TENTETIVE LESSON PLAN R2021021
MATHEMATICS - IV

Course Title: MATHEMATICS – IV(COMPLEX VARIABLES AND STATISTICAL METHODS)		
Section : EEE	Date : 05/09/2022	Page No : 01 of 03
Revision No : 00	Prepared By : V. Prasanthi	Approved By : HOD

Tools : Black board, Pdf

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT- I: FUNCTIONS OF A COMPLEX VARIABLE AND COMPLEX INTEGRATION **CO1: To apply Cauchy-Riemann equations to complex functions in order to determine whether a given continuous function is analytic and find the differentiation and integration of complex functions used in engineering problems** **TB:: COMPLEX VARIABLES AND STATISTICAL METHODS By Dr. T.V.K. Iyengar, S. Chand & Company Pvt. Ltd., 2014.**			
1.	Introduction	From: 05/09/2022 To: 28/09/2022	Lecture interspersed with discussions
2.	Definition of Continuity, Problems		
3.	Problems		
4.	Differentiability, Problems		
5.	Problems		
6.	Analyticity, Problems		
7.	Problems, Properties		
8.	Cauchy-Riemann equations in Cartesian, Problems		
9.	Problems		
10.	Cauchy-Riemann equations polor Coordinates, Problems		
11.	Tutorial Class		
12.	Harmonic and conjugate harmonic functions		
13.	Problems		
14.	Milne –Thompson method Problems		
15.	Complex integration: Line integral Problems		
16.	Cauchy's integral theorem Problems		
17.	Cauchy's integral formula Problems		
18.	Generalized integral formula (all without proofs).Problems		
19.	Revision		
UNIT- II : SERIES EXPANSIONS AND RESIDUE THEOREM **CO2: To make use of the Cauchy residue theorem to evaluate certain integrals** **TB1 :: COMPLEX VARIABLES AND STATISTICAL METHODS By Dr. T.V.K. Iyengar, S. Chand & Company Pvt. Ltd., 2014.**			
20.	Radius of convergence		
21.	Expansion in Taylor's series, Problems		
22.	Maclaurin's series, Problems		
23.	Laurent series, Problems		

24.	Types of Singularities: Isolated, Problems	From: 29/09/2022 To: 18/10/2022	Lecture interspersed with discussions
25.	pole of order m Problems		
26.	Tutorial Class		
27.	Essential Problems		
28.	Residues Problems		
29.	Residue theorem (without proof) Problems		
30.	Evaluation of real integral of the type f (x)dx Problems		
31.	Revision		

UNIT III- PROBABILITY AND DISTRIBUTION

CO3: To provide mathematical background and sufficient experience so that the student can read, write, and understand sentences in the language of discrete and Continuous Probability theory.

CO4: To introduce students to the basic methodology of "probabilistic thinking" and to apply it to problems.

TB1:: PROBABILITY AND STATISTICS By Dr. T.V.K. Iyengar, S. Chand & Company Pvt. Ltd., 2014.

TB2:: COMPLEX VARIABLES AND STATISTICAL METHODS By Dr. T.V.K. Iyengar, S. Chand & Company Pvt. Ltd., 2014.

32.	Review of probability and Baye's theorem	From: 19/10/2022 To: 12/11/2022	Lecture interspersed with discussions
33.	Baye's theorem- Problems		
34.	Random variables – Discrete and Continuous random variables		
35.	Distribution function and properties		
36.	Mathematical Expectation & Properties		
37.	Variance & Properties		
38.	Tutorial Class		
39.	Binomial Distribution-p.m.f, Properties,		
40.	Problems		
41.	Poisson Distribution-p.m.f, Properties		
42.	Problems		
43.	Uniform Distribution- p.d.f., properties		
44.	Problems		
45.	Normal Distribution- p.d.f., properties		
46.	normal Approximation to Binomial distribution		
47.	Problems		
48.	Revision		

UNIT – IV SAMPLING THEORY

CO5: To the aim of this course is to cover sampling design and analysis methods that would be useful for research and management in many field. A well designed sampling procedure ensures that we can summarize and analyze data with a minimum of assumptions and complications.

TB1:: PROBABILITY AND STATISTICS By Dr. T.V.K. Iyengar, S. Chand & Company Pvt. Ltd., 2014.

TB2:: COMPLEX VARIABLES AND STATISTICAL METHODS By Dr. T.V.K. Iyengar, S. Chand & Company Pvt. Ltd., 2014.

49.	Introduction- Population, Sample, Types of Sampling, Parameter & Statistic		
50.	Sampling Distribution of Mean with Known Variance, Problems		

51.	Central Limit theorem	From: 14/11/2022 To: 30/11/2022	Lecture interspersed with discussions
52.	Sampling Distribution of Mean with Unknown Variance, Problems		
53.	Tutorial Class		
54.	t - distribution - Problems		
55.	F- distribution - Problems		
56.	Chi- Square Distribution - Problems		
57.	Point Estimation, Maximum Error Estimate - Problems		
58.	Interval Estimation - Problems		
59.	Maximum error of estimate - Problems.		
60.	Revision		

UNIT –V TESTS OF HYPOTHESIS

CO6: One of the most important uses of statistics is to be able to make conclusions and test Hypothesis. Your conclusions can never be absolutely sure but you can quantify of your measure of confidence in the results.

TB1:: PROBABILITY AND STATISTICS By Dr. T.V.K. Iyengar, S. Chand & Company Pvt. Ltd., 2014.

TB2:: COMPLEX VARIABLES AND STATISTICAL METHODS By Dr. T.V.K. Iyengar, S. Chand & Company Pvt. Ltd., 2014.

61	Introduction – Hypothesis – Null and Alternative Hypothesis	From: 01/12/2022 To: 17/12/2022	Lecture interspersed with discussions
62	Type I and Type II errors – Level of significance		
63	One tail and two-tail tests		
64	**Large Sample tests** - Test for Single Mean, Problems		
65	Test for Two Means, Problems		
66	Test for Single Proportion, Problems		
67	Test for Two Proportion, Problems		
68	Tutorial Class		
69	**Small Sample tests: t** - Test for Single Mean, Problems		
70	Problems		
71	t - Test for Two Means, Problems		
72	Paired t - Test, Problems		
73	F - Test, Problems		
74	Chi-Square Test for Goodness of fit, Problems		
75	Chi-Square Test for Independence of Attributes, Problems		

Prasanthi 02/09/22

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02/09/22

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DEPARTMENT OFELECTRICAL AND ELECTRONICS ENGINEERING

Tentative Lesson Plan

Course / Code: Electronic Devices and Circuits / R2021022

Year / Semester: II / I

Academic Year: 2022-23

Course Title: Electronic Devices and Circuits (R2021022)		
Section : Sec I	**Date : 05-09-2022**	**Page No :** 01 of 03
Revision No : 00	**Prepared By : B. Ravi**	**Approved By : HOD**

Tools: Black Board

No. of Periods	**TOPIC**	**Date**	**Mode of Delivery**
Unit – 1: Review of Semiconductor Physics and Junction Diode Characteristics **CO1**: Analyze the behavior of PN junction under deferent bias conditions and characteristics of diode **TB1:** Electronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition. **TB2:** Electronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata Mc-Graw Hill, Second Edition.			
1	Energy band diagram of PN junction Diode	**From: 05-9-2022** **To: 30-9-2022**	Lecture Interspersed With discussions
2	basics		
3	Open circuited p-n junction Biased p-n diode		
4	V-I Characteristics		
5	Current components in PN junction Diode		
6	Diode equation		
7	Temperature dependence on VI characteristics		
8	Diode resistance, Diode capacitance		
9	Hall effect		
10	Continuity equation		
11	Fermi Dirac function		
12	Fermi level in intrinsic and extrinsic Semiconductors		
Unit – 2: Special Semiconductor Devices , Rectifiers and filters **CO2:** Classify different types of special diode and rectifiers, describe their operation **TB1:** Electronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition. **TB2:** Electronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata Mc-Graw Hill, Second Edition			
13	Breakdown mechanisms, Zener Diode, tunnel diode		
14	Zener diode applications		
15	LED		
16	Varactor Diode, Photodiode		

17	UJT	From: 1-10-2022 To: 29-10-2022	Lecture interspersed with discussions
18	SCR- Construction, operation and V-I characteristics.		
19	Basic Rectifier setup		
20	Half wave rectifier		
21	Full wave rectifier		
22	Bridge rectifier		
23	Filters: Inductor filter		
24	Capacitor filter		
25	LC filter, π- Filter		
26	Comparison of various filter circuits in terms of ripple factors.		

Unit – 3: Transistor Characteristics

CO3: Describe construction, working and VI characteristics of BJTs and JFETs

TB1: Electronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition.
TB2: Electronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata Mc-Graw Hill, Second Edition

27	Junction transistor, transistor current components	From: 01-11-2022 To: 03-12-2022	Lecture interspersed with discussions
28	Transistor equation		
29	transistor configurations		
30	transistor as an amplifier		
31	Characteristics of CE and CB configuration		
32	Characteristics of CC, Punch through		
33	Ebers-Moll model of a transistor, Typical transistor junction voltage values		
34	Comparison between CE, CB, CC configurations		
35	Problems, Photo transistor		
36	FET types		
37	Construction, Operation of JFET		
38	Characteristics of JFET		
39	μ, gm, rd parameters		
40	Depletion MOSFET-types, construction, operation, characteristics		
41	Enhancement MOSFET-types, construction, operation, characteristics		
42	Comparison between JFET and MOSFET		
43	Problems		

UNIT-IV: Transistor Biasing and Thermal Stabilization

CO4: Analyze various biasing, stabilization and compensation techniques for BJT and JFET

TB1: Electronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition.

TB2: Electronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata Mc-Graw Hill, Second Edition.

44	Need for biasing, operating point, load line analysis	**From: 06-12-2022**	Lecture interspersed with discussions
45	BJT biasing methods: fixed bias		
46	Collector to base bias		
47	Self bias		
48	Stabilization against variations in V_{BE} ,Ic, and β	**To: 20-12-2022**	
49	Bias compensation		
50	Thermal runaway, Thermal stability		
51	FET Biasing methods		
52	Stabilization		

UNIT-V: Small Signal Low Frequency Transistor Amplifier Models

CO5: Design transistor amplifiers using small signal model and compute various parameters related to amplifiers

TB1: Electronic Devices and Circuits-J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition.
TB2: Electronic Devices and Circuits- Salivahanan, Kumar, Vallavaraj, Tata Mc-Graw Hill, Second Edition

53	**BJT:** Two port network, Transistor hybrid model,	**From: 23-12-2022**	Lecture interspersed with discussions
54	determination of h-parameters,		
55	Conversion of h parameters		
56	generalized analysis of transistor amplifier model using h-parameters,		
57	Analysis of CB amplifier using exact and approximate analysis		
58	Analysis of CE amplifiers using exact and approximate analysis		
59	Analysis of CC amplifiers using exact and approximate analysis		
60	Comparison of transistor amplifiers	**To: 31-12-2022**	
61	**FET:** Generalized analysis of small signal model,		
62	Analysis of CG amplifier		
63	Analysis of CS amplifier		
64	Analysis of CD amplifier		
65	comparison of FET amplifiers		

B. Rao
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Date:

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Date: 31/12/22

TENTATIVE LESSON PLAN: R2021023
ELECTRICAL CIRCUIT ANALYSIS-II

Course Title: ELECTRICAL CIRCUIT ANALYSIS-II (R2021023)			
Section :	**Date: 05-09-2022**	**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 Balanced and Unbalanced Three phase circuits **CO1: Understand the concepts of balanced and unbalanced three-phase circuits.** **TB:Engineering Circuit Analysis by William Hayt and Jack E.Kemmerley, McGraw Hill Company,9th edition, 2018.**			
1	Introduction	05.09.22 To 23.09.22	Lectures interspersed with discussions
2	Phase sequence		
3	star and delta connection of sources and loads		
4	relation between line and phase voltages and currents		
5	Tutorial		
6	Problems		
7	Problems		
8	analysis of balanced three phase circuits		
9	measurement of active and reactive power		
10	Problems		
11	Problems		
12	Loop method		
13	Star-Delta transformation technique		
14	two-wattmeter method for measurement of three phase power		
15	Problems		
16	Problems		
UNIT-II Transient Analysis in DC Circuits **CO2: Know the transient behavior of electrical networks with DC excitations.** **TB: Engineering Circuit Analysis by William Hayt and Jack E.Kemmerley, McGraw Hill Company, 9th edition, 2018.**			
17	Introduction	24.09.22 To 08.10.22	Lectures interspersed with discussions
18	Transient response of First order R-L Circuit using differential equations		
19	Transient response of First order R-C Circuit using differential equations		
20	Problems		
21	Transient response of Second order R-L-C Circuit using differential equations		
22	Problems		
23	Problems		
24	Transient response of First order R-L Circuit using Laplace Transform		

25	Transient response of First order R-C Circuit using Laplace Transform		
26	Problems		
27	Transient response of Second order R-L-C Circuit using Laplace Transform		
28	Problems		
29	Problems		
30	Tutorial		
31	Problems		
UNIT-III Transient Analysis in AC circuits CO3: Learn the transient behavior of electrical networks with AC excitations. TB: Engineering Circuit Analysis by William Hayt and Jack E.Kemmerley, McGraw Hill Company,9th edition, 2018.			
32	Introduction	10.10.22 To 22.10.22 & 31.10.22 To 12.11.22	Lectures interspersed with discussions
33	Transient response of First order R-L Circuit using differential equations		
34	Transient response of First order R-C Circuit using differential equations		
35	Problems		
36	Problems		
37	Problems		
38	Transient response of Second order R-L-C Circuit using differentia		
39	Problems		
40	Transient response of First order R-L Circuit using Laplace Transform		
41	Transient response of First order R-C Circuit using Laplace Transform		
42	Problems		
43	Transient response of Second order R-L-C Circuit using Laplace Transform		
44	Tutorial		
45	Problems		
46	Problems		
47	Problems		
48	Problems		
49	Problems		
50	Problems		
UNIT-IV Two Port Networks CO4: Estimate various parameters of a two port network. TB: Engineering Circuit Analysis by William Hayt and Jack E.Kemmerley, McGraw Hill Company,9th edition, 2018.			
51	Introduction		
52	Z Parameters		
53	Y Parameters		
54	Problems		
55	Problems		
56	ABCD Parameters		

57	Problems	14.11.22 To 30.11.22	Lectures interspersed with discussions
58	Problems		
59	Problems		
60	Hybrid Parameters		
61	Problems		
62	Cascaded Networks		
63	Relation between the parameters		
64	Problems		
65	Problems		
66	Tutorial		
UNIT-V Filters			**CO5:**
Understand the significance of filters in electrical networks.			
TB: Engineering Circuit Analysis by William Hayt and Jack E.Kemmerley, McGraw Hill Company,9th edition, 2018.			
67	Instroduction	01.12.22 To 17.12.22	Lectures interspersed with discussions
68	Need of Filters – Classification, Characteristic impedance		
69	Low Pass Filter, High Pass Filter		
70	Band Pass Filter, Band Stop or Band Elimination Filter		
71	m-Derived Filter		
72	Composite filters– Design of Filters		
73	Tutorial		
74	Problems		
75	Revision		
76	Revision		
77	Revision		
78	Revision		
79	Revision		
80	Revision		
81	Revision		
82	Revision		
83	Revision		
84	Revision		
85	Revision		
86	Revision		

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TENTATIVE LESSON PLAN
DC MACHINES AND TRANSFORMERS – R2021024

Course Title: DC MACHINES AND TRANSFORMERS		
Branch : EEE	Date : 05.09.2022	
Revision No : 00	Prepared By : S.NAGESWARA RAO	Approved By : HOD

Tools: On Board, PPTs

S.NO.	TOPIC	Date	Mode of Delivery
UNIT-1: ELECTROMECHANICAL ENERGY CONVERSION AND INTRODUCTION TO DC MACHINES **CO1::** ASSIMILATE THE CONCEPTS OF ELECTROMECHANICAL ENERGY CONVERSION. **TB: P.S.BIMBRA " Electrical Machines ", Khanna Publications**			
1	Principles of electromechanical energy conversion	**05.09.22 To 23.09.22**	Lecture interspersed with discussions
2	Electro-mechanical energy conversion		
3	Singly excited and multi excited systems		
4	Singly excited and multi excited systems		
5	Concept of energy and co-energy		
6	Calculation of force and torque using the concept of co-energy.		
7	Calculation of force and torque using the concept of co-energy.		
8	Construction of DC machines		
9	Principle of operation of DC machines		
10	EMF equation for generator		
11	Classification of DC generators		
12	Characteristics of DC shunt generator		
13	Applications of DC Generators		
UNIT-II: OPERATION OF DC MOTORS **CO2::** MITIGATE THE ILL EFFECTS OF ARMATURE REACTION AND IMPROVE COMMUTATION IN DC MACHINES **TB: P.S.BIMBRA " Electrical Machines ", Khanna Publications**			
14	Back-emf equation of dc motors	**24.09.22 To 08.10.22**	Lecture interspersed with discussions
15	Torque equation of dc motors		
16	Armature reaction of DC Machine		
17	commutation process in DC Machine		
18	characteristics of separately-excited DC shunt motor		
19	Characteristics shunt, series and compound motors		
20	Losses of DC Motor in DC Motor		
21	Efficiency of DC Motor in DC Motor		
22	Application of DC Motors		
23	Necessity of Starter		
24	Working of 3-Point Starter		
25	Working of 4-Point Starter		

UNIT-III : SPEED CONTROL OF DC MOTOR & TESTINGS OF DC MOTOR AND SINGLE PHASE TRANSFORMERS **CO3:** UNDERSTAND THE TORQUE PRODUCTION MECHANISM AND CONTROL THE SPEED OF DC MOTORS,ANALYZE THE PERFORMANCE OF SINGLE PHASE TRANSFORMERS. **TB: P.S.BIMBRA " Electrical Machines ", Khanna Publications**			
26	Speed control by armature & field control DC shunt motor	**10.10.22** **To** **22.10.22**	Lecture interspersed with discussions
27	Speed control DC series motor		
28	Speed control DC shunt motor		
29	Testing of DC machines – brake test,		
30	Swinburne's method		
31	Principle of regenerative or Hopkinson's method		
32	Principle of regenerative or Hopkinson's method		
35	Retardation test		
36	Field's test		
37	Separation of losses.		
38	**Single Phase Transformers**	**31.10.22** **To** **12.11.22**	
39	Types and constructional details of single phase transformer		
40	Principle of operation		
41	Emf equation		
42	Transformer on no load		
43	Transformer on load with lagging power factor		
44	Transformer on load with leading power factor		
45	Phasor diagrams of transformers		
46	Equivalent circuit		
UNIT – IV:PERFORMANCE AND TESTING OF TRANSFORMERS AND AUTO TRANSFORMERS **CO4::**PREDETERMINE OF REGULATION, LOSSES AND EFFICIENCY OF SINGLE PHASE TRANSFORMERS **TB: P.S.BIMBRA " Electrical Machines ", Khanna Publications**			
47	Regulation	**14.11.22** **To** **30.11.22**	Lecture interspersed with discussions
48	Losses and efficiency		
49	Problems		
50	Effect of variation of frequency and supply voltage on losses		
51	All day efficiency		
52	Open circuit and short circuit tests single phase transformers		
53	Sumpner's test		
54	Separation of losses		
55	Parallel operation with equal voltage ratios		
56	Auto transformer		
57	Equivalent circuit of single phase transformers		
58	Comparison with two winding transformers.		

UNIT –V: 3-PHASE TRANSFORMER CO5:: PARALLEL TRANSFORMERS, CONTROL VOLTAGES WITH TAP CHANGING METHODS AND ACHIEVE THREE-PHASE TO TWO-PHASE TRANSFORMATION. TB: P.S.BIMBRA " Electrical Machines ", Khanna Publications			
59	Polyphase connections	01.12.22 To 17.12.22	Lecture interspersed with discussions
60	Star-Star, Star-Delta, Delta – Star, Delta –Delt		
61	Open Delta connection		
62	Third harmonics in phase voltages		
63	three winding transformers		
64	transients in switching		
65	off load and on load tap changers		
66	Scott connection.		

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TENTATIVE LESSON PLAN: R2021025
ELECTROMAGNETIC FIELDS

Course Title: ELECTROMAGNETIC FIELDS		
Section :	Date : 05.09.2022	Page No : 1 to 4
Revision No : 00	Prepared By : B.Indraja	Approved By : HOD

Tools: Black board, PPTs

S.No	TOPIC	Date	Mode of Delivery
UNIT-I Electrostatics **CO1: Ability to calculate electric field and potentials using gauss's law or solving Laplace's or Poisson's equations** **TB: Engineering Electro magnetics – by William H. Hayt & John. A. Buck Mc.Graw-Hill Companies, 7th Editon.2009**			
1	Introduction	**From: 05.09.2022 To: 22.09.2022**	Lecture interspersed with discussions
2	Coulomb's law		
3	Electric field intensity		
4	Electro EFI due to a line charge and surface charge		
5	Work done in moving point charge in ESF		
6	Electric potential		
7	Potential gradient		
8	Gauss's law		
9	Maxwell's first law		
10	Laplace's and Poisson's equation		
11	Solution of Laplace equation in one variable		
12	Numerical Problems		
13	Tutorial		
UNIT-II Conductors- Dielectrics & Capacitance **CO2: Learn how to calculate capacitance. Energy stored in dielectrics and gets the concept of conduction and convention currents** **TB: Engineering Electro magnetics – by William H. Hayt & John. A. Buck Mc.Graw-Hill Companies, 7th Editon.2009**			

14	Introduction		
15	Electric dipole – dipole moment		
16	Potential and EFI due to an electric dipole		
17	Torque on an Electric dipole in an electric field conductors and Insulators their behavior in electric field		
18	Polarization, boundary conditions between conductors to dielectric, dielectric to dielectric and conductor to free space	**From: 23.09.2022 To: 11.10.2022**	Lecture interspersed with discussions
19	Capacitance of parallel plates, spherical dielectrics		
20	Energy stored and energy density in a static electric field		
21	Current density		
22	Conduction and convection current densities		
23	Ohm's law in point form		
24	Equation of continuity		
25	Tutorial		
UNIT-III Magneto statics and Ampere's law & Force in Magnetic fields **CO3: Ability to find magnetic field intensity due to current. The application of ampere's law and the Maxwell's second and third equations and Students can calculate the magnetic forces and torque produced by currents in magnetic field.** **TB: Engineering Electro magnetics – by William H. Hayt & John. A. Buck Mc.Graw-Hill Companies, 7th Editon.2009**			
26	Introduction		
27	Biot-Savart's law and its applications		
28	Straight current carrying filament, Circular	**From: 12.10.2022**	
29	Square, rectangle and solenoid current carrying wire		Lecture interspersed with discussions
30	Maxwell's second Equation, div(B)=0	**To:**	
31	Ampere's circuital law and its applications	**22.10.2022**	

32	MFI due to an infinite sheet, long filament, solenoid, toroidal carrying conductor		
33	point form of Ampere's circuital law		
34	Maxwell's third equation, Curl (H)=J		
35	Tutorial		
36	Magnetic force, moving charges in a magnetic field	**From: 31.10.2022 To: 15.11.2022**	Lecture interspersed with discussions
37	Lorentz force equation		
38	force on a current element in a magnetic field		
39	force on a straight and a long current carrying conductor in a magnetic field		
40	force between two straight long and parallel current carrying conductors		
41	Tutorial		

UNIT-IV Self and Mutual Inductance

CO4: Will the able to calculate self and mutual inductances and the energy stored in the magnetic field.

TB: Engineering Electro magnetics – by William H. Hayt & John. A. Buck Mc.Graw-Hill Companies, 7th Editon.2009

42	Self and mutual inductance	**From: 16.11.2022 To: 01.12.2022**	Lecture interspersed with discussions
43	determination of self-inductance of a solenoid and toroid		
44	Mutual inductance between a straight long wire and a square loop wire in the same plane		
45	Energy stored and density in a magnetic field		
46	Tutorial		

UNIT-V Time varying fields

CO5: Students will gain knowledge on time varying fields and get ability to calculate induced EMF. Concepts of displacement current and poynting vector and associated problems are solved.

TB: Engineering Electro magnetics – by William H. Hayt & John. A. Buck Mc.Graw-Hill Companies, 7th Editon.2009

47	Faraday's laws of electromagnetic induction	From: 02.12.2022 To: 17.12.2022	Lecture interspersed with discussions
48	Integral and point forms		
49	Maxwell's fourth equation, Curl (E)=-∂B/∂t		
50	Statically and dynamically induced EMF		
51	Maxwell's equation for time varying fields		
52	Displacement current		
53	Poynting theorem and Poynting vector		
54	Tutorial		

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TENTATIVE LESSON PLAN: R1931021
POWER SYSTEMS–II

Course Title: POWER SYSTEMS–II		
Dept : EEE	Date : 01-10-2021	Page No : 1 of 4
Revision No : 00	Prepared By : N. E.K.Chandra	Approved By : HOD

Tools: Black board, PPT

S.NO.	TOPIC	Date	Mode of Delivery
UNIT-I:Transmission Line Parameters **CO1: The student should be able to understand parameters of various types of transmission lines during different operating conditions.** **TB1:. Electrical Power Systems by P.S.R. Murthy, B.S.Publications.**			
1	Definitions & Skin effect	**From: 16-08-22 To: 03-09-22**	Lecture interspersed with discussions
2	Internal flux linkage		
3	External flux linkage		
4	Flux linkages due to parallel conductors		
5	Inductance of single phase line		
6	Inductance of three phase line		
7	Symmetrical lines		
8	Unsymmetrical lines transpositions		
9	Concepts of GMD & GMR		
10	GMR and GMD for three phase lines		
11	GMR and GMD for single phase lines		
12	Problems		
13	Calculation of capacitance		
14	Calculation of capacitance		
15	Capacitance of three phase line		
16	Transposed line		
18	Method of images		
19	Calculation of capacitance		
20	Proximity		
UNIT-II:Performance Analysis of Transmission Lines **CO2: The student should be able to understand the performance of short and medium transmission lines.** **TB1: Electrical Power Systems by P.S.R. Murthy, B.S.Publications.**			
15	Introduction		
16	Definition, Short transmission lines		
17	ABCD Parameters		

18	Derivation of short transmission line	From: 01-08-22 To: 13-08-22	Lecture interspersed with discussions
19	Problems		
20	Problems		
21	Medium transmission line Nominal-T		
22	Medium transmission line Nominal- π		
23	Problems		
24	Problems		
25	Problems		
26	Problems		
27	Long transmission line Introduction		
28	Long transmission line Rigorous Solution		
29	Rigorous Solution, ABCD Parameters		
30	Evaluation Nominal-T		
31	Nominal- π Methods		
32	Problems		
33	Problems		
34	Problems		
35	Surge impedance		
36	Surge impedance		
UNIT-III: Power System Transients **CO4: The student should be able to understand various factors related to charged transmission lines.** **TB1: Electrical Power Systems by P.S.R. Murthy, B.S.Publications.**			
37	Transients, Types of Transients	From: 07-11-22 To: 26-11-22	Lecture interspersed with discussions
38	Travelling wave equations		
39	Reflection and Refraction Waves		
40	Coefficients of Reflection and Refraction Waves		
UNIT-IV:Corona **CO4: The student should be able to understand various factors related to charged transmission lines.** **TB1: Electrical Power Systems by P.S.R. Murthy, B.S.Publications.**			
41	Definitions of Corona		
42	Corona Phenomena		

43	Factors effecting corona	**From: 05-09-22 To: 24-09-22**	Lecture interspersed with discussions
44	Types of critical voltages		
45	Disruptive and visual critical voltages		
46	Problems		
47	Problems		
48	Problems		
UNIT-V:Sag and Tension Calculations and Overhead Line Insulators **CO5: The student should be able to understand sag/tension of transmission lines and performance of line insulators.** **TB1: Electrical Power Systems by P.S.R. Murthy, B.S.Publications.**			
49	Sag and Span Definitions	**From: 10-10-22 To: 22-10-22**	Lecture interspersed with discussions
50	Sag calculations		
51	Problems		
52	Problems		
53	Problems		
54	Insulators		
55	Types of Insulators		
56	Types of Insulators		
57	Voltage distribution across the string		
58	Non-uniform voltage distributions		
59	Methods of improving string efficiency		
60	Problems		
61	Problems		
62	Problems		

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TENTATIVE LESSON PLAN
POWER ELECTRONICS – R2031022

Course Title: POWER ELECTRONICS		
Branch : EEE	Date : 01.08.2022	
Revision No : 00	Prepared By : S.NAGESWARA RAO	Approved By : HOD

Tools: On Board, PPTs

S.NO.	TOPIC	Date	Mode of Delivery
UNIT –I INTRODUCTION **CO1::** TO STUDY THE CHARACTERISTICS OF VARIOUS POWER SEMICONDUCTOR DEVICES AND TO DESIGN FIRING CIRCUITS FOR SCR. **TB: M.H. Rashid " Power Electronics: Circuits, Devices and Applications ", Prentice Hall Publications**			
1	Introduction	**From: 01.08.2022 To: 22.08.2022**	Lecture interspersed with discussions
2	Importance of power electronics		
3	Thyristors–Silicon controlled rectifiers (SCR's)		
4	Characteristics of power MOSFET and		
5	Power IGBT		
6	Basic theory of operation of SCR		
7	Static characteristics		
8	Turn on and turn off methods		
9	Dynamic characteristics of SCR		
10	Thyristors–Silicon controlled rectifiers (SCR's)		
11	Snubber circuit design		
12	Basic requirements of gating circuits for SCR, IGBT and MOSFET		
UNIT –II SINGLE PHASE AC-DC CONVERTERS **CO2::** TO UNDERSTAND THE OPERATION OF SINGLE PHASE FULL–WAVE CONVERTERS AND ANALYZE HARMONICS IN THE INPUT CURRENT **TB: M.H. Rashid " Power Electronics: Circuits, Devices and Applications ", Prentice Hall Publications**			
13	Single Phase half wave controlled rectifiers	**From: 24.08.2022 To: 09.09.2022**	Lecture interspersed with discussions
14	R load and RL load with and without freewheeling diode		
15	Single Phase fully controlled bridge converter with R load		
16	Single Phase fully controlled bridge converter with RL load		
17	Single Phase fully controlled bridge converter with RLE load		
18	Continuous and Discontinuous conduction		
19	Effect of source inductance in 1-phase fully		

	controlled bridge rectifier with continuous conduction		
20	Expression for output voltages		
21	Single Phase semi Converter with R load		
22	Single Phase semi Converter with RL load		
23	Single Phase semi Converter with RLE load		
24	Continuous and Discontinuous conduction		
25	Harmonic Analysis		
26	Single Phase Dual Converters		
27	Numerical Problems		
UNIT-III THREE PHASE AC-DC CONVERTERS & AC – AC CONVERTERS **CO3:** TO STUDY THE OPERATION OF THREE PHASE FULL–WAVE CONVERTERS. **TB: M.H. Rashid " Power Electronics: Circuits, Devices and Applications ", Prentice Hall Publications**			
28	Three Phase half wave Rectifier with R and RL load	**From: 12.09.2022 To: 24.09.2022**	Lecture interspersed with discussions
29	Three Phase fully controlled rectifier with R load		
30	Three Phase fully controlled rectifier with RL load		
31	Three Phase semi converter with R load		
32	Three Phase semi converter with RL load		
35	Expression for Output Voltage		
36	Harmonic Analysis		
37	Three Phase Dual Converters		
38	Numerical Problems.		
39	AC-AC power control by phase control with R load		
40	AC-AC power control by phase control with RL load		
41	Three phase AC voltage regulator with R load		
42	Single phase step down Cycloconverter		
43	Numerical Problems		
44			
UNIT – IV DC–DC CONVERTERS **CO4:: TO UNDERSTAND THE OPERATION OF DIFFERENT TYPES OF DC-DC CONVERTERS.** **T TB: M.H. Rashid " Power Electronics: Circuits, Devices and Applications ", Prentice Hall Publications**			
45	Operation of Basic Chopper		
46	Classification		
47	Control Techniques		
48	Analysis of Buck Chopper		
49	Boost and Buck Chopper		

50	Boost converters in Continuous Conduction Mode	**From: 25.10.2022 To: 11.11.2022**	Lecture interspersed with discussions
51	Discontinuous Conduction Modes (DCM)		
52	Output voltage equations using volt-sec balance in CCM & DCM		
53	Expressions for output voltage ripple and inductor current ripple		
54	Numerical Problems		
UNIT –V DC–AC CONVERTERS **CO5::** TO UNDERSTAND THE OPERATION OF INVERTERS AND APPLICATION OF PWM TECHNIQUES FOR VOLTAGE CONTROL AND HARMONIC MITIGATION. **TB: M.H. Rashid " Power Electronics: Circuits, Devices and Applications ", Prentice Hall Publications**			
55	Introduction - Classification	**From: 14.11.2022 To: 26.11.2022**	Lecture interspersed with discussions
56	Single Phase half bridge inverters with R load		
57	Single Phase half bridge inverters with RL load		
58	Single Phase full bridge inverters with R load		
59	Single Phase full bridge inverters with RL load		
60	Unipolar & Bipolar Switching		
61	Quasi-square wave pulse width modulation		
62	Three Phase square wave inverters – 120^0 conduction mode of operation		
63	Three Phase square wave inverters – 180^0 conduction mode of operation		
64	PWM inverters - Sinusoidal Pulse Width Modulation		
65	Current Source Inverter (CSI)		
66	Numerical Problems.		

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TENTATIVE LESSON PLAN: R2031023
CONTROL SYSTEMS

Course Title: CONTROL SYSTEMS		
Section : A	Date : 17.07.2023	Page No : 1 to 3
Revision No : 00	Prepared By : Mr K.Narendra Babu	Approved By : HOD

Tools : Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I Mathematical modeling 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	Introduction, Classification of control systems	**From: 17.07.2023 To: 15.08.2023**	Lectures interspersed with discussions
2	Open loop and closed loop control systems and their differences		
3	Feedback characteristics, Transfer function of linear system		
5	Differential equations of electrical networks , Translational and rotational mechanical systems		
6	Transfer function of DC servo motor , AC servo motor		
7	Block diagram algebra, Representation by signal flow graph		
8	Reduction using Mason's gain formula		
9	Numerical Problems		
10	Tutorial		
UNIT-II Time Response Analysis & Stability and Root Locus Technique **CO2: Capability to determine time response specifications of second order systems and to Determine error constants & 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.**			
11	Introduction		
12	Standard test signals		
13	Time response of first and second order systems		
14	Time domain specifications		

15	Steady state errors and error constants	From: 16.08.2023 To: 08.09.2023	Lectures interspersed with discussions
16	Proportional		
17	Proportional Integrator		
18	The concept of stability		
19	Routh's stability criterion		
20	limitations of Routh's stability		
21	Root locus concept		
22	Construction of root loci (simple problems), Effect of addition of poles and zeros root locus		
23	Numerical Problems		
24	Tutorial		
UNIT-III Frequency response Analysis **CO3: Capable to analyze the stability of LTI systems using frequency response methods.** **TB:: A.Nagoor Kani " Control systems ", RBA Publications, 2nd edition.**			
25,26,27	Introduction to frequency domain specifications	From: 09.09.2023 To: 16.09.2023	Lectures interspersed with discussions
28,29,30,31	Bode diagrams		
32,33,34	Transfer function from the Bode diagram		
35,36,37	Phase margin and gain margin		
38	Stability analysis from Bode plots		
39	Stability analysis from Bode plots	From: 25.09.2023 To: 12.10.2023	Lectures interspersed with discussions
40,41,42	Polar plots		
43,44,45	Nyquist stability criterion		
46	Numerical Problems		
47	Tutorial		
UNIT-IV Classical control design Techniques **CO4: 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.**			
48,49,50	Introduction	From:	

51,52,53	Lag compensators	**13.10.2023 To: 21.10.2023 & From: 26.10.2023 To: 9.11.2023**	Lectures interspersed with discussions
54,55,56,	Lead compensators		
57,58,59	Lag-Lead compensators		
60,61,62	Design of Lag compensator using Bode plots		
63,64	Design of Lead compensator using Bode plots		
65,66	Design of Lag-Lead compensator using Bode plots		
67	Numerical Problems		
68	Tutorial		

UNIT-V State Space Analysis
CO5: 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.

69	Introduction	**From: 10.11.2023 To: 25.11.2023**	Lectures interspersed with discussions
70	Concepts of state		
71	State variables and state model		
72,73	State space representation of transfer function		
74	Diagonalization		
75	Solving the time invariant state equations		
76	State Transition Matrix and it's Properties		
77,78	Concepts of controllability and observability		
79	Numerical Problems		
80	Tutorial		

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TENTATIVE LESSON PLAN:R203102B

Course Title: UTILIZATION OF ELECTRICAL ENERGY(R203102B)		
Section : -	Date : 1.8.2022	Page No : 01 of 03
Revision No : 00	Prepared By: T. MAHA LAKSHMI	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I Illumination fundamentals & Various Illumination Methods **CO1 :Students are able to identify various illumination methods produced by different illuminating sources.** **TB:: Utilization of Electric Energy – by E. Openshaw Taylor - Orient Longman.**			
1	Introduction	From: 01.08.2022 To: 20.08.2022	Lecture interspersed with discussions
2	terms used in illumination		
3	Laws of illumination		
4	Polar curves		
5	Integrating sphere		
6	Lux meter		
7	Sources of light		
8	Discharge lamps		
9	MV and SV lamps		
10	Comparison between tungsten filament lamps and fluorescent Tubes		
11	Basic principles of light control		
12	Types of lighting		
13	Design of lighting		
14	Flood lighting		
15	LED lighting		
16	Energy conservation		
UNIT-II: Selection of Motors **CO2 :Students are able to identify a suitable motor for electric drives and industrial applications** **TB:: Utilization of Electric Energy – by E. Openshaw Taylor - Orient Longman.**			
17	Choice of Motor	From: 22.08.2022 To: 10.09.2022	Lecture interspersed with discussions
18	Type of Electric Drives		
19	Starting And Running Characteristics		
20	Speed Control		
21	Temperature Rise		
22	Applications of Electric Drives		

23	Types of Industrial Loads		
24	Continuous Loads		
25	Intermittent Loads		
26	Variable Loads		
27	Load Equalization		
28	Introduction To Energy Efficient Motors.		
UNIT-III: Electric Heating and Welding **CO3 : Students are able to identify most appropriate heating and welding techniques for suitable applications.** **TB::Utilization of Electric Energy – by E. Openshaw Taylor - Orient Longman.**			
29	Advantages of electric heating	From: 12.09.2022 To: 15.10.2022	Lecture interspersed with discussions
30	Methods of electric heating		
31	Resistance heating		
32	Induction heating		
33	Dielectric heating.		
34	Electric welding		
35	Resistance welding		
36	Arc welding		
37	Electric welding equipment		
38	Comparison between AC and DC Welding.		
UNIT-IV : Electric Traction **CO4 : Students are able to distinguish various traction system and determine the tractive effort and specific energy consumption.** **TB :: Utilization of Electric Energy – by E. Openshaw Taylor - Orient Longman.**			
No. of Periods	**TOPIC**	**DATE**	**Mode of Delivery**
39	System of electric traction	From: 17.10.2022 To: 05.11.2022	Lecture interspersed with discussions
40	Track electrification		
41	Review of existing electric traction systems in India–		
42	Special features of traction motor		
43	Mechanics of train movement		
44	Speed–time curves for different services		
45	Trapezoidal and quadrilateral speed time curves.		
46	Calculations of tractive effort– power		
47	Specific energy consumption for given run		

48	Effect of varying acceleration and braking retardation		
49	Adhesive weight		
50	braking retardation adhesive weight and coefficient of adhesion		
51	Numerical problems.		

UNIT-V Introduction to Energy Storage Systems
CO5 : Students are able to validate the necessity and usage of different energy storage schemes for different applications and comparisons.
TB :: Utilization of Electric Energy – by E. Openshaw Taylor - Orient Longman.

No. of Periods	TOPICS	DATE	Mode of Delivery
52	Need For Energy Storage	From: 07.11.2022 To: 26.11.2022	Lecture interspersed with discussions
53	Types of Energy Storage		
54	Thermal Storage Systems		
55	Electrical Storage Systems		
56	Magnetic Storage Systems		
57	Chemical Storage Systems		
58	Comparison of Energy Storage Technologies		
59	Applications.		

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TENTATIVE LESSON PLAN: R203105G
OBJECT ORIENTED PROGRAMMING THROUGH JAVA

Course Title: OBJECT ORIENTED PROGRAMMING THROUGH JAVA			
Section :	Date: 01-08-2022	Page No: 1 of 3	
Revision	Prepared by : Mr.K.SATYANARAYANA	Approved by :HOD	
Tools : Black board, PPTs			
No.of	Topics	Date	Mode of
UNIT-I Focus on Object Oriented Concepts and JAVA Programming Structure **CO1: Able to understand java programming constructs, Control structures.** **TB: Core JAVA by R.Nageswara Rao, Wiley, Dream Tech Publications.**			
1	Introduction about OOP	01.08.22 To 13.08.22	Lectures interspersed with discussions
2	Need of Object Oriented Programming		
3	Principle of Object Oriented Programing Languages		
4	Procedural language Vs OOP		
5	Applications of OOP, History of JAVA		
6	Java Virtual Machine (JVM)		
7	Java Features		
8	Tutorial		
9	Simple Programs		
10	Simple Programs		
11	Simple Programs		
12	Simple Programs		
13	Simple Programs		
14	Simple Programs		
15	Simple Programs		
16	Simple Programs		
17	Simple Programs		
UNIT-II Comprehension of JAVA Programming Concepts **CO2: Able to illustrate Object Oriented Concepts like classes, objects.** **TB: Core JAVA by R.Nageswara Rao, Wiley, Dream Tech Publications.**			
18	Control Structures in JAVA Programming	16.08.22 To 03.09.22	Lectures interspersed with discussions
19	Variables, Primitive Data types		
20	Identifiers, Naming Conventions, Keywords, Literals		
21	Operators in JAVA		
22	Expressions		
23	Precedence rules and Associativity		
24	Primitive Type Conversion and Casting		
25	Flow of Control Branching		
26	Conditional Loops		
27	Tutorial		
UNIT-III Classes and Objects & Inheritance, Interfaces and Exception handling **CO3: Able to apply Object Oriented Constructsn such as Inheritance, Interfaces and Exception handling** **TB: Core JAVA by R.Nageswara Rao, Wiley, Dream Tech Publications.**			
28	Introduction to classes and objects		
29	Creating Objects, Methods		

30	Constructors		
31	Constructor Overloading		
32	Cleaning up unused objects-Garbage collector		
33	Class variable and Methods		
34	'static' keyword, 'this' keyword		
35	Arrays		
36	Command line arguments	05.09.22	
37	Types of Inheritance	To	
38	Deriving classes using extends keyword	24.09.22	Lectures
39	Method overloading	&	interspersed
40	'super' keyword, 'final' keyword	10.10.22	with discussions
41	Abstract classes	To	
42	Interfaces	22.10.22	
43	Tutorial		
44	Simple Programs		
45	Simple Programs		
46	Simple Programs		
47	Simple Programs		
48	Simple Programs		
49	Simple Programs		
50	Simple Programs		
UNIT-IV Understanding Thread Concepts and I/O in JAVA MultiThreading **CO4: Able to construct applications using multithreading and I/O** **TB: Core JAVA by R.Nageswara Rao, Wiley, Dream Tech Publications.**			
51	Introduction		
52	java.lang.Thread		
53	The main Thread		
54	Creation of new Threads		
55	Thread priority		
56	Simple Programs		
57	Simple Programs	24.10.22	Lectures
58	Tutorial	To	interspersed
59	Multithreading Using isAlive() and join ()	05.11.22	with discussions
60	Thread Synchronization		
61	Suspending and Resuming threads		
62	Communication between Threads		
63	Simple Programs		
64	Simple Programs		
65	Tutorial		
UNIT-V Dynamic user interface using Applets and Event Handling in JAVA **CO5: Able to develop dynamic user interface using Applets and Event Handling in JAVA** **TB: Core JAVA by R.Nageswara Rao, Wiley, Dream Tech Publications.**			
66	Introduction		
67	javax.swing package		
68	JFrame		
69	JApplet		
70	JPanel		

71	Components in Swings	07.11.22 To 26.11.22	Lectures interspersed with discussions
72	Layout Managers		
73	JList and JScroll Pane		
74	Split Pane, JTabbed Pane		
75	Dialog Box		
76	Simple Programs		
77	Simple Programs		
78	Tutorial		
79	Tutorial		

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TENTATIVE LESSON PLAN: R1941021

Course Title: SWITCH GEAR&PROTECTION			
Section : EEE	Date :2-1-2023	Page No : 01 of 02	
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: Circuit Breakers **CO1: To provide basic principles and operation of different types of circuit breakers** **TB:Power System protection and switchgear by BadriRam& D.N Viswakarma**			
1	Miniature Circuit Breaker(MCB)	From: 04-07-22 To: 21-07-22	Lecture interspersed with discussions
2	Elementary principles of arc interruption		
3	Restriking voltage		
4	Recovery voltages		
5	Restrike Phenomenon		
6	Average and Max. RRRV		
7	Current chopping		
8	Resistance switching		
9	Introduction to oil circuit breakers		
10	Description and operation of Air Blast		
11	Vacuum circuit breakers		
12	SF6 circuit breakers		
13	CB ratings and specifications		
14	Concept of Auto reclosing		
15	Arc control oil CB		
16	Plain Explosion pot		
17	Forced blast CB		
18	Air blast CB		
19	SF6, Vacuum CB		
20	TUTORIAL		
UNIT – II:Electromagnetic Protection **CO2: To know the classification,operation and application of different types of electromagnetic protective relays** **TB:Power System protection and switchgear by BadriRam&D.N Viswakarma**			
21	Electromagnetic Relays	From: 21-07-22 To:04-08-22	Lecture interspersed with discussions
22	attracted armature Relay		
23	Shaded pole Relay		
24	Balanced beam Relay		
25	Wattmeter, Induction cup type Relay		
26	Torque equation		
27	Torque equation		
28	Directional relays		

29	Directional Over current Relays		
30	Differential Relays		
31	Differential Relays		
32	Biased beam type Relays		
33	Voltage balance differential Relays		
34	Translay		
35	Impedance relay		
36	Operational characteristics of reactance relay		
37	Operational characteristics of mho Relay		
38	Offset mho Relay		
UNIT – III: Generator & Transformer Protection **CO3: To explain protective schemes of Generator & Transformer** **TB:Power systems by V.K.MEHTA**			
39	Protection of generators against stator faults	From:05-08-22 To: 19-08-22	Lecture interspersed with discussions
40	Rotor faults		
41	Protection of transformers		
42	Design of CT's ratio		
43	Buchholz relay protection		
UNIT – IV:Feeder and Bus bar Protection & Static Relays **CO4: To gain the knowledge of various schemes of feeders and busbar protection** **TB:Power systems by V.K.MEHTA**			
44	Protection of lines	From: 20-08-22 To: 15-09-22	Lecture interspersed with discussions
45	Over current Protection		
46	Three zone distance relay using impedance relays		
47	Protection of bus bars by using Differential protection.		
UNIT – V:Protection against over voltage and grounding **CO5:To understand the different types of over voltages in power systems and principles of different neutral grounding methods** **TB:Power systems by V.K.MEHTA**			
48	Static relay components	From: 16-09-22 To: 10-10-22	Lecture interspersed with discussions
49	Static over current relays		
50	Protection against lightning arresters Valve, zinc LA		
51	Insulation coordination, BIL, impulse ratio, standard impulse test wave		
52	Methods of neutral grounding- solid resistance, reactance		
53	Arcing grounds and grounding practices		

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TENTATIVE LESSON PLAN: R1941023

RENEWABLE ENERGY SYSTEMS

Course Title: RENEWABLE ENERGY SYSTEMS		
Section :	Date : 04.07.2022	Page No : 01 of 03
Revision No :	Prepared By : B.INDRAJA	Approved By : HOD

Tools : Black board, PPTs, Moodle

S.No	TOPIC	Date	Mode of Delivery
UNIT-I Fundamentals of Energy Systems **CO1 : Analyze solar radiation data, extraterrestrial radiation, radiation on earth's surface.** **TB: Jhon Twidell and Tony Weir " Renewable Energy Resources ", Third Edition 2015 , Routledge Publications.** **TB: G.D.Rai " Non-Conventional Energy Sources",2017 Sixth Edition, Khanna Publications**			
1	Introduction	**From: 04.07.22** **To: 21.07.22**	Lecture interspersed with discussions
2	Energy conservation principle		
3	Energy scenario(world and India)		
4	Various forms of Renewable Energy		
5	Solar radiation : Outside earth's atmosphere		
6	Earth surface		
7	Analysis of solar radiation data		
8	Geometry		
9	Radiation on tilted surfaces		
10	Numerical Problems		
11	Tutorial		
UNIT-II Solar Photovoltaic Systems **CO2 : Design solar photo voltaic systems and develop maximum power point techniques in solar PV systems.** **TB: Jhon Twidell and Tony Weir " Renewable Energy Resources ", Third Edition 2015 , Routledge Publications.** **TB: G.D.Rai " Non-Conventional Energy Sources",2017 Sixth Edition, Khanna Publications**			
12	Introduction	**From:22.07.22** **To: 08.08.22**	Lecture interspersed with discussions
13	Solar photovoltaic cell, module, array		
14	Construction		
15	Efficiency of solar cells		
16	Developing technologies		
17	Cell I-V characteristics		
18	Equivalent circuit of solar cell-Series resistance-Shunt resistance		
19	Applications and systems		
20	Balance of system components		
21	System design: storage sizing		
22	PV system sizing		
23	Maximum power point techniques		
24	Perturb and observe (P & O) technique		
25	Hill climbing technique		
26	Tutorial		

UNIT-III Wind Energy **CO3 : Explain wind energy conversion systems, wind generators, power generation and develop maximum power point techniques in wind energy systems.** **TB: Jhon Twidell and Tony Weir " Renewable Energy Resources ", Third Edition 2015 , Routledge Publications.** **TB: G.D.Rai " Non-Conventional Energy Sources",2017 Sixth Edition, Khanna Publications**			
27	Introduction	**From:10.08.22** **To: 27.08.22**	Lecture interspersed with discussions
28	Sources of wind energy		
29	Wind patterns		
30	Types of Turbines		
31	Horizontal axis machines		
32	Vertical axis machines		
33	Kinetic energy of wind		
34	Betz coefficient		
35	Tip-Speed ratio		
36	Efficiency		
37	Power output of wind turbine		
38	Tutorial		
39	Selection of generator (synchronous ,induction)	**From:05.09.22** **To: 20.09.22**	Lecture interspersed with discussions
40	Maximum power point tracking		
41	Wind farms		
42	Power point for utility grids		
43	Tutorial		
UNIT-IV Hydro and Tidal power systems **CO4 : Explain the basic principle and working of hydro ,tidal and wave energy systems.** **TB: Jhon Twidell and Tony Weir " Renewable Energy Resources ", Third Edition 2015 , Routledge Publications.** **TB: G.D.Rai " Non-Conventional Energy Sources",2017 Sixth Edition, Khanna Publications**			
44	Basic working principle	**From:21.09.22** **To: 11.10.22**	Lecture interspersed with discussions
45	Classification of hydro systems: Large, small, micro		
46	Measurement of head and flow		
47	Energy equation		
48	Types of turbines		
49	Numerical problems		
50	Tidal power : Introduction		
51	Basics		
52	Kinetic energy equation		
53	Turbine for tidal power		
54	Numerical problems		
55	Wave power : Introduction		
56	Basics		
57	Kinetic energy equation		
58	Wave power devices		
59	Linear generators		
60	Tutorial		
UNIT-V Biomass, fuel cells and geothermal systems **CO5 : Explain about biomass, fuel cell and geothermal systems.** **TB: Jhon Twidell and Tony Weir " Renewable Energy Resources ", Third Edition 2015 , Routledge Publications.** **TB: G.D.Rai " Non-Conventional Energy Sources",2017 Sixth Edition, Khanna Publications**			
61	Introduction to biomass energy		
62	Fuel classification		

63	Pyrolysis - Direct combustion of heat	From:12.10.22 To: 29.10.22	Lecture interspersed with discussions
64	Different digesters and sizing		
65	Fuel cell: Introduction		
66	Classification of fuel for fuel cells		
67	Fuel cell voltage		
68	Efficiency		
69	V-I characteristics		
70	Geothermal: Introduction		
71	Classification		
72	Dry rock and hot acquifer		
73	Energy analysis		
74	Geothermal based electric power generation		
75	Tutorial		

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

TENTATIVE LESSON PLAN

Course/Code: High Voltage Engineering / R204102I

Year / Semester: IV/I **Section:** I **A.Y:** 2022-23

S.No	TOPIC	Date	Mode of Delivery
UNIT-I Break down phenomenon in gaseous, liquid and solid insulation **CO1: Able to understand HV breakdown phenomena in gases, liquids and solids dielectrics.** **TB: High Voltage Engineering by M.S.Naidu and V. Kamaraju – TMH Publications, 3rd** Edition.			
1	Break down phenomenon in gaseous, liquid and solid insulation	**From: 04.07.22 To: 23.07.22**	Lecture interspersed with discussions
2	Different materials		
3	Gases as insulating media		
4	Collision process		
5	Ionization process		
6	Townsend's criteria of breakdown in gases		
7	Paschen's law		
8	Derivation for Paschen's law		
9	Time lag of breakdown		
10	Liquid as Insulator		
11	Pure and commercial liquids		
12	Breakdown in commercial liquid		
13	Breakdown in pure liquid		
14	Suspended particles Intrinsic breakdown		
15	Electromechanical breakdown		
16	Thermal breakdown		
17	Breakdown of solid dielectrics		
18	composite dielectrics used in practice		
19	composite dielectrics used in practice		
20	Tutorial		
UNIT-II Generation of High voltages and High current **CO2: Able to acquaint with the generating principle of operation and design of HVDC, AC and Impulse voltages and currents..** **TB: High Voltage Engineering by M.S.Naidu and V. Kamaraju – TMH Publications, 3rd** Edition.			
21	Generation of high DC		
22	Generation of high DC voltages by half and full wave rectifier		
23	Voltage doubler circuit		

24	Cascaded voltage doubler circuit	From: 25.07.22 To : 12.08.22	Lecture interspersed with discussions
25	Cockroft Walton voltage multiplier		
26	Cockroft Walton voltage multiplier		
27	Vande graff generator		
28	Vande graff generator		
29	Cascaded transformers		
30	Reasonant transformers		
31	Impulse generator marx circuit		
32	Impulse generator marx circuit		
33	Modified marx circuit		
34	Impulse current wave form		
35	Impulse current generator		
36	Impulse current generator		
37	problems		
UNIT-III Measurement of high voltages and High currents **CO3: Able to understand various techniques for AC, DC and Impulse measurement of high voltages and currents.** **TB: High Voltage Engineering by M.S.Naidu and V. Kamaraju – TMH Publications, 3rd** Edition.			
38	Measurement of high voltages and High currents	From: 08.08.22 To: 27.08.22	Lecture interspersed with discussions
39	Measurement of high voltages and High currents		
40	Resistance potential divider		
41	Resistance potential divider		
42	Generating voltmeter working principle		
43	Sphere gaps		
44	Measurement of high AC voltages		
45	Measurement of high AC voltages		
46	Measurement of impulse voltages		
47	Measurement of impulse currents		
48	Measurement of high DC voltages		
49	Simple Programs		
50	Simple Programs		
51	Tutorial		
UNIT-IV Non-destructive testing of material and electrical apparatus **CO4: Able to understand the insulating characteristics of dielectric materials.** **TB: High Voltage Engineering by M.S.Naidu and V. Kamaraju – TMH Publications, 3rd** Edition.			
52	Introduction	From: 29.08.22 To: 13.09.22	Lecture interspersed with
53	Measurement of DC resistivity		
54	Measurement of dielectric constant		
55	Schering bridge		
56	Partial discharge measurements		
57	Simple Programs		

58	Simple Programs	discussions
59	Tutorial	

UNIT-V High voltage testing of electrical apparatus
CO5: Able to understand the various testing techniques of HV equipments.
TB: High Voltage Engineering by M.S.Naidu and V. Kamaraju – TMH Publications, 3rd Edition.

60	Testing of insulators	**From: 26.09.22 To : 29.10.22**	Lecture interspersed with discussions
61	Testing of bushings		
62	Testing of isolators		
63	Testing of circuit breakers		
64	Testing of cables		
65	Testing of transformers		
66	Testing of transformers		
67	Testing of surge arresters		
68	Radio interference measurements		
69	Simple Programs		
70	Simple Programs		
71	Tutorial		
72	Tutorial		

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TENTATIVE LESSON PLAN: R1941024A

Course Title: UTILIZATION OF ELECTRICAL ENERGY(R1941024A)		
Section : -	Date : 1.8.2022	Page No : 01 of 03
Revision No : 00	Prepared By: T. MAHA LAKSHMI	Approved By : HoD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I Illumination fundamentals & Various Illumination Methods **CO1 :Students are able to identify various illumination methods produced by different illuminatin · sources.** **TB:: Utiliz. ion of Electric Energy – by E. Openshaw Taylor - Orient Longman.**			
1	Introduction	From: 04.07.2022 To: 23.07.2022	Lecture interspersed with discussions
2	terms used in illumination		
3	Laws of illumination		
4	Polar curves		
5	Integrating sphere		
6	Lux meter		
7	Sources of light		
8	Discharge lamps		
9	MV and SV lamps		
10	Comparison between tungsten filament lamps and fluorescent Tubes		
11	Basic principles of light control		
12	Types of lighting		
13	Design of lighting		
14	Flood lighting		
15	LED lighting		
16	Energy conservation		
UNIT-II: Electric Heating and Welding **CO2 : Students are able to identify most appropriate heating and welding techniques for suitable applications.** **TB::Utilization of Electric Energy – by E. Openshaw Taylor - Orient Longman.**			
17	Advantages of electric heating	From:	Lecture
18	Methods of electric heating		
19	Resistance heating		
20	Induction heating		
21	Dielectric heating.		

22	Electric welding	25.07.2022 To: 13.08.2022	interspersed with discussions
23	Resistance welding		
24	Arc welding		
25	Electric welding equipment		
26	Comparison between AC and DC Welding.		

UNIT-III: Selection of Motors
CO3 :Students are able to identify a suitable motor for electric drives and industrial applications
TB:: Utilization of Electric Energy – by E. Openshaw Taylor - Orient Longman.

27	Choice of Motor	From: 16.08.2022 To: 17.08.2022	Lecture interspersed with discussions
28	Type of Electric Drives		
29	Starting And Running Characteristics		
30	Speed Control		
31	Temperature Rise		
32	Applications of Electric Drives		
33	Types of Industrial Loads		
34	Continuous Loads		
35	Intermittent Loads		
36	Variable Loads		
37	Load Equalization		
38	Introduction To Energy Efficient Motors.		

UNIT-IV Electric Traction
CO4 : Students are able to distinguish various traction system and determine the tractive effort and specific energy consumption.
TB :: Utilization of Electric Energy – by E. Openshaw Taylor - Orient Longman.

No. of Periods	TOPIC	DATE	Mode of Delivery
39	System of electric traction	From: 19.09.2022 To: 08.10.2022	Lecture interspersed with discussions
40	Track electrification		
41	Review of existing electric traction systems in India–		
42	Special features of traction motor		
43	Mechanics of train movement		
44	Speed–time curves for different services		
45	Trapezoidal and quadrilateral speed time curves.		
46	Calculations of tractive effort– power		

47	Specific energy consumption for given run		
48	Effect of varying acceleration and braking retardation		
49	Adhesive weight		
50	braking retardation adhesive weight and coefficient of adhesion		
51	Numerical problems.		

UNIT-V Introduction to Energy Storage Systems

CO5 : Students are able to validate the necessity and usage of different energy storage schemes for different applications and comparisons.

TB :: Utilization of Electric Energy – by E. Openshaw Taylor - Orient Longman.

No. of Periods	TOPICS	DATE	Mode of Delivery
52	Need For Energy Storage	From: 10.10.2022 To: 29.10.2022	Lecture interspersed with discussions
53	Types of Energy Storage		
54	Thermal Storage Systems		
55	Electrical Storage Systems		
56	Magnetic Storage Systems		
57	Chemical Storage Systems		
58	Comparison of Energy Storage Technologies		
59	Applications.		

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TENTATIVE LESSON PLAN: R1921045

Course Title: OOPS THROUGH JAVA(R1921045)		
Section : -	Date: 11.7.2022	Page No : 01 of 03
Revision No : 00	Prepared By: T. NAGA ARAJU	Approved By: HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I Introduction to OOPSCO1: This course introduces computer programming using the JAVA programming language with OOPs. TB:The complete Reference java, 8th edition, Herbert Schildt, TML.			
1	Introduction	From: 11.07.2022 To: 1.08.2022	Lecture interspersed with discussions
2	procedural programming language and object-oriented language.		
3	principles of OOP		
4	applications of OOP		
5	history of java		
6	java features		
7	JVM		
8	program structure		
9	Variables.		
10	primitive data types		
11	identifiers		
12	Literals, expressions,		
13	precedence rules and associativity		
14	primitive type conversion and casting		
15	flow of control		
UNIT-II OBJECTS AND CLASSES CO2: ThisUnderstanding the OOPS concepts, classes and objects, threads, swings, and act. TB:The complete Reference java, 8th edition, Herbert Schildt, TML.			
17	Classes and objects		
18	class declaration		
19	creating objects		
20	methods		

21	constructors and constructor overloading,	From: 02.08.2022 To: 28.08.2022	Lecture interspersed with discussions
22	garbage collector,		
23	importance of static keyword and examples,		
24	arrays		
25	command line arguments		
26	nested classes		
27	this keyword		

UNIT-III: Inheritance

sis is placed on event-driven programming methods and interfaces.
TB: The complete Reference java, 8th edition, Herbert Schildt, TML.

29	Inheritance	From: 29.08.2022 To: 20.09.2022	Lecture interspersed with discussions
30	types of inheritance		
31	super keyword		
32	final keyword		
33	overriding and abstract class		
34	creating the packages		
35	using packages, importance of CLASSPATH		
36	Exception handling		
37	importance of try, catch, throw.		
38	user-defined exceptions, Assertions.		

UNIT-IV:Multithreading

CO4: Students are able to distinguish inheritance and threads.TB:The complete Reference java, 8th edition, Herbert Schildt, TML.

No. of Periods	TOPIC	DATE	Mode of Delivery
39	Introduction,	From: 20.09.2022 To: 5.10.2022	Lecture interspersed
40	thread life cycle		
41	creation of threads		
42	thread priorities		
43	thread synchronization		
44	communication between threads		

45	Reading data from files and writing data to files.		with discussions
46	random access file		

UNIT-V APPLETS AND AWT CLASSES

CO5: Students are able to validate the necessity of applets and AWT classes.

TB:The complete Reference java, 8th edition, Herbert Schildt, TML

No. of Periods	TOPICS	DATE	Mode of Delivery
52	Applet class	From: 05.10.2022 To: 29.10.2022	Lecture interspersed with discussions
53	Applet structure		
54	Applet life cycle		
55	sample Applet programs		
56	Event handling, event delegation model		
57	sources of event		
58	Event Listeners		
59	adapter classes inner classes.		

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