Detailed Teaching Plan

ND-2024 Sub. Teacher - Mrs
DCMT — Dharmlata

Lecture No	Unit No	Topics to be covered	Planned Date	Execution Date	Remarks
1	Unit-1	Law of Energy conservation	02.09.2024	04.09.2024	
2		Electromagnetic Induction	03.09.2024	05.09.2024	
3		Faraday's Law Demonstration	04.09.2024	09.09.2024	
4		Lenzs Law -	05.09.2024	10.09.2024	
5		Flemming's right hand Rule.	09.09.2024	11.09.2024	
6		Flemming's Left hand Rule	10.09.2024	12.09.2024	
7		Dc m/c construction - Demo	11.09.2024	13.09.2024	
8		Parts of Dc Machine	12.09.2024	14.09.2024	
9		E.M.F Equation - Derivation	13.09.2024	17.09.2024	
10		concept of Back E.M.F.	14.09.2024	18.09.2024	
11		Numerical of Back EMF.	16.09.2024	19.09.2024	

Detailed Teaching Plan

Lecture No	Unit No	Topics to be covered	Planned Date	Execution Date	Remarks
12		Doubt clearing / Remedial class	17.09.2024	23.9.2024	
13		DC generator- Working	18.09.2024	24.09.2024	
14		Types of DC generator	19.09.2024	25-09.2024	
15	unit-02	E.M.F. Equation (Recap)	23.09.2024	26-09.2024	
16		performance of DC gen.	24.09.2024	28.09.2024	Ibt
17		Efficiency, Losses	25.09.2024	30.09.2024	
18		condition for building up E.M.F series	26.09.2024	01-10.2024	
19		—u— for Series	27.09.2024	03.10.2024	
20		—u— for Shunt/Comp.	28.09.2024	04.10.2024	
21		characteristic — Sep. Excited gen.	30.09.2024	05.10.2024	
21		Characteristic — Series Gen.	01.10.2024	07-10.2024	

Detailed Teaching Plan

Lecture No	Unit No	Topics to be covered	Planned Date	Execution Date	Remarks
23		Characteristics - Shunt Gen	03.10.2024	08-10-2024	
24		Characteristics - comp. Gen	04.10.2024	09.10.2024	
25		Armature Reaction - Intro	05.10.2024	14.10.2024	
26	Unit 2	Armature Reaction. Process	07-10.2024	15.10.2024	
27		Armature Reaction effect	08.10.2024	16.10.2024	
		concept of commutation	09.10.2024	17-10.2024	
28		Effect of commutation & Reduction method.	14.10.2024	18.10.2024	
29		Doubt clearing / Remedial class	15.10.2024	19.10.2024	
30		DC motor:- introduction	16.10.2024	21.10.2024	
31	Unit-03	Working of DC motor	17.10.2024	22.10.2024	
32		E.M.F. equation, Back E.M.F.	18.10.2024	23.10.2024	

Detailed Teaching Plan

Lecture No	Unit No	Topics to be covered	Planned Date	Execution Date	Remarks
33	Unit-3	concept of Torque, Speed	19.10.2024	24.10.2024	
34		power flow - losses & efficiency	21.10.2024	25.10.2024	
35		Starter introduction	22.10.2024	26.10.2024	
36		3 point starter	23.10.2024	28.10.2024	
37		4 point starter	24.10.2024	04.11.2024	
38		2 point starter	25.10.2024	05.11.2024	
39		Performance characteristic - Series motor	26.10.2024	06.11.2024	
40		-11- of shunt motor	28.10.2024	08.11.2024	
41		-11- of compound motor	04.11.2024	09.11.2024	
42		Speed control - Series motor	05.11.2024	11.11.2024	
43		Speed control - shunt motor	06.11.2024	12.11.2024	
44		Tutorial - Numerical	08.11.2024	15.11.2024	

Detailed Teaching Plan

Lecture No	Unit No	Topics to be covered	Planned Date	Execution Date	Remarks
45	UNIT-3	Doubt clearing / Remedial class	09.11.2024	18.11.2024	
46		Single phase transformer - Intro.	11.11.2024	19.11.2024	
47		Working principle	12.11.2024	20.11.2024	
48		construction, Types - shell/core	13.11.2024	21.11.2024	
49	UNIT-4	E.M.F Equation	14.11.2024	22.11.2024	
50		Voltage / I transformation	16.11.2024	23.11.2024	
51		Equivalent circuit diagram	18.11.2024	25.11.2024	
52		Phasor diagram no load	19.11.2024	26.11.2024	
53		Phasor diagram Lagging load	20.11.2024	27.11.2024	
54		phasor diagram Leading/ unity	21.11.2024	28.11.2024	
55		Losses in xmer - Introduction	22.11.2024	29.11.2024	

Detailed Teaching Plan

Lecture No	Unit No	Topics to be covered	Planned Date	Execution Date	Remarks
56		Hysteresis loss	23.11.2024	30.11.2024	
57		Eddy current loss	25.11.2024	02.12.2024	
58		Efficiency	26.11.2024	03.12.2024	
59		condition for max. eff.	27.11.2024	04.12.2024	
60		all day efficiency	28.11.2024	05.12.2024	
61	Unit-4	Voltage Regulation	29.11.2024	09.12.2024	15
62		Test- Introduction	30.11.2024	10.12.2024	
63		open circuit test	02.12.2024	11.12.2024	
64		Short circuit test	03.12.2024	12.12.2024	
65		Need of parallel operation	04.12.2024	13.12.2024	
66		connection for parallel operation	05.12.2024	14.12.2024	
67		construction of Autotransformer	06.12.2024	16.12.2024	

Detailed Teaching Plan

Lecture No	Unit No	Topics to be covered	Planned Date	Execution Date	Remarks
68		Poly phase transformer - Intro.	07.12.2024	17.12.2024	
69		Formulation of 3φ xmer by 3-1φ xmr	09.12.2024	19.12.2024	
70		connection Y-Y,	10.12.2024	20.12.2024	
71		connection Y-Δ, ΔY ΔΔ	11.12.2024	21.12.2024	
72	Unit-5	Construction & Accessories	12.12.2024	23.12.2024	
73		Need of parallel operation	13.12.2024	24.12.2024	
74		connection of parallel operation	14.12.2024	26.12.2024	
75		Cooling method -1	16.12.2024	27.12.2024	
76		Cooling method-2	17.12.2024	28.12.2024	
77		Maintenance of 3φ xmer	18.12.2024	30.12.2024	
78		Doubts clearing class	19.12.2024	31.12.2024	
79		Revision of unit-1, / unit-2	20.12.2024	01.01.2025	
80		Revision of unit-3 / unit-4	21.12.2024	02.01.2025	

Detailed Teaching Plan

N-D-2024 IPC

Lecture No.	Unit No.	Topics to be covered	Planned Date	Execution Date	Remarks
	Unit-01	Basic Instrumentation System and characteristics			
L.N.1	Unit-01	Introduction & Need of instrumentation	27.08.2024	27.08.2024	
L.N.2	Unit-01	Generalized instrumentation	28.08.2024	28.08.2024	
LN3		Block diagram and its function.	29.08.2024	29.08.2024	
LN4	Unit-01	Characteristics of instrumentation	30.08.2024	30.08.2024	Mrs Dharmlata
LN5	Unit-01	1.Static characteristics * Accuracy Presision, Error	02.09.2024	04.09.2024	
LN6	Unit-01	* Resolution, Sensitivity	03.09.24	05.09.2024	
LN7	Unit-01	* linearity, reproducibility repeatability	04.09.24	10.09.2024	
LN8	Unit-01	* threshold, dead-zone, drift, distortion	05.09.2024	11.09.2024	
LN9	Unit-01	* Hysteresis	09.09.24	12.09.2024	
LN10	Unit-01	* Numerical (Tutorial) of above characteristics	10.09.24	13.09.2024	

07

Subject Teacher Mrs Dharmlata

Detailed Teaching Plan

Lecture No.	Unit No.	Topics to be covered	Planned Date	Execution Date	Remarks
LN4	Unit-01	Dynamic characteristics * Steady-state, transient	11.09.2024	14.09.2024	
LN12	Unit-01	* Fidelity, bandwidth	12.09.2024	17.09.2024	
LN13	Unit-01	* Time constant, response time Settling time	13.09.2024	18.09.2024	
LN14	Unit-01	* Doubt clearing class	14.09.2024	19.09.2024	Ibd
LN15	Unit-01	* Quiz of unit-01	17.09.2024	23.09.2024	MRS Chemplasta
	UNIT-2	Transducer			
LN16	Unit.2	Introduction, importance & Appl.	18.09.2024	24.09.2024	
N17	Unit.2	comparsion between Sensor & Transducer	19.09.2024	25.09.2024	
LN18	Unit.2	Classification of Transducer –	20.09.2024	26.09.2024	

Detailed Teaching Plan

Lecture No.	Unit No.	Topics to be covered	Planned Date	Execution Date	Remarks
LN19	Unit-2	Classification - 1. Based on Transduction Action.	21-09-2024	27-09-2024	
LN20	Unit-2	2. Energy Based - Active & passive	23-09-2024	28-09-2024	
LN21	Unit-2	3. States - Primary & Secondary	24-09-2024	30-09-2024	
LN22	Unit-2	4. Technology Based - Mechanical, Electrical, Electronics.	25-09-2024	01-10-2024	
LN23	Unit-2	construction & working principle of transducer	26-09-2024	03-10-2024	Ibal Mrs Dharmlata
LN24	Unit-2	1. L-V-D-T	27-09-2024	04-10-2024	
LN25	Unit-2	2. Strain gauge	28-09-2024	05-10-2024	
LN26	Unit-2	3. Strain gauge Numerical	30-09-2024	07-10-2024	
LN27	Unit-2	4. RTD,	01-10-2024	08-10-2024	
LN28	Unit-2	5. Thermister	03-10-2024	09-10-2024	

Detailed Teaching Plan

Lecture No.	Unit No.	Topics to be covered	Planned Date	Execution Date	Remarks
29	Unit02	Piezo. electric & Proximity trans.	04.10.24	14.10.24	
30	Unit02	ultrasonic transducer	05.10.24	15.10.24	
31	Unit-03	Signal con:– purpose, Element	06.10.24	16.10.24	
32	Unit-03	operation Amp & its Applicati.	07.10.24	17.10.24	
33	Unit-03	Instrumentation Amp.	08.10.24	18.10.24	[illegible]
34	Unit03	Sample & Hold circuit	09.10.24	19.10.24	Mrs bharmlata
35	Unit-03	Shanon criteria, Quantization	14.10.24	22.10.24	
36	Unit-03	Multiplexing / De-Mux. (TDM / FDM)	15.10.24	23.10.24	
37	Unit-04	A/D & D/A convertor	16.10.24	25.10.24	
38	Unit-04	Data transmission - Digital / Analog	17.10.24	26.10.24	
39	Unit-04	Advantages of Digital data tran.	18.10.24	28.10.24	(No class)
40	Unit-04	Doubt clearing class	19.10.24	04.11.24	

Detailed Teaching Plan

Lecture No.	Unit No.	Topics to be covered	Planned Date	Execution Date	Remarks
41	Unit-04	Measurement of Temp.- Optical, and Radiation	29.10.24	05.11.24	(RTD, Thermistor, thermocouple already done)
42	Unit-04	M/m of pressure - LVDT, Strain gauge, Capacitive Transducer, Piezi gauge	22.10.24	06.11.24	(2 class)
43	Unit-04	M/m of Speed - Tachom. / Strobo.	23.10.24	08.11.24	(2 class)
44	Unit-04	M/m of flow - Electromagnetic pickup turbine flow meter	24.10.24	09.11.24	(2 class)
45	Unit-04	M/m of Liquid level	25.10.24	12.11.24	
46	Unit-04	PH Meter	26.10.24	18.11.24	
47	Unit-04	Hygrometer	28.10.24	19.11.24	
48	Unit-04	m/m of position - proximity Transducer	29.10.24	20.11.24	
49	Unit-04	m/m of distance, water level by Ultrasonic transducer	04.11.24 - 05.11.24	21.11.24 - 22.11.24	
50	Unit-04	Doubt clearing class	06.11.24	23.11.24	

Detailed Teaching Plan

Lecture No	Unit No	Topics to be covered	Planned Date	Execution Date	Remarks
51	Unit-05	concept of control systems, Laplace transformation	08.11.24	25.11.24	(2 class)
52	Unit-05	Numerical Laplace,	09.11.24	27.11.24	(2 class)
53	Unit-05	concept of pole & zero, stability	11.11.24	28.11.24	
54	Unit-05	unit step, ramp, impulse response	12.11.24	29.11.24	(2 class)
55	Unit-05	open / close loop T.F with suitable Example	13.11.24	02.12.24	
56	Unit-05	Terminology used in feedback T.F.	14.11.24	03.12.24	(2 class)
57	Unit-05	Basic control Action — (P), I	15.11.24	04.12.24	
		(P I P) Proportional / Integral / derivative	18.11.24	05.12.24	
58	Unit-05	uses of sensor and transducer in feedback control system	19.11.24	06.12.24	
59	—	Numerical problem Based on T.F.	20.11.24	07.12.24	
60		Numerical problem Based on Laplace Fun.	21.11.24	9.12.24	
61		Numerical open loop and close loop System	22.11.24	10.12.24	

MPS Dhanbad

Department of Electrical Engineering

Detailed teaching plan (Theory) AM 2025 Sub Teacher MS Dhanmlak

S.no.	Lecture no.	Total Hours	Unit no.	Topics to be covered	Planned date	Execution date	Remark
1	LN1	19 hr	Unit no. 1	Unit 1 Electric Drives : Introduction	06.01.25	09.01.25	
2	LN2			1.1 Types of electrical drives.	07.01.25	14-01.25	
3	LN3			1.2 Motors used for electrical drives; DC series, shunt and	08.01.25	15-01.25	
4	LN4			1.2 .1separately excited motors, Induction Motor.	09.01.25	18.01.25	
5	LN5			1.3 Selection of Electrical motors.	10.01.25	20.01.25	
6	LN6			1.4 Torque / speed and torque / current characteristics of DC series,	11-01.25	21-01.25	
7	LN7			1.4.1 T-S shunt and separately excited motors,	13.01.25	22.01.25	
8	LN8			1.4.2 T_S of of three phase induction motors.	14.01.25	23-01-25	
9	LN9			1.5 Heating and Cooling of electrical motors – Heating and cooling curves.	15.01.25	24-01.25	
10	LN10			1.5 insulating materials.	16.01.25	25-01.25	
11	LN11			1.6 Size and rating of motors- standard ratings of motors,	17-01.25	27-01.25	
12	LN12			1.6.1 classes of duty	18.01.25	28.01.25	
13	LN13			1.6.2 ambient temperature and ratings, ambient temperature and ratings,	20.01.25	29-01.25	
14	LN14			1.6.3motors used for different types of applications,	21.01.25	30.01.25	
15	LN15			1.6.4 temperature rise with short time ratings.	22.01.25	31-01-25	
16	LN16			1.6.5 Types of load:	22.01.25	22.02.25	
17	LN17			1.6.7Classification of loads with respect to time,	24-01.25	23.02.25	
18	LN18			1.6.8 classification of loads with respect to duty cycles.	25.01.25	24.02.25	
19	LN19			1.6.9 Enclosures for rotating electrical machines.	27-01.25	25.02.25	
20	LN20			Doubt clearing class /Remedial Class	28.01.25	27-02.25	
21	LN21	17 hr	Unit no 2	Unit 2 Electric Heating and welding :introduction	29.01.25	28.02.25	
22	LN22			2.1 Advantages of Electrical heating.	30.01.25	03.03.25	
23	LN23			2.2 Essential Requirements of a good heating element, ,	31.01.25	04.03.25	
24	LN24			causes of failure of heating element.	01.02.25	05.03.25	
25	LN25			materials of heating element	03.02.25	06.03.25	
26	LN26			2.3 Methods of electric heating – resistance heating, arc heating, high frequency heating, induction heating, dielectric heating.	04.02.25	07.03.25	
27	LN27			2.3.1resistance heating	05.02.25	08.03.25	
28	LN28			2.3.2 arc heating	06.02.25	10.03.25	
29	LN29			2.3.3 high frequency heating	07.02.25	11.03.25	
30	LN30			2.3.4 induction heating	08.02.25	17.03.25	
31	LN31			2.3.4 dielectric heating.	09.02.25	18.03.25	
32	LN32			2.4 Types of resistance welding, choice of welding time, electric arc welding, Types of welding electrodes.	10.02.25	19.03.25	
33	LN33			2.4.1 choice of welding time	11.02.25	20.3.25	
34	LN34			2.4.2 electric arc welding	12.02.25	21.03.25	
35	LN35			2.4.3 Types of welding electrodes,	13.02.25	22.03.25	

37	LN37			2.5 Welding transformers and Doubt clearing class /Remedial Class	14.02.25	24.03.25	
38	LN38			**Unit3.0 Illumination :Introduction**	15.02.25	26.03.25	
39	LN39			3.1 Introduction: Terms used in illumination, laws of illumination.	17.02.25	27.03.25	
40	LN40			3.2 Types of sources of illumination - Electric arc, incandescent, gaseous discharge, fluorescent.	18.02.25	28.03.25	
41	LN41			3.3 Arc lamps, incandescent lamps, laser, LED, neon, Tungsten-Halogen and Sodium Vapour lamps, Fluorescent lamps.	19.02.25	01.04.25	
42	LN42			3.3.1 Arc Lamp,Incandescent lamps	20.02.25	02.04.25	
43	LN43	14hr	Unit no 3	3.3.2 Laser ,LED	21.02.25	03.04.25	
44	LN44			3.3.3 Neon,Tunsten-Halogen lamp	24.02.25	04.04.25	2
45	LN45			3.3.4 Sodium Vapour lamps,Fluorescent lamps	25.02.25	05.04.25	2
46	LN46			3.4 Types of lighting schemes: direct, semi direct, Semi-indirect, Indirect lighting and general lighting schemes.	27.02.25	06.04.25	2
47	LN47			3.5 General ideas about street lighting, factory lighting and flood lighting.	28.02.25	07.04.25	
48	LN48			Doubt clearing class /Remedial Class	01.03.25	08.04.25	
49	LN49			**Unit4.0 Electric Traction Drives ; introduction**	03.03.25	09.04.25	
50	LN50			4.1 Requirements of ideal traction system, advantages and disadvantages of electric traction	04.03.25	11.04.25	
51	LN51			4.2 INTRO System of track electrification – DC system, single phase AC system, three phase AC system, Composite system	05.03.25	12.04.25	
52	LN52			4.2.1 Dc track Electrification	06.03.25	15.04.25	
53	LN53			4.2.2 Ac Track Electrification : Single pahse	07.03.25	16.04.25	
54	LN54			4.2.2 Ac Track Electrification : Three pase and Compositesystem	10.03.25	17.04.25	
55	LN55	15 hr	Unit no 4	4.2.3 Single line diagram of electrification system	11.03.25	21.04.25	
56	LN56			4.3 Special mechanical and electrical features of traction motors,	12.03.25	22.04.25	
57	LN57			4.3.1 Current Collector	17.03.25	23.04.25	
58	LN58			4.4 Traction motors: DC series, Three phase induction motors	18.03.25	24.04.25	
59	LN59			4.4 Traction motors: Three phase induction motors	19.03.25	25.04.25	
60	LN60			4.4.1 Types of electric braking: Plugging,	20.03.25	26.04.25	
61	LN61			4.4.2 Types of electric braking: Rheostat or Dynamic braking	21.03.25	02.05.25	
62	LN62			4.4.3 Types of electric braking: Regenerative Braking	22.03.25	03.05.25	
63	LN63			Doubt clearing class /Remedial Class	24.03.25	06.05.25	
64	LN64			**Unit5.0 Other Aspects of Electric Traction : introduction**	25.03.25	07.05.25	
65	LN65			5.1 Types of service- Main line services, Urban services, suburban services.	26.03.25	08.05.25	
66	LN66			5.2 Speed-time and speed distance curves for main line service, suburban service and urban and city	27.03.25	09.05.25	
67	LN67			5.2.1Derivation pf Speed time curve for Trapozoldal	28.03.25	10.05.25	
68	LN68			5.2.2 Derivation pf Speed time curve for Quadrilateral.	01.04.25	13.05.25	
69	LN69			5.2.3 Numerical speed time curve trapozoldal	02.04.25	14.05.25	
70	LN70			5.2.4 Numerical speed time curve quadrilaterial.	03.04.25	16.05.25	
71	LN71	15 hr	Unit no.5	5.3 Basic definitions: Crest speed, average speed, schedule speed, schedule time, Factors affecting the schedule speed of a train.	04.04.25	17.05.25	
72	LN72			5.4 Factors affecting the schedule speed of a train.	05.04.25	19.05.25	
73	LN73			5.5 Tractive effort.	07.04.25	20.05.25	
74	LN74			5.6 Specific energy consumption	08.04.25	23.05.25	
75	LN75			5.7 Dead weight, accelerating weight, adhesive weight,	09.04.25	27.05.25	
76	LN76			5.8coefficient of adhesion,	11.04.25	28.05.25	
77	LN77			5.9 advantages and disadvantages of regenerative braking.	15.04.25	30.05.25	
78	LN78			Doubt clearing class /Remedial Class	16.04.25	09.06.25	
					17.04.25	10.06.25	

Department of Electrical Engineering

Detailed Teaching Plan Theory (AC Machine Session A-M 2025) Sub. Teacher – Mrs Dhurwey

S.no.	Lecture no.	Unit no.	Topics to be covered	Planned date	Execution date	Remark
1	L No. 1	Unit1	**Unit-1.0 Alternators**	17.02.25	22.02.25	
2	L No 2	Unit1	1.1 Types and applications	18.02.25	24.02.25	
3	L No. 3	Unit1	1.2 Construction- Salient and Cylindrical rotor	19.02.25	25.02.25	
4	L No. 4	Unit1	1.3 Equivalent circuit and phasor diagram	20.02.25	27.02.25	
5	L No. 5	Unit1	1.4 Voltage equation . Voltage Regulation	21.02.25	03.03.25	
6	L No. 6	Unit1	1.5 Voltage regulation by synchronous impedance method. Open Circuit, Short Circuit characteristics	22.02.25	04.03.25	
7	L No. 7	Unit1	1.5.1 Open Circuit. Short Circuit characteristics	24.02.25	05.03.25	
8	L No. 8	Unit1	1.6 Synchronization and conditions of synchronization	25.02.25	06.03.25	
9	L No. 9	Unit1	1.7 Synchronization of alternator with bus bar/alternator	26.02.25	10.03.25	
10	L No. 10	Unit1	1.7.1 two bright and one dark lamp method and two dark lamp method	27.02.25	10.03.25	
11	L No. 11	Unit1	1.7.2 Synchro Scope Method	28.02.25	11.03.25	
12	L No. 12	Unit1	1.8 Cooling system of alternator	01.03.25	17.03.25	
13	L No. 13	Unit1	1.9 Maintenance of given alternators	03.03.25	18.03.25	
14	L No. 14	Unit2	**Unit-2.0 Synchronous Motor**	04.03.25	19.03.25	
15	L No. 15	Unit2	2.1Synchronous Motor	05.03.25	20.03.25	
16	L No. 16	Unit2	2.1 Working principle . introduction	06.03.25	22.03.25	
17	L No. 17	Unit2	2.2 Starting methods . Introduction	07.03.25	24.03.25	
18	L No. 18	Unit2	2.2.1 Starting methods by using external motor	08.03.25	26.03.25	
19	L No. 19	Unit2	2.2.2 Starting method by using damper bar	10.03.25	27.03.25	
20	L No. 20	Unit2	2.3 Equivalent circuit and phasor diagram	11.03.25	01.04.25	
21	L No. 21	Unit2	2.3.1 Phasor diagram	12.03.25	02.04.25	
22	L No. 22	Unit2	2.4 Effect of change in excitation - 'V'	17.03.25	03.04.25	
23	L No. 23	Unit2	2.4 Effect of change in pf- inverted 'V' curves	18.03.25	05.04.25	
24	L No. 24	Unit2	2.5 Applications of Synchronous motor - Synchronous condenser and constant speed	19.03.25	06.04.25	
25	L No. 25	Unit2	2.6 Hunting and its prevention	20.03.25	07.04.25	
26	L No. 26	Unit2	2.6 Maintenance of synchronous motors.	21.03.25	08.04.25	
27	L No. 27	Unit 3	**Unit-3.0 Three Phase Induction Motors**	22.03.25	09.04.25	
28	L No. 28	Unit 3	3.1. Construction, types- Squirrel cage - Single, double cage, Wound rotor	24.03.25	11.04.25	
29	L No. 29	Unit 3	3.2. Working principle.	25.03.25	12.04.25	
30	L No. 30	Unit 3	3.3 Torque-Slip curve	26.03.26	16.04.25	
31	L No. 31	Unit 3	3.4 Equivalent circuit and phasor diagram	27.03.25	17.04.25	
32	L No. 32	Unit 3	3.3 Torque equation, Starting, running and condition for the maximum torque (Only expression)	28.03.25	21.04.25	
33	L No. 33	Unit 3	3.4 Necessary of starter	29.03.25	22.04.25	
34	L No. 34	Unit 3	3.4.1 Types of starters- DOL	31.03.25	23.04.25	
35	L No. 35	Unit 3	3.4.2 Types of starters- Star delta	01.04.25	24.04.25	
36	L No. 36	Unit 3	3.4.3 Types of starters- Autotransformer type	02.04.25	26.04.25	
37	L No. 37	Unit 3	3.4.4 Types of starters- Rotor resistance starter.	03.04.25	06.05.25	
38	L No. 38	Unit 3	3.5. No load and Blocked rotor test, Losses and efficiency	05.04.25	07.05.25	
39	L No. 39	Unit 3	3.6. Losses and efficiency	07.04.25	08.05.25	
40	L No. 40	Unit 3	3.7. Speed control of squirrel cage and slip- ring induction motor,	08.04.25	10.05.25	
41	L No. 41	Unit 4	Maintenance of different types of induction motors	09.04.25	13.05.25	
42	L No. 42	Unit 4	**Unit-4.0 Single Phase Induction Motor**	10.04.25	14.05.25	
43	L No. 43	Unit 4	4.1 Construction,working	11.04.25	15.06.25	
44	L No. 44	Unit 4	4.2 Double revolving field theory	12.04.25	17.05.25	
45	L No. 45	Unit 4	4.3 Forward and backward Slip	10.04.25	18.05.25	
46	L No. 46	Unit 4	4.4 Types based on starting methods: split phase- Resistance Start, Capacitor start	11.04.25	21.05.25	
47	L No. 47	Unit 4	4.4.1 Types based on starting methods: Capacitor start capacitor run	12.04.25	17.05.25	
48	L No. 48	Unit 4	4.4.2 Types based on starting methods: Shaded pole induction motor 4.5 Equivalent circuit.	14.04 25	[illegible]	

52	L No. 52	Unit 5	Unit-5.0 Special electrical machines	15.04.25	21.05.25	
52	L No. 52	Unit 5	5.1Construction, working Speed/ torque characteristics (where ever applicable) and applications of Special electrical machines	16.04.25	22.05.25	
53	L No. 53	Unit 5	1 AC servo motor contruction working	17.04.25	23.05.25	
54	L No. 54	Unit 5	1 AC servo motor application	21.04.25	24.05.25	
55	L No. 55	Unit 5	2 Linear Induction Motor(LIM)	22.04.25	30.07.25	
56	L No. 56	Unit 5	3 Reluctance motor	23.04.25	01.07.25	
57	L No. 57	Unit 5	4 Hysteresis motor	24.04.25	02.07.25	
58	L No. 58	Unit 5	5 StepperMotor	25.04.25	03.07.25	
59	L No. 59	Unit 5	6 Ac motor /Servo-motor	26.04.25	05.07.25	
60	L No. 60	Unit 1	Unit 1 Dout Clearing Class	28.04.25	07.07.25	
61	L No. 61	Unit 2	Unit 2 Dout Clearing Class	29.04.25	08.07.25	
62	L No. 62	Unit 3	Unit 3 Dout Clearing Class	30.04.25	09.07.25	
63	L No. 63	Unit 4	Unit 4 Dout Clearing Class	01.05.25	10.07.25	
64	L No. 64	Unit 5	Unit 5 Dout Clearing Class	02.05.25	14.07.25	
65	L No. 65	Unit 6	Revision of previous year question paper	03.05.25	16.07.25	
				04.05.25	17.07.25	
				06.05.25	19.07.25	

Signature of Subject Teacher

Manish Chandrakar

Lession Plan					
Subject - Electrical Estimating and Costing			**Semeter - 4th**		
Lect. No.	**Unit No.**	**Topics to be Covered**	**Planned Date**	**Execution Date**	**Remark**
1		**Electrical Wiring**	03/02/25	04/02	
2		Wiring system	04/02/25	05/02	
3		Types of wires,	05/02/25	06/02	
4		Specifications of Different types of wiring materials, Accessories	06/02/25	08/02	
5		Selection of material for wiring work.	08/02/25	18/02	
6		Wiring tools.	13/02/25	19/02	
7		Wiring circuits	18/02/25	21/02	
8		Point wiring system (Short, Medium and Long)	19/02/25	25/02	
9		Service line: single phase, three phase	21/02/25	27/02	
10		Domestic and industrial panel wiring.	22/02/25	28/02	
11, 12		IE Act-2003., I.E. rules for wiring,	24/02/25	01/03/25	
13	2	**Estimating and Costing Practices**	27/02/25	03/03/25	
14		Estimation and estimation tools.	28/02/25	04/03/25	
15		Electrical Schedule of rates,	1/03/25	05/03/25	
16		catalogues, Survey and source selection, measurement book	03/3/25	06/03/25	
17		Quantity and cost of material required.	04/03/25	07/03	
18		Purchase system including GeM,	05/03/25	10/03	
19		Purchase enquiry and selection of purchase mode	06/03/25	11/03	
20		Comparative statement, Purchase orders, verification of bills	07/03/25	12/03	
21, 22		Contract system.	08/03	18/03	
23, 24		Tendering procedure and preparation of simple tender, Earnest Money, Security Deposit	11/03	19/03	
25	3	**Estimation and Costing of residential and industrial wiring**	17/03	21/03	
26		Residential wiring Layout	18/03	22/03	
27		Load calculation	19/03	26/03	
28		Wire, switchgear, Cable and other accessories & fixture/fitting selection	20/03	27/03	
29		Earthing system	21/03	28/03	
30		Overall Estimating and costing	22/03/25	29/03	
31		Commercial and industrial Wiring Layout	26/03/25	01/04	
32		Commercial and industrial Wiring Layout	27/03/25	02/04	
33		Load calculation	28/03/25	03/04	
34		Wire, switchgear, Cable and other accessories & fixture/fitting selection	29/03/25	04/04	
35		Earthing system	01/04/25	05/04	
36		Overall Estimating and costing	02/04/25	07/04	

Manish Chandrakar

Lession Plan					
Subject - Electrical Estimating and Costing			**Semeter - 4th**		
Lect. No.	**Unit No.**	**Topics to be Covered**	**Planned Date**	**Execution Date**	**Remark**
37	4	**Estimation and costing of Overhead and Underground Distribution System**	03/04/25	08/04	
38		Overhead distribution system.	04/04/25	09/04	
39		Materials and accessories required for the overhead distribution system.	05/04/25	17/04	
40		Distribution lines, Line supports, Factors governing height of pole,	07/04/25	21/04	
41		Conductor materials, size of conductor for overhead line, conductor's configuration, spacing and clearances, span lengths.	08/04/25	22/04	
42		Cross arms, pole brackets, clamps, guys and stays, setting of stays,	09/04/25	23/04	
43		Overhead line insulators, insulator materials, lightning arrestors, erection of supports	17/04/25	24/04	
44		Earthing of lines, Guarding of overhead lines, Clearances of conductor from ground, Spacing between supports conductors,	19/04/25	28/04	
45		I.E. rules pertaining to LV distribution lines	21/04/25	29/04	
46		Estimate for 440 V, 3-phase, 4 wires or 3 wires overhead distribution system.	22/04/25	30/04	
47		Types of service connections	23/04/25	01/05	
48		Method of installation of service connection(1- phase and 3-phase),	24/04/25	02/05	
49		I.E. rules pertaining to overhead lines and service connection	28/04/25	05/05	
50		Materials and accessories required for underground distribution system.	29/04/25	06/05	
51		Estimate for 440 V, 3- phase, 4 wires or 3 wires underground distribution system.	30/04/25	07/05	
52		I.E. rules pertaining to	01/05/25	08/05	
53		underground system and service connection.	02/05/25	10/05	
			~~08/05~~/25		
54	5	**Estimation and Costing of Repair and Maintenance of Electrical Equipment and appliances**	03/05/25	13/05	
55		D.O.L. starter, small motor, mono block pump, automatic electric iron, table/ceiling fan, ICDP/ICTP Switch, etc.	05/05	14/05	
56		Operating Manuals, service manuals and drawing work of the product/equipment.	06/05	15/05	
57		Storage of consumables/ spare parts of the equipment.	07/05	16/05	
58		Estimation of repairing cost and overall cost.	08/05	17/05	
59		Tools used for repairs & maintenance work	10/05	19/05	
		Preparation of cost schedule for repair and maintenance of;	13/05	20/05	
60		i. Electric fan.	14/05	21/05	
61		ii.Automatic electric iron.	15/05	22/05	
62		iii. Single phase transformer.	16/05	23/05	
63		iv. FHP motors	17/05	24/05	
64		v. Mixer grinder,	19/05		
65		vi. D.O.L. Starter.	20/05		

Manish Chandrakar

Detailed Teaching Plan

Jan-June 2025

Sub:Energy Conservation & Energy Audit **6TH Semester**

Lect. No.	Unit No.	Topics to be Covered	Planned Date	Execution Date	Remark
1	1	Energy conservation measures and Management	09/01/25	09/01/25	
2		Current energy scenario in India	10/01/25	10/01/25	
3		Concept of energy management	11/01/25	11/01/25	
4		Energy management, energy conservation, energy audit and energy efficiency.	14/01/25	14/01/25	
5		Role of Bureau of Energy Efficiency	15/01/25	15/01/25	
6		Energy rating	16/01/25	18/01/25	
7		Energy conservation act 2001	17/01/25	20/01/25	
8		Difference between ESCO and EPC	18/01/25	21/01/25	
9, 10		Payback period, Internal Rate of Return, Depreciation	20 & 21/01	23/ & 28/01/25	
11, 12	2	Energy Conservation in Power System	22/01/25	28/01/25	
13		Energy conservation in generation	24/01/25	29/01/25	
14		Power factor	27/01/25	30/01/25	
15, 16		Losses in power system:	28/01/25	01/02/25	
17, 18		Demand-Side management	30/01/25	03/02/25	
19		Energy conservation equipment	01/02/25	05/02/25	
20		Tariff	03/02/25	21/02/25	

Manish Chandrakar

Detailed Teaching Plan

Sub:Energy Conservation & Energy Audit — **6TH Semester**

Lect. No.	Unit No.	Topics to be Covered	Planned Date	Execution Date	Remark
21,22	3	Energy conservation in lighting system	04/02/25	22/02/25	
23, 24		Basic parameters and terms used in lighting system	18/02/25	25/02/25	
25, 26		Recommended Luminance levels	20/02/25	27/02/25	
27, 28		Procedure for assessing existing lighting system	24/02/25	01/03/25	
29, 30		Energy conservation techniques in lighting system.	27/02/25	04/03/25	
31	4	Energy conservation in electrical motors	01/03/25	06/03/25	
32		Need and significance of energy conservation in motors	03/03/25	07/03/25	
33, 34		Energy Efficient motors.	04/03/25	08/03/25	
35, 36		Energy conservation techniques in Induction motor	06/03/25	11/03/25	
37, 38		Function of Energy conservation equipment related to electrical motors	08/03/25	17/03/25	
39		Energy conservation in Transformers	11/03/25	26/03/25	
40		Energy efficient transformer	12/03/25	27/03/25	
41	5	Energy Audit	01/04/25	01/04/25	
42		Electricity act 2003	02/04/25	02/04/25	
43, 44		IE rules and regulations	03/04/25	03/04/25	
45		Energy Flow Diagram	05/04/25	05/04/25	
46		Energy audit instruments	07/04/25	07/04/25	
47		Questionnaires for the energy audit	08/04/25	08/04/25	
48		Internal energy audit checklist	11/04/25	11/04/25	
49		Procedure of Energy audit	12/04/25	12/04/25	
50		ABC analysis.	15/04/25	15/04/25	

Manish chandrakar

July DEC 2024

Detailed Teaching Plan

Sub: Electrical & Electronic Measurement **3rd Semester**

Lect. No.	Unit No.	Topics to be Covered	Planned Date	Execution Date	Remark
1	1	Block Diagram of Measuring System	10/09/24	10.09.24	
2		Measuring Systems Requirements	11/09/24	11.09.24	
3		Production of Deflecting, Controlling and Damping Torques	12/09/24	12.09.24	
4		Accuracy, precision, Error,Resolution, Sensitivity and tolerance	13/09/124	13.09.24	
5		Indicating , Recording and Integrating Instruments	17/09/24	17.09.24	
6		Typical uses Instruments	18/09/24	18.09.24	
7		Electromechanical measuring instruments	19/09/24	19.09.24	
8, 9		Working Principle, Construction Applications, Merits and Demerits of PMMC type instruments	23/09/24	23.09.24	
10, 11		Working Principle, Construction Applications, Merits and Demerits of Moving iron type instruments	25/09/24	25.09.24	
12, 13		Working Principle, Construction Applications, Merits and Demerits of Induction type instruments	27/09/24	27.09.4	
14, 15		Working Principle, Construction Applications, Merits and Demerits ofDynamometers type instruments	30/09/24	30/09/24	

Manish Chandrakar

Detailed Teaching Plan

Sub: Electrical & Electronic Measurement **3rd Semester**

Lect. No.	Unit No.	Topics to be Covered	Planned Date	Execution Date	Remark
16	2	Electromechanical measuring Instruments	03/10/24	03/10/24	
17		Principle of current and voltage measurement	04/10/24	04/10/24	
18		Galvanometer	05/10/24	05-10-24	
19		Ammeter, Voltmeter	07/10/24	07.10.24	
20		Range Extension of ammeter using Shunts and Multipliers	08/10/24	08.10.24	
21		Range Extension of voltmeter using Shunts and Multipliers	09/10/24	09.10.24	
22		Current Transformer (CT) and Potential Transformer (PT)	14/10/24	14.10.24	
23		Principle of Power and Energy Measurement	15/10/24	15.10.24	
24		Effect of Power Factor	16/10/24	16.10.24	
25		Measurement of Single Phase Power using Wattmeter	17/10/24	17.10.24	
26		Measurement of Three Phase Power using Wattmeter	18/10/24	18.10.24	
27		Measurement of single phase energy using watt-hour meter	19/10/24	19.10.24	
28		Calibration of ammeters, voltmeters	21/10/24	21.10.24	
29		Calibration of wattmeter's and energy meters	05/11/24	05.10.24	
30		Working of Digital Energy Meter with Block diagram	06/11/24	06.10.24	

Manish Chandrakar

July DEC 2024

Detailed Teaching Plan

Sub: Electrical & Electronic Measurement **3rd Semester**

Lect. No.	Unit No.	Topics to be Covered	Planned Date	Execution Date	Remark
31	3	Measurements using Bridges/meters	08/11/24	08/11/24	
32		Classification of resistances-Low, Medium, High	11/11/24	11/11/24	
33		Concept of bridge balancing	12/11/24	12/11/24	
34		Low resistance Measurement -Kelvin double bridge	13/11/24	13/11/24	
35		Medium resistance measurement- Wheatstone bridge	14/11/24	14/11/24	
36		High resistance measurement using Megger.	16/11/24	16/11/24	
37		Earth resistance measurement using earth tester	18/11/24	18/11/24	
38		Inductance Measurement using Maxwell's Bridge	19/11/24	19/11/24	
39		Inductance Measurement using Modified Maxwell's Bridge	20/11/24	20/11/24	
40		Capacitance Measurement: Schering Bridge	21/11/24	21/11/24	
41	4	**Electronic Instruments**	22/11/24	22/11/24	
42		Essentials and advantages of electronic instruments	23/11/24	23/11/24	
43		True RMS reading voltmeter.	25/11/24	25/11/24	
44		Digital Voltmeters(DVM)	26/11/24	26/11/24	
45		Ramp type DVM	27/11/24	27/11/24	
46		Double Slop type DVM	28/11/24	28/11/24	
47		Digital multi meters	29/11/24	29/11/24	
48		Digital LCR meter- Block diagram, Working Principle	02/12/24	02/12/24	
49		Analog/Digital recorders, Graphic recorder (Only block diagram)	03/12/24	03/12/24	
50		Strip Chart recorder, XY recorder (Only block diagram)	04/12/24	04/12/24	

Manish Chandroka

Detailed Teaching Plan

Sub: Electrical & Electronic Measurement **3rd Semester**

Lect. No.	Unit No.	Topics to be Covered	Planned Date	Execution Date	Remark
51	5	Cathode Ray Oscilloscope	05/12/24	05/12/24	
52		CRO-basic clock diagram	06/12/24	06/12/24	
53		Cathode Ray Tube	07/12/24	07/12/24	
54		Electrostatic Deflection in CRT	09/12/24	09/12/24	
55		Magnetic Deflection in CRT	10/12/24	10/12/24	
56		X & Y Amplifiers in CRT	11/12/24	11/12/24	
57		Controls on CRO and their functions	12/12/24	12/12/24	
58		Lissajous pattern	13/12/24	13/12/24	
59		Digital Storage Oscilloscope	14/12/24	14/12/24	
60		DSO Basic block diagram and working	16/12/24	16/12/24	

Manish Chandrakar

Lession Plan

Subject - Installation Maintenance Electrical Equipment **Semeter -5th** July - Dec 2024

Lect. No.	Unit No.	Topics to be Covered	Planned Date	Execution Date	Remark
1	1	Introduction	27/08/24	27/08/24	
2		Types of heavy electrical machine	28/08/24	28/08/24	
3		Unloading Electrical Equipment at site ,equipment site	29/08/24	29/08/24	
4		Inspection of electrical	30/08/24	30/08/24	
5		Installation procedure of small static equipment	31/08/24	31/08/24	
6		Installation procedure of large static equipment	02/09/24	02/09/24	
7		Installation procedure of small Rotating type equipment	03/09/24	03/09/24	
8		Installation procedure of large Rotating type equipment	04/09/24	04/09/24	
9, 10		Installation procedure of pole mounted transformer	09/09/24	09/09/24	
11	2	Introduction Of commissioning	11/09/24	11/09/24	
12		Commissioning procedure to be adopted for commissioning the static equipment in respect of mechanical instalation and alignment	12/09/24	12/09/24	
13		Commissioning procedure to be adopted for commissioning the static equipment in respect of electrical test and safety precaution to be adopted before energization	13/09/24	13/09/24	
14, 15, 16		Explain Different types of Electrical test	14/09/24	14/09/24	
17		Commissioning procedure to be adopted for commissioning the rotating equipment in respect of mechanical instalation and alignment	19/09/24	19/09/24	
18		Commissioning procedure to be adopted for commissioning the rotating equipment in respect of electrical test and safety precaution to be adopted before energization	23/09	23/09/24	
19, 20		Test report of Commissioning and test certificate	24/09	24/09/24	

Manish Chandrakar

Lession Plan

Subject - Installation Maintenance Electrical Equipment **Semeter -5th**

Lect. No.	Unit No.	Topics to be Covered	Planned Date	Execution Date	Remark
21	3	Introduction	26/09/24	26/09/24	
22		Introduction and Necesity of earthing	27/09/24	01/10/24	
23, 24, 25		Different method of earthing	28/09/24	03/10/24	
26		Factor affecting the earth resistance	04/10/24	04/10/24	
27		Method of improvement of earth resistance	05/10/24	08/10/24	
28		Permisible earth resistance value	06/10/24	09/10/24	
29, 30		Measuremet of earth resistance	09.10.24	19/10/24	
31	4	Introduction	~~08.10.24~~ 21/10	22/10/24	
32		Reason of failure of electrical equipment and machine	22/10/24	24/10/24	
33		Method for dry insulation	23/10/24	25/10/24	
34		Measurement of internal temp winding & need of vaccum impregination	24/10/24	26/10/24	
35		Filtering process of Insulating oil	25/10/24	05/11/24	
36		Concept of preventive maintenance	26/10/24	06/11/24	
37		Maintenance schedule for induction motor	05/11/24	08/11/24	
38		Maintenance schedule for dc motor	06/11/24	11/11/24	
39		Maintenance schedule for transformer	08/11/24	12/11/24	
40		Tools for hotline maintenance	11/11/24	14/11/24	

LESSON PLAN RENEWABLE ENERGY SYSTEMS

Faculty Name: Manish Sahu Course Title: Renewable Energy Systems

Branch: Electrical Engineering Semester: Diploma

Duration: 09 January 2025 – 20 April 2025

Unit–1.0 Renewable Energy Sources

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
1	U-1	Conventional & Non-conventional energy sources	09-01-2025	09-01-2025	
2	U-1	Importance of non-conventional energy	10-01-2025	11-01-2025	
3	U-1	Energy chain & energy flow diagram	13-01-2025	14-01-2025	
4	U-1	Advantages & disadvantages of conventional sources	14-01-2025	15-01-2025	
5	U-1	Salient features of non-conventional sources	15-01-2025	15-01-2025	
6	U-1	Green power – definition & advantages	16-01-2025	18-01-2025	

Unit–2.0 Wind Energy

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
7	U-2	Wind energy – introduction	17-01-2025	20-01-2025	
8	U-2	Factors affecting wind energy distribution	18-01-2025	21-01-2025	
9	U-2	Wind speed variation with height & plot	20-01-2025	22-01-2025	
10	U-2	Power in wind & empirical formula	21-01-2025	23-01-2025	
11	U-2	Wind speed duration curve & characteristics	22-01-2025	23-01-2025	
12	U-2	Capacity factor of wind power plant	23-01-2025	24-01-2025	
13	U-2	Site selection for wind power plant	24-01-2025	24-01-2025	
14	U-2	Wind power terminology & definitions	27-01-2025	27-01-2025	
15	U-2	Elementary fluid flow concepts	28-01-2025	28-01-2025	

Unit–3.0 Wind Power Generation

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
16	U-3	WECS block diagram & introduction	29-01-2025	29-01-2025	
17	U-3	Wind turbine types	30-01-2025	30-01-2025	
18	U-3	HAWT – components & diagram	31-01-2025	31-01-2025	
19	U-3	Rotor types, upwind & downwind	01-02-2025	01-02-2025	
20	U-3	Yaw & pitch control	03-02-2025	03-02-2025	
21	U-3	VAWT – components & construction	04-02-2025	04-02-2025	
22	U-3	HAWT vs VAWT	05-02-2025	05-02-2025	
23	U-3	Speed control strategies	06-02-2025	18-02-2025	
24	U-3	Power–speed characteristics	07-02-2025	19-02-2025	
25	U-3	Generators for wind power	10-02-2025	20-02-2025	
26	U-3	Fixed speed drive scheme	11-02-2025	21-02-2025	
27	U-3	Variable speed drive using power electronics	12-02-2025	24-02-2025	
28	U-3	Scherbius & direct drive systems	13-02-2025	21-02-2025	
29	U-3	System integration & grid effects	14-02-2025	24-02-2025	
30	U-3	Wind energy storage & environmental aspects	17-02-2025	25-02-2025	

Unit–4.0 PV Cell

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
31	U-4	PV cell characteristics & equivalent circuit	18-02-2025	25-02-2025	
32	U-4	PV cell materials & types	19-02-2025	25-02-2025	
33	U-4	PV datasheet parameters	20-02-2025	27-02-2025	
34	U-4	Effect of temperature on PV cell	21-02-2025	27-02-2025	
35	U-4	Series connection of PV cells	24-02-2025	27-02-2025	
36	U-4	Parallel connection of PV cells	25-02-2025	28-02-2025	
37	U-4	Protection of PV cells	26-02-2025	28-02-2025	
38	U-4	Module interconnection	27-02-2025	28-02-2025	

Unit–5.0 Energy from Sun & PV Sizing

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
39	U-5	Insolation & irradiance	28-02-2025	01-03-2025	
40	U-5	Insolation variation with time	03-03-2025	03-03-2025	
41	U-5	Energy on horizontal flat plate	04-03-2025	04-03-2025	
42	U-5	Atmospheric effects	05-03-2025	05-03-2025	
43	U-5	Batteries – basics & types	06-03-2025	06-03-2025	
44	U-5	Battery capacity, C-rate & efficiency	07-03-2025	07-03-2025	
45	U-5	Energy & power density	10-03-2025	10-03-2025	
46	U-5	Battery selection	11-03-2025	11-03-2025	
47	U-5	PV & battery sizing	12-03-2025	12-03-2025	

Revision, Evaluation & Completion

Lect. No.	Type	Topics	Planned Date
48–54	Revision	Unit-wise revision & numericals	13-03-2025 to 21-03-2025
55	Test	Unit Test / Internal assessment	24-03-2025
56–58	Revision	Previous year questions & doubt clearing	25-03-2025 to 27-03-2025
59–64	Revision	Final revision & exam preparation	01-04-2025 to 08-04-2025
65	Completion	Syllabus wrap-up	**20-04-2025-30.04.2025**

LESSON PLAN

Course Title : Electrical Power Generation, Transmission and Distribution

Course Code : 2024474 (024) **Faculty Name : Manish Sahu**

Duration : 09 January 2025 to 06 May 2025

Course Rationale

This course provides fundamental knowledge of electrical power generation, transmission line parameters and distribution systems. It helps students understand power stations, load management and transmission–distribution practices.

Unit–1: Hydroelectric Power Plant

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
1	U-1	Sources of electrical power generation	09-01-2025	09-01-2025	
2	U-1	Hydroelectric power station – energy conversion	10-01-2025	10-01-2025	
3	U-1	Layout of hydro power plant	13-01-2025	13-01-2025	
4	U-1	Hydrograph & power calculation	14-01-2025	14-01-2025	
5	U-1	Site selection & constituents of HPS	15-01-2025	15-01-2025	
6	U-1	Classification of HPS based on head	16-01-2025	16-01-2025	
7	U-1	Storage, pondage & plant layout	17-01-2025	17-01-2025	
8	U-1	Types of hydro turbines & auxiliaries	18-01-2025	18-01-2025	
9	U-1	Synchronous generators in HPS	20-01-2025	20-01-2025	
10	U-1	Selection, poles, speed & diameter	21-01-2025	21-01-2025	

Unit–2: Thermal and Nuclear Power Station

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
11	U-2	Thermal power station – energy conversion	22-01-2025	22-01-2025	
12	U-2	Layout & site selection of TPS	23-01-2025	23-01-2025	
13	U-2	Boiler & steam turbine	24-01-2025	24-01-2025	
14	U-2	Turbo generator & super heater	27-01-2025	27-01-2025	
15	U-2	Economizer & ESP	28-01-2025	28-01-2025	

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
16	U-2	Nuclear power station – layout	29-01-2025	29-01-2025	
17	U-2	Energy conversion in NPS	30-01-2025	30-01-2025	
18	U-2	Nuclear reactors – parts & types	31-01-2025	31-01-2025	
19	U-2	Reactor control methods	01-02-2025	01-02-2025	
20	U-2	Nuclear fuels	03-02-2025	03-02-2025	

Unit–3: Variable Load on Generating Stations

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
21	U-3	Structure of electrical power system	04-02-2025	04-02-2025	
22	U-3	Connected load & maximum demand	05-02-2025	05-02-2025	
23	U-3	Demand factor & load factor	06-02-2025	06-02-2025	
24	U-3	Diversity factor & capacity factor	07-02-2025	07-02-2025	
25	U-3	Load curve & load duration curve	10-02-2025	10-02-2025	
26	U-3	Base load & peak load	11-02-2025	11-02-2025	
27	U-3	Units generated vs demand & LF	12-02-2025	12-02-2025	
28	U-3	Cost of electrical energy	13-02-2025	13-02-2025	
29	U-3	Numerical problems on load & cost	14-02-2025	14-02-2025	

Unit–4: Transmission Line – Parameters & Performance

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
30	U-4	Transmission line parameters	17-02-2025	17-02-2025	
31	U-4	Resistance, inductance & capacitance	18-02-2025	18-02-2025	

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
32	U-4	Skin effect & proximity effect	19-02-2025	19-02-2025	
33	U-4	Stranding & transposition	20-02-2025	20-02-2025	
34	U-4	Classification of transmission lines	21-02-2025	21-02-2025	
35	U-4	Short transmission line performance	24-02-2025	24-02-2025	
36	U-4	Medium transmission line	25-02-2025	25-02-2025	
37	U-4	T & π networks	26-02-2025	26-02-2025	
38	U-4	ABCD constants & Ferranti effect	27-02-2025	27-02-2025	
39	U-4	Line losses & efficiency	28-02-2025	28-02-2025	
40	U-4	Insulators – types & failures	03-03-2025	03-03-2025	
41	U-4	String efficiency & improvement	04-03-2025	04-03-2025	

Unit–5: Distribution System

Lect. No.	Unit	Topics to be Covered	Planned Date	Execution Date	Remark
42	U-5	Feeders, distributors & service mains	05-03-2025	05-03-2025	
43	U-5	Selection of conductor size	06-03-2025	06-03-2025	
44	U-5	Voltage drop in DC distributors	07-03-2025	07-03-2025	
45	U-5	Voltage drop in AC distributors	10-03-2025	10-03-2025	
46	U-5	Underground power cables – types	11-03-2025	11-03-2025	
47	U-5	Construction of power cables	12-03-2025	12-03-2025	
48	U-5	Selection of LT & HT cables	13-03-2025	13-03-2025	
49	U-5	Laying of underground cables	14-03-2025	14-03-2025	
50	U-5	Faults in power cables	17-03-2025	17-03-2025	

Name of Faculty: Manish Sahu
Subject: Electrical Circuit **Semester:** 3rd Semester
Course: Diploma Engineering **Branch:** Electrical Engineering

Lect. No.	Unit No.	Topics to be Covered	Planned Date	Execution Date	Remark
1	Unit-1	Classification of electrical elements: Active & Passive	01-11-2024	01-11-2024	
2	Unit-1	Unilateral & Bilateral elements, Independent & Dependent sources	02-11-2024	02-11-2024	
3	Unit-1	Passive elements: Resistance – DC behavior	04-11-2024	04-11-2024	
4	Unit-1	Inductor – DC steady state behavior	05-11-2024	05-11-2024	
5	Unit-1	Capacitor – DC steady state behavior	06-11-2024	06-11-2024	
6	Unit-1	Simple series resistive circuits	07-11-2024	07-11-2024	
7	Unit-1	Simple parallel resistive circuits	08-11-2024	08-11-2024	
8	Unit-1	Ohm’s Law and applications	09-11-2024	09-11-2024	
9	Unit-1	Kirchhoff’s Voltage Law (KVL)	11-11-2024	11-11-2024	
10	Unit-1	Kirchhoff’s Current Law (KCL)	12-11-2024	12-11-2024	
11	Unit-1	Application of Ohm’s Law, KVL & KCL	13-11-2024	13-11-2024	
12	Unit-1	Source transformation (concept only)	14-11-2024	14-11-2024	
13	Unit-1	Mesh analysis (two loop problems)	15-11-2024	15-11-2024	
14	Unit-1	Nodal analysis (two node problems)	16-11-2024	16-11-2024	
15	Unit-2	Star–Delta & Delta–Star transformation	18-11-2024	18-11-2024	
16	Unit-2	Superposition theorem (two source network)	19-11-2024	19-11-2024	
17	Unit-2	Thevenin’s theorem	20-11-2024	20-11-2024	
18	Unit-2	Norton’s theorem (concept only)	21-11-2024	21-11-2024	
19	Unit-2	Maximum power transfer theorem	22-11-2024	22-11-2024	
20	Unit-2	Application of network theorems to DC circuits	23-11-2024	23-11-2024	

Lect. No.	Unit No.	Topics to be Covered	Planned Date	Execution Date	Remark
21	Unit-3	Generation of an alternating EMF	02-12-2024	02-12-2024	
22	Unit-3	AC quantities: Peak, RMS & Average value	03-12-2024	03-12-2024	
23	Unit-3	J-Operator and its application	04-12-2024	04-12-2024	
24	Unit-3	AC series circuits – R, L, C	05-12-2024	05-12-2024	
25	Unit-3	AC parallel circuits	06-12-2024	06-12-2024	
26	Unit-3	Phasor diagrams & impedance triangle	07-12-2024	07-12-2024	
27	Unit-3	Active, reactive & apparent power	09-12-2024	09-12-2024	
28	Unit-3	Power factor in RLC circuit	10-12-2024	10-12-2024	
29	Unit-3	Vector representation and operations on AC quantities	11-12-2024	11-12-2024	
30	Unit-4	Definition of resonance & its importance	12-12-2024	12-12-2024	
31	Unit-4	Series resonance – resonance frequency derivation	13-12-2024	13-12-2024	
32	Unit-4	Numerical problems on series resonance	14-12-2024	14-12-2024	
33	Unit-4	Quality factor, bandwidth & selectivity (concept)	16-12-2024	16-12-2024	
34	Unit-4	Effect of resonance on current & power factor	17-12-2024	17-12-2024	
35	Unit-5	Generation of three-phase voltage	18-12-2024	18-12-2024	
36	Unit-5	Three-phase systems: 3-wire & 4-wire, phase sequence	19-12-2024	19-12-2024	
37	Unit-5	Star & Delta connection of three-phase windings	20-12-2024	20-12-2024	
38	Unit-5	Line & phase quantity relations (Star/Delta)	21-12-2024	21-12-2024	
39	Unit-5	Three-phase load: Balanced & Unbalanced	02-01-2025	02-01-2025	
40	Unit-5	Measurement of power in three-phase circuits	03-01-2025	03-01-2025	

Lession Plan
Subject - Electrical Drawing & CAD
Semesters -3rd
Faculty Name – Mr.Bharat Kumar Nirmalkar

Lect. No.	Unit No.	Topics to be Covered	Planned Date	Execution Date	Remark
1,2,3	1	ISI Symbols in electrical engineering	03-09-2024	03-09-2024	
4		ISI Symbols in electrical engineering	05-09-2024	05-09-2024	
5,6		Conventions for circuit and schematic representation of electrical and electronic components	07-09-2024	07-09-2024	
7		Conventions for circuit and schematic representation of instruments and equipment	09-09-2024	09-09-2024	
7,8	2	Different types of mountings for static(transformers): pole and ground mounted	10-09-2024	10-09-2024	
9		Mountings for dynamic equipment (electrical rotating machines)	14-09-2024	14-09-2024	
10		Substation layout with circuit breaker, on-load and off-load isolators, Buchholz's relay	18-09-2024	18-09-2024	
11		Plate Earthing	23-09-2024	23-09-2024	
12		Pipe earthing	24-09-2024	24-09-2024	
13,14		Extension of range using shunt, multiplier, CT, PT	25-09-2024	25-09-2024	
15,16	3	Parts of a transformer up to 2 MVA	27-09-2024	27-09-2024	
17,18		DC Machines: pole, pole shoe, simplex lap	28-09-2024	28-09-2024	
19		DC Machines: pole, pole shoe, simplex wave	22-10-2024	22-10-2024	
20,21		Alternators: salient and cylindrical rotor	26-10-2024	26-10-2024	
22		Induction motors: squirrel cage and slip ring	28-10-2024	28-10-2024	
23,24		AC Machine winding:	04-11-2024	04-11-2024	
25	4	Illumination fixtures: types and Internal circuit diagram	05-11-2024	05-11-2024	
26		Control wiring of godown	06-11-2024	06-11-2024	
27		Control wiring of staircase	08-11-2024	08-11-2024	
28		Control wiring of florocent	09-11-2024	09-11-2024	
29,30		Wiring of energy meters for domestic and commercial loads	11-11-2024	11-11-2024	
31,32		Internal Wiring of Refrigerators and Air conditioners	12-11-2024	12-11-2024	
33,34		Starter,4-point starter	18-11-2024	18-11-2024	

35	5	Introduction	19-11-2024	19-11-2024	
36		Computer Aided Drawing commond	20-11-2024	20-11-2024	
37		Draw command, edit command, Coordinate entry, Osnap	22-11-2024	22-11-2024	
38,39,40		Layers, Dimensioning, Text in a drawing, Ortho command	23-11-2024	23-11-2024	
41		Zoom command and plot command	25-11-2024	25-11-2024	
42,43		General electrical and electronic symbols	26-11-2024	26-11-2024	
44		Layouts of domestic wiring	27-11-2024	27-11-2024	
45,46		Cross Sectional view of: Fuse	02-12-2024	02-12-2024	
47,48		Cross Sectional view of: Dcmotor parts	04-12-2024	04-12-2024	
49		Cross Sectional view of: Induction motor	06-12-2024	06-12-2024	
50		Cross Sectional view of insulator	07-12-2024	07-12-2024	
51		Cross Sectional view of: circuit breaker	09-12-2024	09-12-2024	