TENTATIVE LESSON PLAN: R1622021

Course Title: ELECTRICAL MEASUREMENTS (R1622021)		
Section :	Date:18-11-2019	Page No: 1 of 3
Revision No:	Prepared by : T.Maha lakshmi	Approved by :HOD

Tools : Black board, PPTs

No.of periods	Topics	Date	Mode of Delivery
UNIT-I Measuring Instruments **CO1 :Students are able to choose right type of instrument for measurement of voltage and current for ac and dc.** **TB:: Electrical & Electronic Measurement & Instruments by A.K.Sawhney DhanpatRai & Co.Publications.**			
1	Classification	18.11.2019	Lecture interspersed with discussions
2	Deflecting, control and damping torques	19.11.2019	
3	Ammeters and Voltmeters	21.11.2019	
4, 5	PMMC instruments	22.11.2019	
6	moving iron type instruments	23.11.2019	
7	dynamometer instruments	25.11.2019	
8	electrostatic instruments	26.11.2019	
9	Expression for the deflecting torque and control torque	28.11.2019	
10, 11	Errors and compensations	29.11.2019	
12	Extension of range using shunts and series resistance s	30.11.2019	
13, 14	CT and PT: Ratio and phase angle errors	2.12.2019 3.12.2019	
15	Numerical problem	5.12.2019	
UNIT-II Measurement of Power and Energy **CO2 :Students are able to choose right type of instrument for measurement of power and energy – able to calibrate energy meter by suitable method** **TB:: Electrical & Electronic Measurement & Instruments by A.K.Sawhney DhanpatRai & Co.Publications.**			
16	Single phase dynamometer wattmeter three phase dynamometer wattmeter	6.12.2019	Lecture interspersed with discussions
17	LPF UPF Expression for deflecting and control torques	6.12.2019	
18	Extension of range of wattmeter using instrument transformers	7.12.2019	
19	Measurement of active and reactive powers in balanced	9.12.2019	
20	Measurement of active and reactive powers in unbalanced systems	10.12.2019	

21	Type of P.F. Meters	12.12.2019	Lecture interspersed with discussions
22	Single phase dynamometer	13.12.2019	
	three phase dynamometer		
23	moving iron type	13.12.2019	
24	Single phase induction type energy meter	16.12.2019	
25	Driving and braking torques	17.12.2019	
26	errors and compensations	19.12.2019	
27	Testing by phantom loading using R.S.S. meter	20.12.2019	
28	Three phase energy meter	20.12.2019	
29	Maximum demand meters	21.12.2019	
30	Electrical resonance type frequency meter	23.12.2019	
	Weston type synchro-scope	24.12.2019	
UNIT-III Potentiometers **CO3 :. Students are able to calibrate ammeter and potentiometer.** **TB::Electrical & Electronic Measurement & Instruments by A.K.Sawhney DhanpatRai & Co.Publications.**			
31, 32, 33	Principle and operation of D.C. Crompton's potentiometer	26.12.2019 27.12.2019	Lecture interspersed with discussions
34, 35, 36	Standardization	28.12.2019 30.12.2019 31.12.2019	
37, 38, 39	Measurement of unknown resistance Current Voltage	2.1.2020 3.1.2020	
40, 41	AC Potentiometers: polar and coordinate types	4.1.2020 6.1.2020	
42	Standardization	9.1.2020	
43, 44	Applications	10.1.2020	
UNIT-IV Measurements of Parameters **CO4 : Students are able** **TB :: Electrical & Electronic Measurement & Instruments by A.K.Sawhney DhanpatRai & Co.Publications.**			
45, 46, 47	Method of measuring low resistance	24.1.2020 25.1.2020 27.1.2020	Lecture interspersed with discussions
48, 49	Method of measuring medium resistance	28.1.2020 30.1.2020	
50, 51, 52	Method of measuring high resistance	31.1.2020 1.2.2020	
53, 54	Sensitivity of Wheat stone's bridge	3.2.2020 4.2.2020	
55, 56, 57	Carey Foster's bridge	6.2.2020 7.2.2020	
58, 59	Kelvin's double bridge for measuring low	10.2.2020 11.2.2020	
UNIT-V Magnetic Measurements **CO5 : Students are able to select suitable bridge for measurement of electrical parameters** **TB :: Electrical & Electronic Measurement & Instruments by A.K.Sawhney DhanpatRai & Co.Publications.**			
60, 61	resistance Loss of charge method for measurement of high resistance	13.2.2020	Lecture interspersed with discussions

	Megger	14.2.2020	Lecture interspersed with discussions
62	Measurement of earth resistance	14.2.2020	
63	Measurement of inductance Quality Factor	15.2.2020	
64	Maxwell's bridge	17.2.2020	
65	Hay's bridge	18.2.2020	Lecture interspersed with discussions
	bridge Anderson's bridge		
66, 67	Measurement of capacitance and loss angle	20.2.2020 22.2.2020	
	DesautyBridge		
	Schering Bridge		
68	Wagner's earthing device	24.2.2020	
69	Wien's bridge	25.2.2020	
	Ballistic galvanometer		
70	Equation of motion	27.2.2020	
	Flux meter		
	Constructional details		
71, 72	Determination of B–H Loop methods of reversals six point method	28.2.2020	
	AC testing		
73	Iron loss of bar samples	29.2.2020	
	Core loss measurements by bridges and potentiometers		
UNIT-VI : Digital Meters			
CO6 :Students are able to to measure frequency and phase difference between signals using CRO. Able to use digital instruments in electrical measurements.			
TB ::Electrical & Electronic Measurement & Instruments by A.K.Sawhney DhanpatRai & Co.Publications.			
74, 75	Digital Voltmeter	3.3.2020 5.3.2020	Lecture interspersed with discussions
76	Successive approximation	6.3.2020	
77, 78	Measurement of phase difference	6.3.2020 7.3.2020	
79, 80	Frequency	9.3.2020 11.3.2020	
81, 82, 83	Hysteresis loop using lissajious patterns in CRO	12.3.2020 13.2.2020	
84, 85	Ramp and integrating type	16.3.2020 17.3.2020	
86, 87	Digital frequency meter	19.3.2020 20.3.2020	
88, 89	Digital multimeter	20.3.2020 21.3.2020	

Signature of Faculty Mahalekmi 2/3/20

Signature of HOD S. Sri Gowri

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TENTATIVE LESSON PLAN: R1622022

Course Title:ELECTRICAL MACHINES-II		
Section :	Date: 18-11-2019	Page No: 1 of 3
Revision No:	Prepared by : S.NAGESWARA RAO	Approved by :HOD

Tools : Black board, PPTs

No.of periods	Topics	Date	Mode of Delivery
UNIT-I:3-PHASE INDUCTION MOTORS **CO1 : Able to explain the operation and performance of three phase induction motor.** **TB:: 1. Electrical Machines – P.S. Bhimbra, Khanna Publishers** **TB:: 2. Electric Machinery by A.E.Fitzgerald,Charleskingsley,StephenD.Umans, TMH**			
1	construction details of cage and wound rotor machines	18-11-19	Lecture interspersed with discussions
2	production of a rotating magnetic field	20-11-19	
3	principle of operation	21-11-19	
4	rotor emf and rotor frequency	21-11-19	
5	rotor current and pf at standstill	22-11-19	
6	rotor current and pf during running conditions	23-11-19	
7	problems on rotor current and pf during running conditions	25-11-19	
8	rotor power input	27-11-19	
9	rotor copper loss and mechanical power developed	28-11-19	
10	problems on rotor copper loss and mechanical power	29-11-19	
11	equivalent circuit of three phase induction motor	2/12/2019	
12	phasor diagram three phase induction motor	4/12/2019	
UNIT-II : CHARACTERISTICS,STARTING AND TESTING METHODS OF THREE PHASE INDUCTION MOTOR **CO2 : Able to analyze the torque-speed relation, performance of induction motor and induction generator.** **TB:: 1. Electrical Machines – P.S. Bhimbra, Khanna Publishers** **TB:: 2. Electric Machinery by A.E.Fitzgerald,Charleskingsley,StephenD.Umans, TMH**			
13	Torque equation of three phase induction motor	5/12/2019	Lecture interspersed with discussions
14	expressions for maximum torque and starting torque	6/12/2019	
15	problems on maximum torque and starting torque	7/12/2019	
16	torque slip characteristics	9/12/2019	
17	double cage and deep bar rotors	11/12/2019	
18	crawling and cogging	12/12/2019	
19	no load and blocked rotor tests	13-12-19	
20	circle diagram	16-12-19	
21	predetermination of performance	18-12-19	
22	methods of starting	19-12-19	
23	starting current and orque calculations	20-12-19	
24	problems on starting current and orque	21-12-19	
25	induction generator operation	23-12-19	

UNIT-III : Single phase motors
CO3 : Able to explain design procedure for transformers and three phase induction motors
TB:: 1. Electrical Machines – P.S. Bhimbra, Khanna Publishers
TB:: 2. Electric Machinery by A.E.Fitzgerald,Charleskingsley,StephenD.Umans, TMH

26	Single phase induction motors	26-12-19	Lecture interspersed with discussions
27	Constructional features	27-12-19	
28	Equivalent circuit	28-12-19	
29	Problem of starting	30-12-19	
30	Double revolving field theory	2/1/2020	
31	Starting methods	2/1/2020	
32	Split phase induction motor	3/1/2020	
33	Capacitor start motor	4/1/2020	
34	Capacitor start Capacitor run motor	6/1/2020	
35	Shaded pole motors	8/1/2020	
36	AC series motors	9/1/2020	
37	Problems	9/1/2020	
38	Problems	10/1/2020	

UNIT-IV Construction, operation and Voltage regulation of synchronous generator
CO4 : Implement the starting of single phase induction motors.
TB:: 1. Electrical Machines – P.S. Bhimbra, Khanna Publishers
TB:: 2. Electric Machinery by A.E.Fitzgerald,Charleskingsley,StephenD.Umans, TMH

39	Constructional features of non–salient pole type Synchronous generator	24-01-20	Lecture interspersed with discussions
40	Constructional features of salient pole type Synchronous generator	25-01-20	
41	Armature windings –Distributed and concentrated windings	27-01-20	
42	Distribution– Pitch and winding factors	29-01-20	
43	E.M.F equation	30-01-20	
44	Improvements of waveform and armature reaction	30-01-20	
45	Constructional features of non–salient pole type Synchronous generator	31-01-20	
47	Armature windings–Distributed, concentrated windings	3/2/2020	
48	Voltage regulation by synchronous impedance method	5/2/2020	
49	problems	6/2/2020	
50	MMF method	7/2/2020	
51	problems	10/2/2020	
52	Potier triangle method–Phasor diagrams	12/2/2020	
53	problems	13/2/20	
54	Two reaction analysis of salient pole machines and phasor diagram	13/2/20	
55	Numerical problems.	14/2/20	

UNIT-V : Parallel operation of synchronous generators
CO5 : To perform winding design and predetermine the regulation of synchronous generators.
TB:: 1. Electrical Machines – P.S. Bhimbra, Khanna Publishers
TB:: 2. Electric Machinery by A.E.Fitzgerald,Charleskingsley,StephenD.Umans, TMH

56	Parallel operation with infinite bus and other alternators	15/2/20	Lecture interspersed with discussions
57	Advantages of Parallel operation	17/2/20	
58	Methods of synchronisation	19/2/20	
59	Synchronizing power	20/2/20	
60	Effect of load on Synchronizing power	20/2/20	
61	Load sharing	22/2/20	
62	Alternator on infinite bus bar	24/2/20	
63	Transfer of real and reactive power	26/2/20	
64	Numerical problems.	27/2/20	

UNIT-VI : Synchronous motor – operation, starting and performance

CO6 : Avoid hunting phenomenon, implement methods of staring and correction of power factor with synchronous motor

TB:: 1. Electrical Machines – P.S. Bhimbra, Khanna Publishers

TB:: 2. Electric Machinery by A.E.Fitzgerald,Charleskingsley,StephenD.Umans, TMH

65	Synchronous Motor principle and theory of operation	28/2/20	Lecture interspersed with discussions
66	Phasor diagram	2/3/2020	
67	Starting torque–Variation of current and power factor with excitation	4/3/2020	
68	Synchronous condenser	5/3/2020	
69	Mathematical analysis for power developed	6/3/2020	
70	Hunting and its suppression	7/3/2020	
71	Methods of starting- applications	9/3/2020	

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TENTATIVE LESSON PLAN: R1622023
SWITCHING THEORY AND LOGIC DESIGN

Course Title: SWITCHING THEORY AND LOGIC DESIGN		
Section: Sec I	**Date:** 11/11/2020	**Page No:** 1 to 4
Revision No: 00	**Prepared By:** Dr. B. Vanajakshi	**Approved By:** HOD

Tools: Black board, PPTs, and Online

S. No.	Topic	Date	Mode of Delivery
UNIT-I REVIEW OF NUMBER SYSTEMS & CODES CO1: To study number system and codes in digital logic design. Study of basic logic gates T1: Switching Theory and Logic Design by A. Anand Kumar T2: Switching Theory and Logic Design by A.P. Godse, D.A. Godse			
1	Representation of numbers of different radix	20/11/19	Lecture interspersed with discussions
2	Conversation from one radix to another radix	20/11/19	
3	r-1's and r's compliments of signed members	21/11/19	
4	problem solving	21/11/19	
5	4-bit codes- BCD	22/11/19	
6	Excess-3, 2421, 84-2-1 9's compliment code etc	23/11/19	
7	Logic operations error detection & correction codes	23/11/19	
8	NOT, OR, AND, Universal building blocks	26/11/19	
9	EX-OR, EX-NOR - Gates	28/11/19	
10	Standard SOP and POS Forms	29/11/19	
11	Gray code	29/11/19	
12	Error detection codes	30/11/19	
13	Error correction codes	02/12/19	
14	NAND-NAND realizations.	03/12/19	
15	NOR-NOR realizations	04/12/19	
16	Problem solving	05/12/19	

UNIT-II MINIMIZATION TECHNIQUE

CO2: To study Boolean theorems K-Maps, tabulation method for minimization of Boolean functions.

T1: Switching Theory and Logic Design by A. Anand Kumar

T2: Switching Theory and Logic Design by A.P. Godse, D.A. Godse

17	Boolean theorems	06/12/19	Lecture interspersed with discussions
18	principle of complementation & duality	07/12/19	
19	De-Morgan's theorems	10/12/19	
20	Minimization of logic functions using Boolean theorems	1112/19	
21	Problems related to SOP and POS	11/12/19	
22	Minimization of switching functions using K-Map of 2 and 3 variables	12/12/19	
23	Minimization of switching functions using K-Map of 4 variables	14/12/19	
24	minimization of switching functions using K-Map of 5 variables	16/12/19	
25	minimization of switching functions using K-Map using don't cares	17/12/19	
26	Tabular minimization with six variables	18/12/19	
27	Prime Implicants and Essential Prime Implicants	19/12/19	
28	Tabular minimization with more than six variables	23/12/19	
29	Binary to Gray Code converter	24/12/19	
30	Binary to BCD Code converter	26/12/19	
31	Practice problems	27/12/19	

UNIT-III COMBINATIONAL LOGIC CIRCUITS DESIGN

CO3: To study different types of combinational logic circuits like adders subtractors, Multiplexer's, demultiplexers, encoders and decoders.

T1: Switching Theory and Logic Design by A. Anand Kumar

T2: Switching Theory and Logic Design by A.P. Godse, D.A. Godse

32	Design of Half adder, full adder, half subtractor, full subtractor	28/12/20	Lecture interspersed with discussions
33	Applications of full adders, 4-bit binary subtractor, adder-subtractor circuit	30/12/20	
34	BCD adder circuit, Excess 3 adder circuit, look-a-head adder circuit	31/12/20	
35	Design of decoder, demultiplexer	02/01/20	
36	7 segment decoder, higher order demultiplexing	03/01/20	
37	Encoder, multiplexer	06/01/20	
38	Higher order multiplexing	07/01/20	
39	Realization of Boolean functions using decoders and multiplexers	08/01/20	
40	Priority encoder, 4-bit digital comparator	20/01/20	
UNIT-IV INTRODUCTION OF PLD's CO4: To study different types of combinational logic circuits like PLA, PAL and PROM T1: Switching Theory and Logic Design by A. Anand Kumar 2: Switching Theory and Logic Design by A.P. Godse, D.A. Godse			
41	PROM, PAL, PLA-Basics structures	22/01/20	Lecture interspersed with discussions
42	Realization of Boolean function with PLDs	24/01/20	
43	Programming tables of PLDs, Merits & demerits of PROM, PAL, PLA comparison	01/02/20	
44	Realization of Boolean functions using PROM, PAL, PLA	03/02/20	
45	Programming tables of PROM, PAL, PLA	05/02/20	
UNIT-V SEQUENTIAL CIRCUITS I CO5: To study different types of sequential logic circuits like counters shift registers T1: Switching Theory and Logic Design by A. Anand Kumar T2: Switching Theory and Logic Design by A.P. Godse, D.A. Godse			
46	Classification of sequential circuits, basic flip-flops	06/02/20	

47	Truth tables and excitation tables of Flip Flops	07/02/20	Lecture interspersed with discussions
48	Conversion from S-R flip-flop to D flip kop	10/02/20	
49	Conversion from J-K flip-flop to T flip kop	13/02/20	
50	Problems on analysis of flip flops	14/02/20	
51	Design of Ripple counters	24/02/20	
52	Decade Ripple counter	25/02/20	
53	Problems on Ripple counter	26/02/20	
54	Design of synchronous counters	27/02/20	
55	Mod-10 Synchronous counter	28/02/20	
56	Problems on Synchronous counter	29/02/20	
57	Johnson counter, Ring counter	02/03/20	
58	Tutorial, problem solving	04/03/20	
59	Design of registers - Buffer register	05/03/20	
60	Bi-Directional shift register	06/03/20	
61	Universal shift register	07/03/20	
62	Problems on Registers	09/03/20	

UNIT-VI SEQUENTIAL CIRCUITS II

CO6: To study different types of Finite State Machines like Mealy and Moore machines.

T1: Switching Theory and Logic Design by A. Anand Kumar

T2: Switching Theory and Logic Design by A.P. Godse, D.A. Godse

63	Finite state machine	10/03/20	Lecture interspersed with discussions
64	Analysis of clocked sequential circuits	11/03/20	
65	State diagrams, state tables	12/03/20	
66	Design procedures	13/03/20	
67	Realization of circuits using various flip-flops	16/03/20	

68	Realization of circuits using various flip-flops	17/03/20	
69	Meelay to Moore conversion and vice-versa	18/03/20	
70	Meelay to Moore conversion and vice-versa	19/03/20	
71	Tutorial, problem solving	20s/03/20	

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TENTATIVE LESSON PLAN: R1622024

Course Title: CONTROL SYSTEMS(R1622024)		
Section :	Date: 18-11-2019	Page No: 1 of 3
Revision No:	Prepared by : Mr.K.SATYANARAYANA	Approved by :HOD

Tools : Black board, PPTs

No.of periods	Topics	Date	Mode of Delivery
UNIT-I	**Mathematical modelling of control systems**		
CO1:	**Ability to derive the transfer function of physical systems and determination of overall transfer function using block diagram algebra and signal flow graphs.**		
TB::	**M.Gopal " Control systems principles and Design ", Tata Mc Graw Hill Publications**		
1	open loop and closed loop control systems	18.11.19	Lecture interspersed with discussions
2	classification of control systems	18.11.19	
3	feed-back characteristics	18.11.19	
4	Transfer function of linear system	19.11.19	
5	Differential equation of electrical networks	20.11.19	
6	Tutorial	21.11.19	
7	Transalational systems	21.11.19	
8	Rotational mechanical systems	25.11.19	
9	Transfer function of DC Servomotor	26.11.19	
10	AC servomotor	27.11.19	
11	Synchro Transmitter and Receiver	27.11.19	
12	Block diagram algebra	28.11.19	
13	Representation of signal flow graph	28.11.19	
14	Reduction using Mason's gain formula	29.11.19	
15	Tutorial	29.11.19	
UNIT-II	**Time Response Analysis**		
CO2:	**Capability to determine time response specifications of second order systems and to determine error constants.**		
TB::	**A.Nagoor Kani " Control systems ", RBA Publications, 2nd edition.**		
16	Standard test signals	04.12.19	Lecture interspersed with discussions
17	Time response of First order system	05.12.19	
18	Time response of Second order system	06.12.19	
19	Tutorial	09.12.19	
20	Time domain specifications	10.12.19	
21	Steady state errors and error constants	11.12.19	
22	Tutorial	12.12.19	
23	Effects of proportional,derivative,integral systems	13.12.19	
24	Tutorial	16.12.19	
25	Problems	17.12.19	

UNIT-III Stability and Root Locus Technique

CO3: Acquires the skill to analyze absolute and relative stability of LTI systems using Routh's stability criterion and the root locus method.

TB:: A.Nagoor Kani " Control systems ", RBA Publications, 2nd edition.

26	Concept of stability	18.12.19	Lecture interspersed with discussions
27	Routh's stability criterion	19.12.19	
28	Limitations of Routh's stability	19.12.19	
29	Tutorial	20.12.19	
30	Problems	20.12.19	
31	Problems	20.12.19	
32	Root locus concept	23.12.19	
33	Construction of Root locus method	23.12.19	
34	Tutorial	24.12.19	
35	Problems	26.12.19	
36	Problems	26.12.19	
37	Problems	27.12.19	
38	Problems	30.12.19	

UNIT-IV Frequency response Analysis

CO4: Capable to analyze the stability of LTI systems using frequency response methods.

TB:: A.Nagoor Kani " Control systems ", RBA Publications, 2nd edition.

39	Introduction	02.01.20	Lecture interspersed with discussions
40	Frequency domain specifications	02.01.20	
41	Bode diagrams	03.01.20	
42	Tutorial	03.01.20	
43	Problems	07.01.20	
44	Transfer function from Bode diagrams	09.01.20	
45	Phase margin and Gain margin	09.01.20	
46	Tutorial	27.01.20	
47	Problems	28.01.20	
48	Stability analysis from Bode plots	31.01.20	
49	Tutorial	04.02.20	
50	Polar plots	05.02.20	
51	Nyquist stability criterion	06.02.20	
52	Tutorial	06.02.20	
53	Problems	07.02.20	
54	Problems	07.02.20	

UNIT-V Classical control design Techniques

CO5: Able to design Lag, Lead, Lag-Lead compensators to improve system performance from Bode diagrams.

TB:: A.Nagoor Kani " Control systems ", RBA Publications, 2nd edition.

55	Introduction	10.02.20	Lecture interspersed
56	Lag compensator design	11.02.20	
57	Tutorial	12.02.20	
58	Lead compensator design	12.02.20	
59	Tutorial	13.02.20	
60	Lag-Lead compensator	14.02.20	

61	Tutorial	14.02.20	with discussions
62	Tutorial	17.02.20	
63	Problems	18.02.20	
64	Problems	18.02.20	
65	Problems	26.02.20	

UNIT-VI State Space Analysis

CO6: Ability to represent physical systems as state models and determine the response. Understanding the concepts of controllability and observability.

TB:: K.Alice Mary " Control systems ", University Press (India) Private Ltd.

66	Concepts of state, state variable & stagte model	26.02.20	Lecture interspersed with discussions
67	State space representation of transfer fucntion	27.02.20	
68	Diagonalization-solving time invarient equations	28.02.20	
69	Tutorial	28.02.20	
70	Problems	28.02.20	
71	Problems	02.03.20	
72	Problems	04.03.20	
73	State transition matrix and it's properties	05.03.20	
74	Concept of controllability and observability	05.03.20	
75	Tutorial	06.03.20	
76	Tutorial	06.03.20	
77	Problems	09.03.20	
78	Problems	10.03.20	
79	Problems	11.03.20	
80	Problems	12.03.20	

K. Satyanarayana.
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TENTATIVE LESSON PLAN: R1622025

Course Title: POWER SYSTEMS-I		
Section :	Date : 18-11-20	Page No : 01 of 03
Revision No : 00	Prepared By : N.E.K.CHANDRA	Approved By : HOD

Tools : Black board

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I Thermal Power Stations **CO1::Study the principle of operation and function of different components of a thermal power station.** **TB :: Principles of power systems by V. K. Mehta, Rohit Mehta**			
1,2	Selection of site	19/11/19, 21/1/19	Lecture interspersed with Discussions
3,4	layout of a thermal power plant	22/11/19, 23/11/19	
5	Boilers, Super heaters	23/11/19	
6	Economizers, steam Turbines	26/11/19	
7	Condensers, Electrostatic precipitators	28/11/19	
8	Cooling towers , feed water circuit and Chimney	29/11/19	
UNIT –II Nuclear Power Plant **CO2:: To study the principle of operation and function of different components of a Nuclear power station.** **TB :: A Textbook on Power System Engineering by A. Chakrabarti , M.L. Soni , P.V. Gupta ,U.S. Bhatnagar**			
9	Location of nuclear power plant	30/11/19	Lecture interspersed with discussions
10	Working principle	30/11/19	
11,12	Nuclear fission	2/12/19, 4/12/19	
13	Nuclear fuels	5/12/19	
14	Nuclear chain reaction	6/12/19	
15	Nuclear reactor Components	6/12/19	
16	PWR	8/12/19	
17	BWR	9/12/19	
18	Tutorial	18/12/19	
19	FBR	19/12/19	
20	Radiation hazards and Shielding	20/12/19	
21	nuclear waste disposal	20/12/19	
UNIT - III Distribution Systems **CO3:: To study the concepts of DC and AC distribution systems along with voltage drop calculations.** **TB :: Principles of power systems by V. K. Mehta, Rohit Mehta**			
22	Classification of distribution systems	22/12/19	
23	Layout of gen, tr ,distribution systems	23/12/19	
24	Design features of distribution systems	25/12/19	
25	Radial distribution, ring main distribution	27/12/19	
26	Radial DC distributor fed at one end(Concentrated)	27/12/19	

27	Radial DC distributor fed at one end(Uniformly distributed)	29/12/19	Lecture interspersed with dicusssions
28	Radial DC distributor fed at both ends(Concentrated)	30/12/19	
29	Radial DC distributor fed at both ends (Uniformly distributed)	1/1/20	
30	Ring main distributor	2/1/20	
31	Stepped distributor and AC distribution	3/1/20	
32	Comparison of DC and AC distribution	3/1/20	
33,34	Numerical Problems	5/1/20, 6/1/20	
UNIT – IV Substations **CO4:: To study the constructional details, principle of operation and function of different components of an Air and Gas Insulated substations.** **TB :: Principles of power systems by V. K. Mehta, Rohit Mehta** **TB :: Electrical Power Distribution Systems by V Kamaraju**			
35	Classification of substations	15/1/20	Lecture interspersed with discussions
36	Indoor and Outdoor substations, Substations layouts of 33/11 kV	16/1/20	
37,38	Bus bar arrangements in the Sub-Stations	17/1/20, 17/1/20	
39	Gas Insulated Substations	19/1/20	
40	Advantages of Gas insulated substations	20/1/20	
41,42	Different types of gas insulated substations	22/1/20, 23/1/20	
43	Single line diagram of gas insulated substations	24/1/20	
44	Constructional, Installation and maintenance of GIS	24/1/20	
45	Comparison of Air insulated substations and Gas insulated substations.	26/1/20	
UNIT – V Underground Cables **CO5:: To study the constructional details and classification of cables with necessary numerical calculations.** **TB :: Principles of power systems by V. K. Mehta, Rohit Mehta**			
46	Types of Cables	27/1/20	Lecture interspersed with discussions
47	Construction	29/1/20	
48	Types of insulating materials	1/2/20	
49	Calculation of insulation resistance	2/2/20	
50	stress in insulation and power factor of cable	2/2/20	
51,52	Numerical Problems	4/2/20, 5/2/20	
53	Capacitance of single and 3-Core belted Cables	8/2/20	
54,55	Numerical Problems	9/2/20, 9/2/20	
56	Capacitance grading and Intersheath grading	11/2/20	
57,58	Numerical Problems	12/2/20, 14/2/20	

UNIT – VI Economic Aspects of Power Generation & Tariff CO6:: To study the concepts of different types of load curves and types of tariffs applicable to consumers. TB :: Principles of power systems by V. K. Mehta, Rohit Mehta TB :: Electrical Power Distribution Systems by V Kamaraju			
59	Load curve, load duration	15/2/20	Lecture interspersed with discussions
60	integrated load duration curves	16/2/20	
61	connected load, maximum demand, demand factor, load factor	16/2/20	
62	diversity factor, power capacity factor and plant use factor	18/2/20	
63	Base and peak load plants	19/2/20	
64,65	Numerical problems	21/2/20, 22/2/20	
66,67	Costs of Generation and their division into Fixed, Semifixed and Running Costs	23/2/20,23/2/20	
68,69	Characteristics of a Tariff Method	26/2/20,28/2/20	
70,71	Tariff Methods	29/2/20,30/2/20	
72,73	Numerical problems	30/2/20,1/3/20	
74,75,76,77,78	Revision	2,4,5,6,6,9/3/20	

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TENTATIVE LESSON PLAN: EEE

Course Title: MANAGEMENT SCIENCE(R1622026)		
Section :EEE	**Date :** 20-11-19	**Page No :** 01 of 02
Revision No : 00	**Prepared By :** M. INDRAJA	**Approved By : HOD**

Tools : Black board

No. of Periods (Planned)	TOPIC	Date (Planned)	Mode of Delivery
UNIT –I	**Introduction to Management**		
CO1:: Able to understand the concept and nature of management, evaluation of management theories, motivation and leadership styles			
TB :: Dr. A. R. Aryasri, Management Science' TMH 2011			
1	Introduction to management	18.11.19	Lecture interspersed with Discussions
2	Nature & importance of management	18.11.19	
3	Generic function of management	18.11.19	
4	Evaluation of management thoughts	19.11.19	
5	Motivation theories	20.11.19	
6	Decision making process	21.11.19	
7	Designing organization structure	21.11.19	
8	Principles & types of organization	25.11.19	
9	Organization typology	26.11.19	
10	Global leadership	27.11.19	
11	Principals and types of management	27.11.19	
UNIT –II	**: Operations Management**		
CO2:: Able to equip with concepts of operations, project management and inventory control			
TB :: Dr. A. R. Aryasri, Management Science' TMH 2011			
12	Work study	04.12.19	Lecture interspersed with discussions
13	Statistical quality control	04.12.19	
14	Control charts	05.12.19	
15	Problems On Control Charts	05.12.19	
16	Material Management	06.12.19	
17	Need For Inventory Control	09.12.19	
18	EOQ And ABC Analysis	10.12.19	
19	Problems On EOQ	11.12.19	
20	Other Methods Of EOQ	12.12.19	
UNIT-III: Functional management			
CO3:: Able to understand the different functional areas in an organization and their responsibilities- product life cycle and channels of distribution			
TB :: Dr. A. R. Aryasri, Management Science' TMH 2011			
21	Concept of HRM,HRD and PMIR	18.12.19	Lecture interspersed with discussions
22	Functions of HRM	19.12.19	
23	Wage payment plans	19.12.19	
24	Job evolution Vs merit rating	20.12.19	
25	Marketing management functions	20.12.19	
26	Marketing strategies based on plc	20.12.19	
27	Channels of distribution	23.12.19	
28	Operational change management	23.12.19	
29	Functions of marketing	24.12.19	
UNIT-IVProject Management			

CO4:: Able to equip with different techniques in project management, ie PERT and CPM and project crashing **TB ::** Dr. A. R. Aryasri, Management Science' TMH 2011			
30	Introduction to PERT and CPM	26.12.19	Lecture interspersed with discussions
31	Development of network diagram	27.12.19	
32	Difference between pert and CPM	30.12.19	
33	Identifying critical part and probability	02.01.20	
34	Project crashing simple problems	02.01.20	
UNIT-V:Strategic Management **CO5::** Able to equip with the concept and practical issues relating to strategic management **TB ::** Dr. A. R. Aryasri, Management Science' TMH 2011			
35	Vision, mission, goals and strategy	04.02.20	Lecture interspersed with discussions
36	Elements of corporate planning process	05.02.20	
37	SWOT analysis	06.02.20	
38	Steps in strategic formulation and implementation	06.02.20	
39	Generic strategy and global strategy	07.02.20	
40	Theories of MNCs	07.02.20	
UNIT-VI:Contemporary Management Practices **CO6::** Able to equip with the contemporary management practices, **TB::** Dr. A. R. Aryasri, Management Science' TMH 2011			
41	Basic concepts of MIS	17.02.20	Lecture interspersed with discussions
42	Total quality management	17.02.20	
43	Just- In- Time, Six sigma	18.02.20	
44	Supply chain management	18.02.20	
45	Enterprise resource planning	26.02.20	
46	Business process outsources	26.02.20	
47	Business process re-engineering	27.02.20	
48	Bench Marking	28.02.20	
49	Balanced Score Card	28.02.20	
50	Material Requirement Planning	28.02.20	
51	Capability Maturity Model	02.03.20	
52	Supply Chain Management	04.03.20	
53	Manufacture Requirement Planning	05.03.20	
54	Management information system	05.03.20	
55	Six sigma	06.03.20	

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TENTATIVE LESSON PLAN: R1642021

Course Title: DIGITAL CONTROL SYSTEMS (R1642021)		
Section :	Date: 18-11-2019	Page No: 1 of 3
Revision No:	Prepared by : Mr.K.SATYANARAYANA	Approved by :HOD

Tools : Black board, PPTs

No.of periods	Topics	Date	Mode of Delivery
UNIT-I Introduction and signal processing **CO1: To understand the concepts of digital control systems and assemble various components associated with it. Advantages compared to the analog type.** **TB: K. Ogata, " Discrete–Time Control systems ", Pearson Education/PHI**			
1	Introduction to analog and digital control systems	18.11.19	Lecture interspersed with discussions
2	Advantages of digital systems	19.11.19	
3	Typical examples	20.11.19	
4	Signals and processing	21.11.19	
5	Sample and hold devices	22.11.19	
6	Sampling theorem and data reconstruction	23.11.19	
7	Frequency domain characteristics of zero order hold	24.11.19	
8	Tutorial	25.11.19	
9	Tutorial	25.11.19	
10	Tutorial	26.11.19	
UNIT-II Z–Transformations **CO2: The theory of z–transformations and application for the mathematical analysis of digital control systems.** **TB: K. Ogata, " Discrete–Time Control systems ", Pearson Education/PHI**			
11	Introduction to Z-Transforms	27.11.19	Lecture interspersed with discussions
12	Finding inverse z–transforms	28.11.19	
13	Theorems of Z Transforms	04.12.19	
14	Problems	05.12.19	
15	Problems	06.12.19	
16	Problems	09.12.19	
17	Block diagram representation	09.12.19	
18	Pulse transfer functions	10.12.19	
19	open loop and closed loop systems	10.12.19	
20	Problems	11.12.19	
21	Tutorial	12.12.19	
22	Tutorial	12.12.19	
UNIT-III State space analysis and the concepts of Controllability and observability **CO3: To represent the discrete–time systems in state–space model and evaluation of state transition matrix.** **TB: K. Ogata, " Discrete–Time Control systems ", Pearson Education/PHI**			
23	State space representation of discrete time systems	13.12.19	
24	State transition matrix	16.12.19	
25	Methods of Evalution	16.12.19	

26	Discretization of continuous – Time state equations	17.12.19	Lecture interspersed with discussions
27	Concepts of controllability and Observability	18.12.19	
28	Problems	18.12.19	
29	Problems	19.12.19	
30	Problems	20.12.19	
31	Problems	20.12.19	
32	Tutorial	23.12.19	
UNIT-IV Stability analysis **CO4: To examine the stability of the system using different tests.** **TB: K. Ogata, " Discrete–Time Control systems ", Pearson Education/PHI**			
33	Mapping between the s–Plane and the z–Plane	24.12.19	Lecture interspersed with discussions
34	Primary strips and Complementary strips	26.12.19	
35	Primary strips and Complementary strips	26.12.19	
36	Primary strips and Complementary strips	27.12.19	
37	Stability criterion	30.12.19	
38	Modified Routh's stability criterion	31.12.19	
39	Jury's stability test	31.12.19	
40	Problems	31.12.19	
41	Problems	31.12.19	
42	Problems	02.01.20	
43	Problems	02.01.20	
44	Tutorial	03.01.20	
UNIT-V Design of discrete–time control systems by conventional methods **CO5: To study the conventional method of analyzing digital control systems in the w–plane.** **TB: K. Ogata, " Discrete–Time Control systems ", Pearson Education/PHI**			
45	Transient and steady state specifications	06.01.20	Lecture interspersed with discussions
46	compensators	09.01.20	
47	compensators	27.01.20	
48	Tutorial	28.01.20	
49	Tutorial	29.01.20	
50	Root locus technique in the z–plane	30.01.20	
51	Tutorial	03.02.20	
52	Tutorial	04.02.20	
53	Tutorial	04.02.20	
54	Tutorial	05.02.20	
55	Tutorial	06.02.20	
56	Tutorial	06.02.20	
UNIT-VI State feedback controllers **CO6: To study the design of state feedback control by "the pole placement method."** **TB: K. Ogata, " Discrete–Time Control systems ", Pearson Education/PHI**			
57	Introduction	07.02.20	
58	Design of state feedback controller through pole placement	12.02.20	
59	Necessary and sufficient conditions	12.02.20	
60	Necessary and sufficient conditions	13.02.20	
61	Ackerman's formula	13.02.20	
62	Problems	14.02.20	

63	Problems	26.02.20	Lecture interspersed with discussions
64	Tutorial	27.02.20	
65	Tutorial	28.02.20	
66	Tutorial	04.03.20	
67	Revision	05.03.20	
68	Revision	05.03.20	
69	Revision	06.03.20	
70	Revision	11.03.20	
71	Revision	12.03.20	
72	Revision	13.03.20	
73	Revision	18.03.20	
74	Revision	19.03.20	

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TENTATIVE LESSON PLAN: R1642022

Course Title: HVAC AND DC TRANSMISSION (RT41022)			
Section:	Date:18-11-2019	Page No: 1 of 2	
Revision No:	Prepared by : S.NAGESWARA RAO	Approved by :HOD	
Tools : Black board, PPTs			

No.of periods	Topics	Date	Mode of Delivery
	UNIT-I: Basic Concepts **CO1** **: Learn different types of HVDC levels and basic concepts** **TB:: HVDC Power Transmission Systems: Technology and system Interactions – by K.R.Padiyar, New Age International (P) Limited, and Publishers.** **TB:: HVDC Transmission by S.Kamakshaiah andV.Kamaraju-Tata McGraw–Hill .** **TB:: HVDC Transmission – J.Arrillaga**		
1	Basic Concepts	18-11-19	Lecture interspersed with discussions
2	Economics & Terminal equipment of HVDC transmission systems:	19-11-19	
3	Types of HVDC Links	20-11-19	
4	Apparatus required for HVDC Systems	21-11-19	
5	Comparison of AC &DC Transmission	22-11-19	
6	Application of DC Transmission System	25-11-19	
7	Planning & Modern trends in D.C. Transmission	26-11-19	
8	Modern trends in D.C. Transmission	27-11-19	
	UNIT-II:Analysis of HVDC Converters **CO2 : Know the operation of converters** **TB:: HVDC Power Transmission Systems: Technology and system Interactions – by K.R.Padiyar, New Age International (P) Limited, and Publishers.** **TB:: HVDC Transmission by S.Kamakshaiah andV.Kamaraju-Tata McGraw–Hill** **TB:: HVDC Transmission – J.Arrillaga**		
9	Analysis of HVDC Converters	28-11-19	Lecture interspersed with discussions
10	Choice of converter configuration	29-11-19	
11	analysis of Graetz Circuit	2/12/2019	
12	characteristics of 6 pulse converters	3/12/2019	
13	characteristics of 12 pulse converters	4/12/2019	
14	Cases of two 3 phase converters in star –star mode	5/12/2019	
15	Analysis of line commutated converters	6/12/2019	
16	Analysis of two and three valve conduction mode	9/12/2019	
17	Analysis of two and three valve conduction mode	10/12/2019	
18	Analysis of three and four valve conduction mode	11/12/2019	
19	Analysis of three and four valve conduction mode	12/12/2019	
20	performance converters	13-12-19	
	UNIT-III:Converter & HVDC System Control **CO3 : Acquire control concept of Converter and HVDC system.** **TB:: HVDC Power Transmission Systems: Technology and system Interactions – by K.R.Padiyar, New Age International (P) Limited, and Publishers.** **TB:: HVDC Transmission by S.Kamakshaiah andV.Kamaraju-Tata McGraw–Hill .** **TB:: HVDC Transmission – J.Arrillaga**		
21	Converter & HVDC System Control	16-12-19	Lecture interspersed with discussions
22	Principal of DC Link Control	17-12-19	
23	Converters Control Characteristics	18-12-19	
24	Firing angle control	19-12-19	
25	Individual Angle Control	23-12-19	
26	Equidistant Pulse Control	24-12-19	
27	Current and extinction angle control	26-12-19	
28	Effect of source inductance on the system	6/1/2020	
29	Starting and stopping of DC link	7/1/2020	
30	Power Control.	8/1/2020	

UNIT-IV:Reactive Power Control in HVDC

CO4 : Acquire control concept of reactive power control and AC/DC load flow.

TB:: HVDC Power Transmission Systems: Technology and system Interactions – by K.R.Padiyar, New Age International (P) Limited, and Publishers.

TB:: HVDC Transmission by S.Kamakshaiah andV.Kamaraju-Tata McGraw–Hill

TB:: HVDC Transmission – J.Arrillaga

31	Reactive Power Requirements in steady state	27-1-20	Lecture interspersed with discussions
32	Conventional control strategies	28-1-20	
33	Alternate control strategies	30-1-20	
34	sources of reactive power	31-1-20	
35	AC Filters – shunt capacitors	3/2/2020	
36	synchronous condensers	4/2/2020	
37	Modelling of DC Links	5/2/2020	
38	DC Network-DC Converter-Controller Equations	6/2/2020	
39	Solution of DC load flow, AC-DC Power flow	7/2/2020	
40	Simultaneous method-Sequential method	10/2/2020	

UNIT-V:Converter Fault & Protection

CO5: Understand converter faults, protection and harmonic effects

TB:: HVDC Power Transmission Systems: Technology and system Interactions – by K.R.Padiyar, New Age International (P) Limited, and Publishers.

TB:: HVDC Transmission by S.Kamakshaiah andV.Kamaraju-Tata McGraw–Hill

TB:: HVDC Transmission – J.Arrillaga

41	station	11/2/2020	Lecture interspersed with discussions
42	surge arresters	12/2/2020	
43	smoothing reactors	13-2-20	
44	DC breakers	14-2-20	
45	Audible noise	17-2-20	
46	space charge field	18-2-20	
47	corona effects on DC lines	19-2-20	
48	Radio interference	20-2-20	
49	Generation of Harmonics	24-2-20	
50	Characteristics harmonics	25-2-20	
51	calculation of AC Harmonics	26-2-20	
52	Non- Characteristics harmonics	27-2-20	
53	adverse effects of harmonics	28-2-20	
54	Calculation of voltage & Current harmonics	2/3/2020	
55	Effect of Pulse number on harmonics	3/3/2020	

UNIT-VI:Filters **CO6 :**

Design low pass and high pass filters

TB:: HVDC Power Transmission Systems: Technology and system Interactions – by K.R.Padiyar, New Age International (P) Limited, and Publishers.

TB:: HVDC Transmission by S.Kamakshaiah andV.Kamaraju-Tata McGraw–Hill

TB:: HVDC Transmission – J.Arrillaga

56	Types of AC filters,	4/3/2020	Lecture interspersed with discussions
57	Design of Single tuned filters	5/3/2020	
58	Design of High pass filters	9/3/2020	
59	Design of High pass filters	11/3/2020	
60	Problems	12/3/2020	

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TENTATIVE LESSON PLAN: R1642023

Course Title: ELECTRICAL DISTRIBUTION SYSTEMS(R1642023)		
Section :	Date:-16-11-2019	Page No: 1 of 2
Revision No:	Prepared by : B.INDRAJA	Approved by :HOD

Tools : Black board, PPTs

No.of periods	Topics	Date	Mode of Delivery
UNIT-I General Concepts **CO1 :Able to understand the various factors of distribution system.** **TB:: "Electric Power Distribution system, Engineering" – by TuranGonen,McGraw–hill Book Company.**			
1,2	Introduction to distribution systems	18,19/11/19	Lecture interspersed with discussions
3,4	Load modeling and characteristics	20,21/11/19	
5	Coincidence factor	22/11/19	
6	Contribution factor loss factor	25/11/2019	
7,8	Relationship between the load factor and loss factor	26,27/11/2019	
9,10	Classification of loads and their characteristics	28,29/11/2019	
11,12,13	Tutorial	2,3,4/12/19	
UNIT-II Substations & Distribution Feeders **CO2 :Able to design the substation and feeders.** **TB:: "Electric Power Distribution system, Engineering" – by TuranGonen,McGraw–hill Book Company.**			
14	Location of substations	12-05-2019	Lecture interspersed with discussions
15	Rating of distribution substation	12-06-2019	
16	Service area with n primary feeders	12-09-2019	
17,18	Benefits and methods of optimal location of substations.	10,11/12/19	
19,20	Design Considerations of distribution feeders	12,13/12/19	
21	Radial and loop types of primary feeders	16/12/19	
22	Voltage levels	17/12/19	
23	Feeder loading	18/12/19	
24,25	Basic design practice of the secondary distribution system	19,20/12/19	
26	Tutorial	23/12/19	
UNIT-III System Analysis **CO3 : Able to determine the voltage drop and power loss** **TB:: "Electric Power Distribution system, Engineering" – by TuranGonen, McGraw–hill Book Company.**			
27	Voltage drop and power–loss calculations	24/12/19	Lecture interspersed with discussions
28,29	Derivation for voltage drop and power loss in lines	26,27/12/19	
30	Uniformly distributed loads and non-uniformly loads	30/12/2020	
31,32	Numerical problems	31,3/1/2020	
33,34,35	Three phase balanced primary lines	6,7,8/1/2020	
36,37	Tutorial	9,10/1/2020	

UNIT-IV Protection & Coordination

CO4 : Able to understand the protection and its coordination.

TB :: "Electric Power Distribution system, Engineering" – by TuranGonen,McGraw–hill Book Company.

38	Objectives of distribution system protection	24/1/2020	Lecture interspersed with discussions
39,40,41	Types of common faults and procedure for fault calculations	27,28,29/1/2020	
42	Protective devices	30/1/2020	
43	Principle of operation of fuses	31/1/2020	
44	Circuit reclosures	02-03-2020	
45	Line sectionalizes and circuit breakers	02-04-2020	
46,47	Coordination of protective devices	5,6/2/2020	
48	General coordination procedure	02-07-2020	
49	Various types of Coordination of protective devices	02-10-2020	
50	Residual current circuit breaker RCCB	02-11-2020	
51	Tutorial	02-12-2020	

UNIT-V Compensation for Power Factor Improvement

CO5 : Able to understand the effect of compensation on p.f improvement

TB :: "Electric Power Distribution system, Engineering" – by TuranGonen,McGraw–hill Book Company.

52	Capacitive compensation for power factor control	13/2/2020	Lecture interspersed with discussions
53	Different types of power capacitors	14/2/2020	
54	shunt and series capacitors	17/2/2020	
55	Effect of shunt capacitor	18/2/2020	
56	Power factor correction	19/2/2020	
57,58	Capacitor allocation	20,24/2/2020	
59,60	Economic justification	25,26/2/2020	
61,62	Procedure to determine the best capacitor location.	27,28/2/2020	
63	Numerical problems	03-02-2020	
64	Tutorial	03-03-2020	

UNIT-VI Voltage Control

CO6 :Able to understand the effect of voltage, current distribution system performance.

TB :: "Electric Power Distribution system, Engineering" – by TuranGonen,McGraw–hill Book

65	Voltage Control	03-04-2020	Lecture interspersed with discussions
66	Equipment for voltage control	03-05-2020	
67	Effect of series capacitors	03-06-2020	
68	Effect of AVB/AVR	03-09-2020	
69	Line drop compensation	03-11-2020	
70,71,72	Numerical problems	12,13,16/3/2020	
73,74,75,76	Tutorial	17,18,19,20/3/2020	

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TENTATIVE LESSON PLAN: R164202B

Course Title: Flexible Alternating Current Transimission Systems(R164202B)		
Section :	Date: 18-11-2020	Page No: 1 of 3
Revision No:	Prepared by : N.E.K.Chandra	Approved by :HOD

Tools : Black board, PPTs

No.of periods	Topics	Date	Mode of Delivery
UNIT-I Introduction **CO1 : Determine power flow control in transmission lines by using FACTS controllers** **TB: N.G.Hingorani"Understanding FACTS",IEEE Press**			
1	Power flow in an AC System	18/11/19	Lecture interspersed with discussions
2	Loading capability limits	19/11/19	
3	Dynamic stability considerations	20/11/19	
4	Importance of controllable parameters	21/11/19	
5	Basic types of FACTS controllers	22/11/19	
6	Benefits from FACTS controllers	23/11/19	
7	Requirements and characteristics of high power devices	24/11/19	
8	Voltage and current rating	25/11/19	
9	Losses and speed of switching	26/11/19	
10	**Tutorial**	27/11/19	
11	Voltage and current rating	28/11/19	
12	Requirements and characteristics of high power devices	29/11/19	
13	**Tutorial**	30/11/19	
UNIT-II Voltage source and Current source converters **CO2 : Explain operation and control of voltage source converter.** **TB:N.G.Hingorani"Understanding FACTS",IEEE Press**			
14	Concept of voltage source converter(VSC)	31/11/19	Lecture interspersed with discussions
15	Single phase bridge converter	1/12/19	
16	Square–wave voltage harmonics	2/12/19	
17	Three–phase full wave bridge converter	3/12/19	
18	Three–phase current source converter	4/12/19	
19	Comparison of current with voltage source converters.	5/12/19	
20	Three–phase current source converter	6/12/19	
21	Comparison of current with voltage source converters.	7/12/19	
22	voltage source converters	8/12/19	
23	**Tutorial**	9/12/19	
UNIT-III Shunt Compensators–1 **CO3 : Discuss compensation methods to improve stability and reduce power oscillations in the transmission lines.** **TB:N.G.Hingorani"Understanding FACTS",IEEE Press**			
24	Objectives of shunt compensation	10/12/19	
25	Mid–point voltage regulation for line segmentation	11/12/19	
26	End of line voltage support to prevent voltage instability	12-12-19	
27	Improvement of transient stability	13/12/19	
28	Power oscillation damping.	14/12/19	

29	Variable impedance type static VAR generators	15/12/19	Lecture interspersed with discussions
30	TCR(thyristor controlled reator)	16/12/19	
31	TCR(thyristor controlled reator)	17/12/19	
32	TCR(thyristor controlled reator)	18/12/19	
33	TSR(thyristor switched capacitor)	19/12/19	
34	TSR(thyristor switched capacitor)	18/12/19	
35	**Tutorial**	19/12/19	
36	**Tutorial**	20/12/19	
UNIT-IV Shunt Compensators–2 **CO4 : Explain the method of shunt compensation by using static VAR compensators** **TB:N.G.Hingorani"Understanding FACTS",IEEE Press**			
37	Thyristor Switched Capacitor(TSC	25/12/19	Lecture interspersed with discussions
38	Thyristor Switched Capacitor	26/12/19	
39	Thyristor Switched Reactor (TSC–TCR)	27/12/19	
40	SVC and STATCOM	28/12/19	
41	The regulation slope transfer fun and dynamic performance	29/12/19	
42	Transient stability enhancement and power oscillation dampir	30/12/19	
43	operating point control and summary of compensation	12/1/20	
44	Static var Compensators	13/1/20	
45	Static var Compensators	14/1/20	
46	Statcom operation	15/1/20	
47	Statcom benefits with SVC	16/1/20	
48	Transient stability enhancement and power oscillation dampir	17/1/20	
49	Transient stability enhancement and power oscillation dampir	18/1/20	
50	**Tutorial**	19/1/20	
51	**Tutorial**	20/1/20	
UNIT-V Series Compensators **CO5 : Appreciate the methods of compensations by using series compensators.** **TB:N.G.Hingorani"Understanding FACTS",IEEE Press**			
52	Concept of series capacitive compensation	1/2/20	Lecture interspersed with discussions
53	Improvement of transient stability	2/2/20	
54	Power oscillation damping – Functional requirements	3/2/20	
55	GTO thyristor controlled Series Capacitor (GSC)	4/2/20	
56	Thyristor Switched Series Capacitor (TSSC	6/2/20	
57	Thyristor Controlled Series Capacitor(TCSC).	7/2/20	
58	Tutorial	8/2/20	
59	Tutorial	9/2/20	
UNIT-VI Combined Controllers **CO6 : Explain the operation of modern power electronic controllers (Unified Power Quality Conditioner and Interline Power Flow Controller.** **TB:N.G.Hingorani"Understanding FACTS",IEEE Press**			
60	Schematic and basic operating principles of UPFC	10/2/20	Lecture interspersed
61	UPFC block diagram	15/2/20	
62	UPFC block diagram explanation	16/2/20	
63	UPFC control of real power	17/2/20	
64	UPFC control of reactive power	18/2/20	
65	Interline power flow Controller	25/2/20	