Aug.)	Unit 2 Bipolar Junction Transistor (BJT)	Common Base Configuration – characteristics working Common Emitter Configuration
5th (30 Aug. –05 Sept.)	Unit 2 Bipolar Junction Transistor (BJT)	characteristics and working Common Base Configuration characteristics and working High frequency model of BJT Classification of amplifiers, negative feedback
6th (06 Sept. – 12 Sept.)	Unit 3 Field Effect Transistors FET	Working Principle, Classification MOSFET
Class Test – 1		In Second Week of September 2025.
7th (13 Sept. – 19 sept)	Unit 3 Field Effect Transistors FET	Classification MOSFET Small Signal model N-Channel/ P-Channel MOSFETs – characteristics enhancement and depletion mode
8th (20 Sept. – 26Sept.)	Unit 3 Field Effect Transistors FET	MOSFET as a Switch Common Source Amplifiers. Uni-Junction Transistor – equivalent circuit and operation

Government Polytechnic Kullu ,Distt. Kullu H.P-175138

Department of Electrical Engineering

Lesson Plan

Name of Faculty	Er Naval Kishor
Discipline	Electrical Engineering
Semester	3rd
Subject	EMT(L-5 Hrs./Week)
Lesson Plan Duration	August – Nov. 2025

Week	Topic	Theory
1st (01Aug. –07Aug.)	Unit – I DC Generators	DC generator: construction, parts, materials and their functions. Principle of operation of DC generator: Fleming's right hand rule,
2nd (08Aug. – 14 Aug.)	Unit – I DC Generators	schematic diagrams, e.m.f. equation of generator, armature reaction, commutation and Applications of DC generators
3rd (16Aug. – 22Aug.)	Unit – II D.C. Motors	DC motor: Types of DC motors. Fleming's left hand rule, Principle of operation, Back e.m.f. and its significance, Voltage equation of DC motor.
4th (23Aug– 29Aug.)	Unit – II D.C. Motors	Torque and Speed; Armature torque, Shaft torque, BHP, Brake test, losses, efficiency. DC motor starters: Necessity, two point and three point starters.
5th (30 Aug. –05 Sept.)	Unit – II D.C. Motors	Speed control of DC shunt and series motor: Flux and Armature control.Brushless DC Motor: Construction and working.
6th (06 Sept. – 12 Sept.)	Unit– III Single Phase Transformers	Types of transformers: Shell type and core type; Construction: Parts and functions, materials used for different parts: CRGO, CRNGO, HRGO, amorphous cores.
Class Test – 1		In Second Week of September 2025
7th (13 Sept. – 19 sept)	Unit– III Single Phase Transformers	Transformer: Principle of operation, EMF equation of transformer: Derivation, Voltage transformation ratio, Significance of transformer ratings.
8th (20 Sept. – 26Sept.)	Unit– III Single Phase Transformers	Transformer No-load and on-load phasor diagram, Leakage reactance, Equivalent circuit of transformer: Equivalent resistance and reactance. Voltage regulation and Efficiency: Direct loading, OC/SC method, All-day efficiency.
9th (27 Sept. – 03 Oct.)	Unit– IV Three Phase Transformers	Bank of three single phase transformers, Single unit of three phase transformer. Distribution and Power transformers, Construction, cooling. Three phase transformers connections as per IS:2026 (part IV)-1977.
10th (04 Oct. – 10 Oct.)	Unit– IV Three Phase Transformers	Three phase to two phase conversion (Scott Connection), Selection of transformer asper IS: 10028 (Part I)-1985, Criteria for selection of distribution transformer, and power transformer, Amorphous Core type

Class Test – 2		**In Third Week of October 2025**
11th (11 Oct. – 17 Oct.)	**Unit– IV Three Phase Transformers**	Distribution Transformer, Specifications of three-phase distribution transformers as per IS:1180 (part I)- 1989 Need of parallel operation of three phase transformer
12th (21 Oct. – 28 Oct.)	**Unit– IV Three Phase Transformers**	Conditions for parallel operation. Polarity tests on mutually inductive coils and single phase transformers; Polarity test, Phasing out test on Three-phase transformer.
13th (29 Oct. – 04 Nov.)	**Unit V Special Purpose Transformers**	Single phase and three phase auto trahsformers: Construction, working and applications.
House Test		**In Second Week of November 2025**
14th (10 Nov. – 17 Nov.)	**Unit V Special Purpose Transformers**	Instrument Transformers: Construction, working and applications of Current transformer and Potential transformer. Isolation transformer: Constructional Features and applications
15th (18 Nov- 26 Nov)	**Unit V Special Purpose Transformers**	Single phase welding transformer: constructional features and applications.Pulse transformer: constructional features and applications. 'K' factor of transformers: overheating due to non-linear loads and harmonics.

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

Signature of Teacher/Prepared by
(Er.Naval Kishor)

Signature of HOD
(Er. Aman ANAND)