



# CAPITAL SCHOOL OF ENGINEERING

PLOT NO. 1288, MAHATAPALLA, BAJAPUR, KHURDA, PIN-752060

Session: 2023-2024

Course Name: DIPLOMA  
Theory/Practical: Theory

Branch Name: ELECTRICAL  
Subject Name: Th.3: Electrical Measurement &  
Instrumentation

Section : A  
Semester : 4

Teacher Name: SUSHREE SANGITA MOHAPATRA

Credit '--' External Evaluation(Marked) '80' Internal Evaluation(Marked)  
'20'

## Text Books:

Sl.No	Text Books
1	Electrical & Electronic Measurements and Instrumentation, R.K.Rajput : S.Chand
2	Electric Measurement and Measuring instruments, A.K. Sawhney : Dhanpat Rai & Co

## Reference books:

Sl.No	Reference books
1	Electrical and Electronics Measuring instruments and Measurement, J. B. Gupta : S K Kataria & Sons

## Course Outcomes:

Sl.No	Course Outcomes
1	To acquire the knowledge of selecting various types of instruments for similar purpose like measurement of voltage, current, pow
2	To learn the connection of different types of electrical measuring instruments
3	To learn the adjustment of different instruments
4	To understand the working principle and construction of the electrical instruments
5	To solve different numerical problems associated with the instruments based on their design Formula
6	To acquire knowledge of the construction, characteristics and methods of usage of sensors and transducers.

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	MEASURING INSTRUMENTS	Define Accuracy, precision, Errors, Resolutions Sensitivity and tolerance	Cos 1	
2	2	MEASURING INSTRUMENTS	Classification of measuring instruments	Cos 1	
3	3	MEASURING INSTRUMENTS	Explain Deflecting, controlling and damping arrangements in indicating type of	Cos 1	



SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			instruments		
4	4	MEASURING INSTRUMENTS	Calibration of instruments.	Cos 1	
5	5	ANALOG AMMETERS AND VOLTMETERS	Describe Construction, principle of operation, errors, ranges merits and demerits of Moving iron type instruments	Cos 2	
6	6	ANALOG AMMETERS AND VOLTMETERS	Describe Construction, principle of operation, errors, ranges merits and demerits of Moving iron type instruments	Cos 2	
7	7	ANALOG AMMETERS AND VOLTMETERS	Permanent Magnet Moving coil type instruments	Cos 2	
8	8	ANALOG AMMETERS AND VOLTMETERS	Dynamometer type instruments	Cos 2	
9	9	ANALOG AMMETERS AND VOLTMETERS	Rectifier type instruments	Cos 2	
10	10	ANALOG AMMETERS AND VOLTMETERS	Induction type instruments	Cos 2	
11	11	ANALOG AMMETERS AND VOLTMETERS	Extend the range of instruments by use of shunts and Multipliers	Cos 2	
12	12	ANALOG AMMETERS AND VOLTMETERS	Solve Numerical	Cos 2	
13	13	WATTMETERS AND MEASUREMENT OF POWER	Describe Construction, principle of working of Dynamometer type wattmeter. (LPF and UPF type)	Cos 3	
14	14	WATTMETERS AND MEASUREMENT OF POWER	The Errors in Dynamometer type wattmeter and methods of their correction	Cos 3	
15	15	WATTMETERS AND MEASUREMENT OF POWER	Discuss Induction type watt meters	Cos 3	



SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
16	16	ENERGYMETERS AND MEASUREMENT OF ENERGY	Introduction	Cos 4	
17	17	ENERGYMETERS AND MEASUREMENT OF ENERGY	Single Phase Induction type Energy meters – construction, working principle and their compensation & adjustments	Cos 4	
18	18	ENERGYMETERS AND MEASUREMENT OF ENERGY	Testing of Energy Meters	Cos 4	
19	19	MEASUREMENT OF SPEED, FREQUENCY AND POWER FACTOR	Tachometers, types and working principles	Cos 4	
20	20	MEASUREMENT OF SPEED, FREQUENCY AND POWER FACTOR	Principle of operation and construction of Mechanical and Electrical resonance Type frequency meters	Cos 4	
21	21	MEASUREMENT OF SPEED, FREQUENCY AND POWER FACTOR	Principle of operation and working of Dynamometer type single phase and three phase power factor meters	Cos 4	
22	22	MEASUREMENT OF RESISTANCE, INDUCTANCE & CAPACITANCE	Classification of resistance Measurement of low resistance by potentiometer method	Cos 4	
23	23	MEASUREMENT OF RESISTANCE, INDUCTANCE & CAPACITANCE	Classification of resistance Measurement of medium resistance by wheat Stone bridge method	Cos 4	
24	24	MEASUREMENT OF RESISTANCE, INDUCTANCE & CAPACITANCE	Measurement of high resistance by loss of charge method	Cos 4	
25	25	MEASUREMENT OF RESISTANCE, INDUCTANCE &	Construction, principle of operations of Megger & Earth tester	Cos 4	



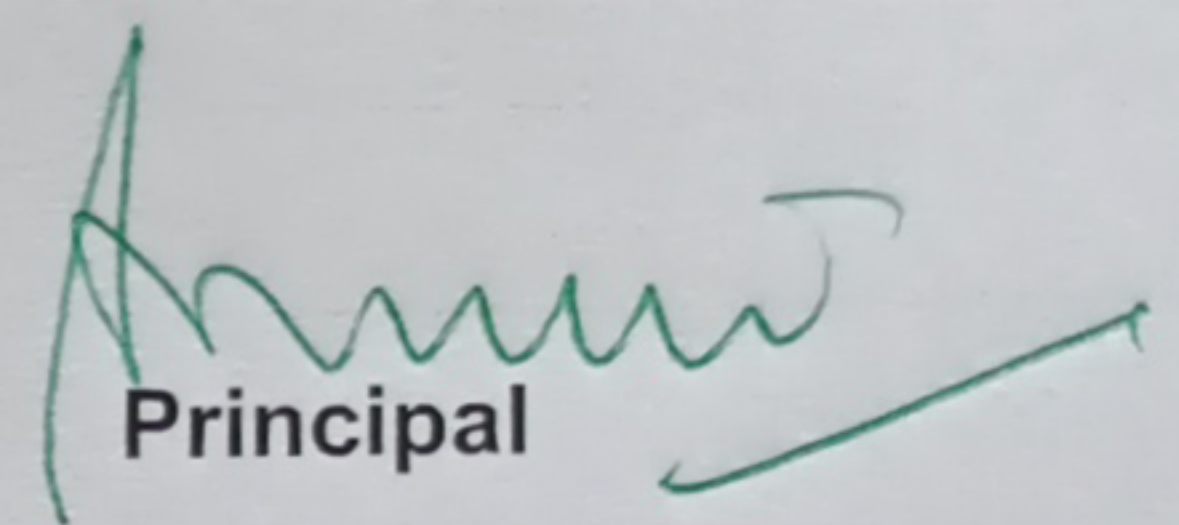
SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
		CAPACITANCE	for insulation resistance and earth resistance measurement respec		
26	26	MEASUREMENT OF RESISTANCE, INDUCTANCE & CAPACITANCE	Construction and principles of Multimeter. (Analog and Digital)	Cos 4	
27	27	MEASUREMENT OF RESISTANCE, INDUCTANCE & CAPACITANCE	Measurement of inductance by Maxewell's Bridge method	Cos 5	
28	28	MEASUREMENT OF RESISTANCE, INDUCTANCE & CAPACITANCE	Measurement of capacitance by Schering Bridge method	Cos 5	
29	29	SENSORS AND TRANSDUCER	Define Transducer, sensing element or detector element and transduction elements	Cos 6	
30	30	SENSORS AND TRANSDUCER	Classify transducer. Give examples of various class of transducer	Cos 6	
31	31	SENSORS AND TRANSDUCER	Linear and angular motion potentiometer	Cos 6	
32	32	SENSORS AND TRANSDUCER	Thermistor and Resistance thermometers	Cos 6	
33	33	SENSORS AND TRANSDUCER	Wire Resistance Strain Gauges	Cos 6	
34	34	SENSORS AND TRANSDUCER	Principle of linear variable differential Transformer (LVDT	Cos 6	
35	35	SENSORS AND TRANSDUCER	Uses of LVDT	Cos 6	
36	36	SENSORS AND TRANSDUCER	General principle of capacitive transducer	Cos 6	
37	37	SENSORS AND TRANSDUCER	Variable area capacitive transducer	Cos 6	
38	38	SENSORS AND TRANSDUCER	Change in distance between plate capacitive transducer	Cos 6	
39	39	SENSORS AND TRANSDUCER	Piezo electric Transducer and Hall Effect Transducer with their applications	Cos 6	



SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
40	40	OSCILLOSCOPE	Principle of operation of Cathode Ray Tube	Cos 1	
41	41	OSCILLOSCOPE	Principle of operation of Oscilloscope (with help of block diagram)	Cos 1	
42	42	OSCILLOSCOPE	Measurement of DC Voltage & current	Cos 1	
43	43	OSCILLOSCOPE	Measurement of AC Voltage, current, phase & frequency	Cos 1	

Sushree Sarqita Mohapatra  
Subject Teacher 15/02/2024

M Dade  
HOD 15/02/2024

  
Principal





# CAPITAL SCHOOL OF ENGINEERING

PLOT NO. 1288, MAHATAPALLA, BAJAPUR, KHURDA, PIN-752060

Session: 2023-2024

Course Name: DIPLOMA  
Theory/Practical: Theory

Branch Name: ELECTRICAL  
Subject Name: Th.4: Generation, Transmission and  
Distribution

Teacher Name: R.KRISHNA RANI

Section : A  
Semester : 4

Credit '--' External Evaluation(Marked) '80' Internal Evaluation(Marked)  
'20'

## Text Books:

Sl.No	Text Books
1	Principles of Power System, V. K. Mehta, S Chand
2	Power System Engineering, D. P. Kothari, IJ Nagrath: TMH

## Reference books:

Sl.No	Reference books
1	A text book of Power System Engineering, A Chakrabarti, M L Soni, P V Gupta, U S Bhatnagar ,,Dhanpat Rai & Co

## Course Outcomes:

Sl.No	Course Outcomes
1	Different schemes of power generation with their block diagram
2	Mechanical and electrical design of transmission lines and numerical problems
3	Types of cables and their methods of laying and testing
4	Different schemes of distribution with problem solving
5	Different types of sub-stations
6	Economic aspects of power supply system with problem and type of tariff of electricit

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	GENERATION OF ELECTRICITY	Elementary idea on generation of electricity from Thermal, Hydrel, Nuclear, Power station	Cos 1	
2	2	GENERATION OF ELECTRICITY	Elementary idea on generation of electricity from Thermal, Hydrel, Nuclear, Power station	Cos 1	
3	3	GENERATION OF ELECTRICITY	Introduction to Solar Power Plant	Cos 1	



SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			(Photovoltaic cells)		
4	4	GENERATION OF ELECTRICITY	Introduction to Solar Power Plant (Photovoltaic cells)	Cos 1	
5	5	GENERATION OF ELECTRICITY	Layout diagram of generating stations	Cos 1	
6	6	GENERATION OF ELECTRICITY	Layout diagram of generating stations	Cos 1	
7	7	TRANSMISSION OF ELECTRIC POWER	Layout of transmission and distribution scheme	Cos 2	
8	8	TRANSMISSION OF ELECTRIC POWER	Voltage Regulation & efficiency of transmission	Cos 2	
9	9	TRANSMISSION OF ELECTRIC POWER	State and explain Kelvin's law for economical size of conductor	Cos 2	
10	10	TRANSMISSION OF ELECTRIC POWER	State and explain Kelvin's law for economical size of conductor	Cos 2	
11	11	TRANSMISSION OF ELECTRIC POWER	Corona and corona loss on transmission lines	Cos 2	
12	12	OVER HEAD LINES	Types of supports, size and spacing of conducto	Cos 3	
13	13	OVER HEAD LINES	Types of supports, size and spacing of conducto	Cos 3	
14	14	OVER HEAD LINES	Types of conductor materials	Cos 3	
15	15	OVER HEAD LINES	State types of insulator and cross arms	Cos 3	
16	16	OVER HEAD LINES	Sag in overhead line with support at same level and different level	Cos 3	
17	17	OVER HEAD LINES	Sag in overhead line with support at same level and different level	Cos 3	
18	18	OVER HEAD LINES	Simple problem on sag	Cos 3	



Sl No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
19	19	PERFORMANCE OF SHORT & MEDIUM LINES	Calculation of regulation and efficiency	Cos 4	
20	20	PERFORMANCE OF SHORT & MEDIUM LINES	Calculation of regulation and efficiency	Cos 4	
21	21	PERFORMANCE OF SHORT & MEDIUM LINES	Calculation of regulation and efficiency	Cos 4	
22	22	PERFORMANCE OF SHORT & MEDIUM LINES	Calculation of regulation and efficiency	Cos 4	
23	23	EHV TRANSMISSION	Reasons for adoption of EHV AC transmission	Cos 2	
24	24	EHV TRANSMISSION	Reasons for adoption of EHV AC transmission	Cos 2	
25	25	EHV TRANSMISSION	Problems involved in EHV transmission	Cos 2	
26	26	EHV TRANSMISSION	Problems involved in EHV transmission	Cos 2	
27	27	EHV TRANSMISSION	Advantages and Limitations of HVDC transmission system	Cos 2	
28	28	EHV TRANSMISSION	Advantages and Limitations of HVDC transmission system	Cos 2	
29	29	DISTRIBUTION SYSTEMS	Introduction to Distribution System	Cos 4	
30	30	DISTRIBUTION SYSTEMS	Connection Schemes of Distribution System: (Radial, Ring Main and Inter connected system)	Cos 4	
31	31	DISTRIBUTION SYSTEMS	Distributor fed at one End	Cos 4	
32	32	DISTRIBUTION SYSTEMS	Distributor fed at both the ends	Cos 4	
33	33	DISTRIBUTION SYSTEMS	Ring distributors	Cos 4	
34	34	DISTRIBUTION SYSTEMS	AC distribution system	Cos 4	
35	35	DISTRIBUTION SYSTEMS	Method of solving AC distribution problem	Cos 4	
36	36	DISTRIBUTION SYSTEMS	Three phase four wire star connected	Cos 4	



No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			system arrangement.		
37	37	UNDERGROUND CABLES	Cable insulation and classification of cables	Cos 3	
38	38	UNDERGROUND CABLES	Types of L. T. & H.T. cables with constructional features	Cos 3	
39	39	UNDERGROUND CABLES	Types of L. T. & H.T. cables with constructional features	Cos 3	
40	40	UNDERGROUND CABLES	Methods of cable lying	Cos 3	
41	41	UNDERGROUND CABLES	Localization of cable faults: Murray and Varley loop test for short circuit fault / Earth fault	Cos 3	
42	42	UNDERGROUND CABLES	Localization of cable faults: Murray and Varley loop test for short circuit fault / Earth fault	Cos 3	
43	43	ECONOMIC ASPECTS	Causes of low power factor and methods of improvement of power factor in power system	Cos 6	
44	44	ECONOMIC ASPECTS	Factors affecting the economics of generation: load curves	Cos 6	
45	45	ECONOMIC ASPECTS	Demand factor	Cos 6	
46	46	ECONOMIC ASPECTS	Maximum demand	Cos 6	
47	47	ECONOMIC ASPECTS	Load factor	Cos 6	
48	48	ECONOMIC ASPECTS	Peak load and Base load on power station	Cos 6	
49	49	TYPES OF TARIFF	Desirable characteristic of a tariff	Cos 6	
50	50	TYPES OF TARIFF	Explain flat rate, block rate, two part and maximum demand tariff. (Solve	Cos 6	



SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Problems)		
51	51	SUBSTATION	Layout of LT, HT and EHT substation	Cos 5	
52	52	SUBSTATION	Earthing of Substation, transmission and distribution lines	Cos 5	

R. Krishna Rani

Subject Teacher

M. D. D. D.

HOD

[Signature]

Principal





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PLOT NO. 1288, MAHATAPALLA, BAJAPUR, KHURDA, PIN-752060

Session: 2023-2024

Course Name: DIPLOMA  
Theory/Practical: Theory  
Section : A  
Semester : 4

Branch Name: ELECTRICAL  
Subject Name: Th.2: Analog Electronics & OP-Amp  
Teacher Name: IPSITA SAHOO

Credit " External Evaluation(Marked) '80' Internal Evaluation(Marked) '20'

## Text Books:

Sl.No	Text Books
1	Sanjeev Gupta Electronic Devices and Circuits Dhanpat Rai Publications
2	R.S SEDHA Electronics circuit S.CHAND

## Reference books:

Sl.No	Reference books
1	R.S SEDHA Electronics circuit S.CHAND

## Course Outcomes:

Sl.No	Course Outcomes
1	To develop knowledge on the characteristics of different types of diodes, transistors, UJT, FET and to draw a comparison in thei
2	To develop knowledge of their application.
3	To develop knowledge of different oscillator circuits and to identify the difference between them and their frequency relation.
4	To develop knowledge of operational amplifiers and their application in the field.

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	1	P-N Junction Diode Working of Diode	Cos 1	
2	2	1	V-I characteristic of PN junction Diode.	Cos 1	
3	3	1	DC load line	Cos 1	
4	4	1	Important terms such as Ideal Diode, Knee voltage	Cos 1	
5	5	1	Junctions break down Zener breakdown Avalanche breakdown	Cos 1	
6	6	1	P-N Diode clipping Circuit.	Cos 1	
7	7	1	P-N Diode clamping Circuit	Cos 1	



SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
8	8	2	Thermistors, Sensors & barretters	Cos 2	
9	9	2	Zener Diode	Cos 2	
10	10	2	Tunnel Diode	Cos 2	
11	11	2	PIN Diode	Cos 2	
12	12	3	Classification of rectifiers	Cos 2	
13	13	3	Analysis of half wave, full wave centre tapped and Bridge rectifiers	Cos 3	
14	14	3	DC output current and voltage	Cos 3	
15	15	3	RMS output current and voltage	Cos 3	
16	16	3	Rectifier efficiency Ripple factor	Cos 3	
17	17	3	Regulation	Cos 3	
18	18	3	Transformer utilization factor	Cos 3	
19	19	3	Peak inverse voltage	Cos 3	
20	20	3	Shunt capacitor filter Choke input filter ? filter	Cos 3	
21	21	4	Principle of Bipolar junction transistor	Cos 4	
22	22	4	Different modes of operation of transistor	Cos 4	
23	23	4	Current components in a transistor	Cos 4	
24	24	4	Transistor as an amplifier	Cos 4	
25	25	4	Transistor circuit configuration & its characteristics	Cos 3	
26	26	4	CB Configuration	Cos 4	
27	27	4	CE Configuration	Cos 3	
28	28	4	CC Configuration	Cos 4	
29	29	5	Transistor biasing	Cos 4	
30	30	5	Stabilization	Cos 4	
31	31	5	Stability factor	Cos 4	
32	32	5	Different method of Transistors Biasing	Cos 4	
33	33	5	Base resistor method	Cos 4	
34	34	5	Collector to base bias	Cos 4	
35	35	5	Collector to base bias	Cos 4	



SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
36	36	6	Practical circuit of transistor amplifier	Cos 4	
37	37	6	DC load line and DC equivalent circuit	Cos 4	
38	38	6	AC load line and AC equivalent circuit	Cos 4	
39	39	6	Calculation of gain	Cos 4	
40	40	6	Phase reversal	Cos 4	
41	41	6	H-parameters of transistors	Cos 4	
42	42	6	Simplified H-parameters of transistors	Cos 4	
43	43	6	Generalised approximate model	Cos 4	
44	44	6	Analysis of CB, CE, CC amplifier using generalised approximate model	Cos 4	
45	45	6	Multi stage transistor amplifier R.C. coupled amplifier Transformer coupled amplifier	Cos 4	
46	46	6	Feed back in amplifier , General theory of feed back , Negative feedback circuit Advantage of negative feed back	Cos 4	
47	47	6	Power amplifier and its classification Difference between voltage amplifier and power amplifier	Cos 4	
48	48	6	Class A push – pull amplifier , Class B push – pull amplifier	Cos 4	
49	49	6	Oscillators , Types of oscillators	Cos 4	
50	50	6	Essentials of transistor oscillator, Principle of operation of tuned collector, Hartley, colpitt, phase shift, weinbridge osci	Cos 4	
51	51	7	Essentials of transistor oscillator	Cos 4	



SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			6.13.3 Principle of operation of tuned collector, Hartley, colpitt, phase shift, weinbridge		
52	52	7	Advantages of FET over BJT	Cos 4	
53	53	7	Principle of operation of BJT	Cos 3	
54	54	7	DC drain resistance	Cos 4	
55	55	7	AC drain resistance	Cos 4	
56	56	7	Trans-conductance	Cos 4	
57	57	8	1 General circuit simple of OP-AMP and IC – CA – 741 OP AMP 8.2 Operational amplifier stages	Cos 4	
58	58	8	Equivalent circuit of operational amplifier , Open loop OP-AMP configuration , OPAMP with fed back	Cos 4	
59	59	8	Non inverting OP-AMP Voltage follower & buffer Differential amplifier	Cos 4	
60	60	8	Adder or summing amplifier, Sub tractor Integrator Differentiator , Comparator	Cos 4	

Ipsita Sahoo  
Subject Teacher

M Dash  
HOD

Hemanta  
Principal





# CAPITAL SCHOOL OF ENGINEERING

PLOT NO. 1288, MAHATAPALLA, BAJAPUR, KHURDA, PIN-752060

Session: 2023-2024

Course Name: DIPLOMA

Theory/Practical: Theory

Section : A

Semester : 4

Branch Name: ELECTRICAL

Subject Name: Th.1: Energy Conversion-I

Teacher Name: GOPAL CH MARTHA

Credit '--' External Evaluation(Marked) '80' Internal Evaluation(Marked)  
'20'

## Text Books:

Sl.No	Text Books
1	Electrical Technology – II B. L. Thareja and A. K. Thareja S.Chand
2	Electrical Technology J. B. Gupta

## Reference books:

Sl.No	Reference books
1	Electrical Technology J. B. Gupta
2	Electric Machine Ashfaq Husain

## Course Outcomes:

Sl.No	Course Outcomes
1	Know function and working principles about DC Generator and its application
2	Know function and working principles about DC Motor and its application
3	Know function and working principles about single phase transformer and its application
4	Know function and working principles about single Auto transformer and its application
5	Know function and working principles about C.T and V.T and its application

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	1	Operating principle of generator	Cos 1	
2	2	1	Constructional features of DC machine	Cos 1	
3	3	1	Yoke, Pole & field winding, Armature, Commutator.	Cos 1	
4	4	1	Armature winding, back pitch, Front pitch, Resultant pitch and commutator- pitch	Cos 1	
5	5	1	Simple Lap and wave winding, Dummy coils	Cos 1	
6	6	1	Different types of D.C. machines (Shunt,	Cos 1	



SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Series and Compound)		
7	7	1	Derivation of EMF equation of DC generators. (Solve problems)	Cos 1	
8	8	1	Losses and efficiency of DC generator. Condition for maximum efficiency and numerical problems.	Cos 1	
9	9	1	Armature reaction in D.C. machine	Cos 1	
10	10	1	Commutation and methods of improving commutation	Cos 1	
11	11	1	Role of inter poles and compensating winding in commutation.	Cos 1	
12	12	1	Characteristics of D.C. Generators	Cos 1	
13	13	1	Application of different types of D.C. Generators	Cos 1	
14	14	1	Concept of critical resistance and critical speed of DC shunt generator	Cos 1	
15	15	1	Conditions of Build-up of emf of DC generator.	Cos 1	
16	16	1	Condition of parallel operation	Cos 1	
17	17	1	Parallel operation of D.C. Generators.	Cos 1	
18	18	1	Uses of D.C generators.	Cos 1	
19	19	1	Numeric about DC Generator	Cos 1	
20	20	2	Basic working principle of DC motor	Cos 2	
21	21	2	Significance of back emf in D.C. Motor.	Cos 2	
22	22	2	Voltage equation of D.C. Motor and	Cos 2	



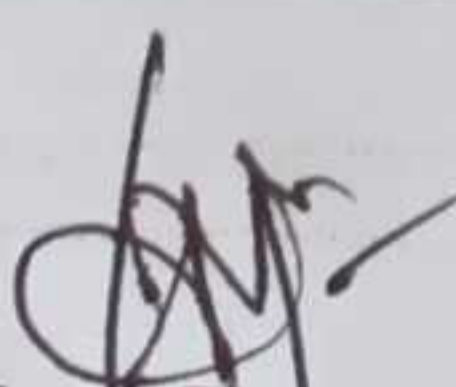
SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			condition for maximum power output		
23	23	2	Numeric about dc Motor	Cos 2	
24	24	2	Derive torque equation (solve problems)	Cos 2	
25	25	2	Characteristics of series motor	Cos 2	
26	26	2	Characteristics of shunt motor	Cos 2	
27	27	2	Characteristics of of compound motor	Cos 2	
28	28	2	Application of dc motor	Cos 2	
29	29	2	Starting method of shunt, series and compound motors.	Cos 2	
30	30	2	Speed control of D.C shunt motors by Flux control method.	Cos 2	
31	31	2	. Armature voltage Control method. Solve problems	Cos 2	
32	32	2	Speed control of D.C. series motors by Field Flux control method, Tapped field method and series-parallel method	Cos 2	
33	33	2	Determination of efficiency of D.C. Machine by Brake test method(solve numerical problems)	Cos 2	
34	34	2	Determination of efficiency of D.C. Machine by Swinburne's Test method	Cos 2	
35	35	2	Solve numerical problems	Cos 2	
36	36	2	Losses, efficiency and power stages of D.C. motor	Cos 2	

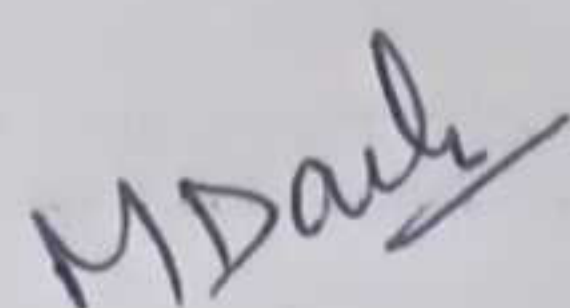


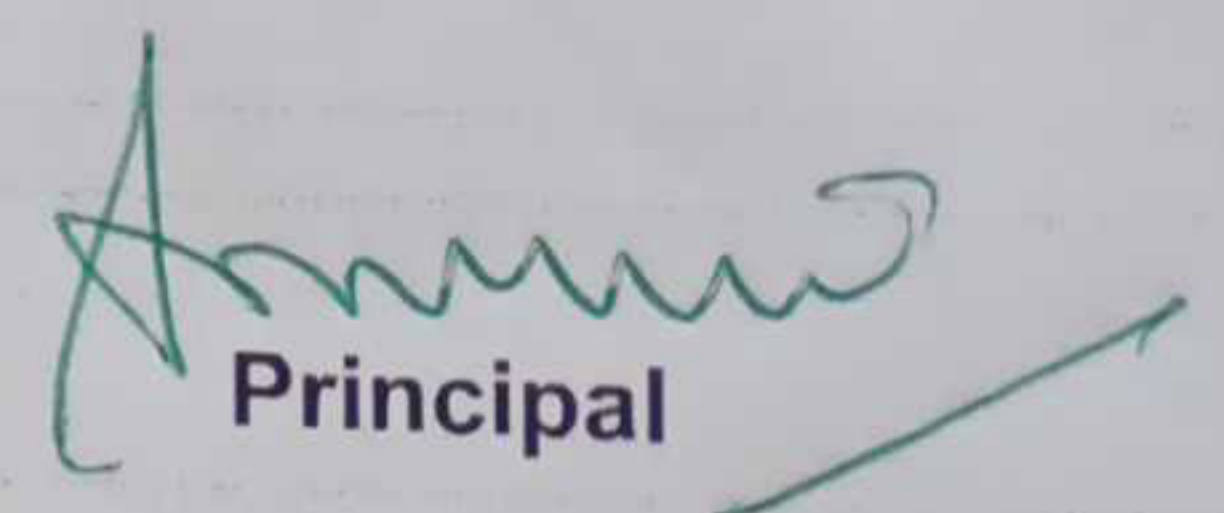
SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
37	37	2	(Solve numerical problems	Cos 2	
38	38	2	Uses of D.C. motors	Cos 2	
39	39	3	Working principle of transformer	Cos 3	
40	40	3	Constructional feature of Transformer	Cos 3	
41	41	3	Arrangement of core & winding in different types of transformer.	Cos 3	
42	42	3	Brief ideas about transformer accessories such as conservator, tank, breather, and explosion vent etc.	Cos 3	
43	43	3	Explain types of cooling methods	Cos 3	
44	44	3	State the procedures for Care and maintenance.	Cos 3	
45	45	3	EMF equation of transformer.	Cos 3	
46	46	3	Ideal transformer voltage transformation ratio	Cos 3	
47	47	3	Operation of Transformer at no load, on load with phasor diagrams	Cos 3	
48	48	3	Equivalent Resistance, Leakage Reactance and Impedance of transformer.	Cos 3	
49	49	3	To draw phasor diagram of transformer on load, with winding Resistance	Cos 3	
50	50	3	Magnetic leakage with using upf, leading pf and lagging pf load.	Cos 3	
51	51	3	To explain Equivalent circuit and solve numerical problems.	Cos 3	
52	52	3	Approximate & exact	Cos 3	



SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			voltage drop calculation of a Transformer.		
53	53	3	Regulation of transformer.	Cos 3	
54	54	3	Different types of losses in a Transformer	Cos 3	
55	55	3	Open circuit and Short Circuit test.(Solve numerical problems)	Cos 3	
56	56	3	Explain Efficiency, efficiency at different loads and power factors, condition for maximum efficiency (solve problems)	Cos 3	
57	57	4	Constructional features of Auto transformer. 4.2. Working principle of single phase Auto Transformer.	Cos 4	
58	58	4	Comparison of Auto transformer with an two winding transformer (saving of Copper). . Uses of Auto transformer	Cos 4	
59	59	4	Explain Tap changer with transformer (on load and off load condition)	Cos 4	
60	60	5	Explain Current Transformer and Potential Transformer	Cos 5	
61	61	5	Define Ratio error, Phase angle error, Burden.	Cos 5	
62	62	5	Uses of C.T. and P.T	Cos 6	

  
Subject Teacher

  
HOD

  
Principal