TENTATIVE LESSON PLAN: R1922021

Course Title: ELECTRICAL MEASUREMENTS AND INSTRUMENTATION (R1922021)		
Section :	**Date : 22.3.2021**	**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 Analog Ammeter and Voltmeters **CO1 :Students are able to choose right type of instrument for measurement of ac and dc Electrical quantities** **TB:: Electrical & Electronic Measurement & Instruments by A.K.Sawhney DhanpatRai & Co.Publications.**			
1	Classification	From: 22.3.2021 To: 6.4.2021	Online classes with MS Team
2	deflecting, control and damping torques		
3	PMMC instruments: Construction, Torque equation		
4	moving iron type instruments: Construction, Torque equation		
5	electrostatic instruments: Construction, Torque equation		
6	Range extension		
7	Effect of temperature		
8	Errors and compensations		
9	advantages and disadvantages.		
10	Current Transformer construction, theory, errors		
11	Potential Transformer-construction, theory, errors		
UNIT-II:Analog Wattmeters and Power Factor Meters **CO2 :Students are able to choose right type of instrument for measurement of power and power factor.** **TB:: Electrical & Electronic Measurement & Instruments by A.K.Sawhney DhanpatRai & Co.Publications.**			
12	Electrodynamometer type wattmeter (LPF and UPF)	From: 7.4.2021 To:20.4.2021	Online classes with MS Teams
13	Power factor meters: Dynamometer construction		
14	Power factor meters: Dynamometer theory,		
15	Power factor meters: Dynamometer torque equation		
16	Power factor meters: advantages and disadvantages		

17	M.I type (Single phase and Three phase): construction, theory, torque equation, advantages and disadvantages		
18	M.I type (Single phase and Three phase): theory		
19	M.I type (Single phase and Three phase): torque equation		
20	M.I type (Single phase and Three phase): advantages and disadvantages		
21	Electrodynamometer type wattmeter (LPF and UPF)		
UNIT-III Measurements of Electrical parameters CO3 : Students are able to select right type for measurement of R, L,C. TB:: Electrical & Electronic Measurement & Instruments by A.K.Sawhney DhanpatRai & Co.Publications.			
22	DC Bridges: Method of measuring low	From: 21.4.2021 To:8.5.2021	Online classes with MS Teams
23	Method of medium resistance		
24	Method of high resistance		
25	sensitivity of Wheat stone's bridge		
26	Kelvin's double bridge for measuring low resistance		
27	Loss of charge method for measurement of high resistance		
28	Megger		
29	measurement of earth resistance		
30	AC Bridges: Measurement of inductance		
31	quality factor		
32	Maxwell's bridge		
33	Hay's bridge,		
34	Anderson's bridge		
35	measurement of capacitance		
36	loss angle		
37	Desauty's bridge		
38	Schering Bridge		
39	Wagner's earthing device		
40	Wien's bridge		

UNIT-IV Transducers
CO4 : Students are able to understand the effectiveness of Transducer
TB :: Electrical & Electronic Measurement & Instruments by A.K.Sawhney DhanpatRai & Co.Publications.

No. of Periods	TOPIC	DATE	Mode of Delivery
41	Definition	From: 14.5.2021 To: 8.6.2021	Online classes with MS Teams
42	Classification		
43	Resistive Transducer		
44	Inductive Transducer		
45	Capacitive Transducer		
46	LVDT		
47	Strain Gauge		
48	Thermistors		
49	Thermocouples		
50	Piezoelectric Transducers		
51	Photo Diode Transducers		
52	Digital shaft encoders		
53	Hall effect sensors		

UNIT-V Digital meters
CO5 : Students are able to able to understand Digital Meters.
TB :: Electrical & Electronic Measurement & Instruments by A.K.Sawhney DhanpatRai & Co.Publications.

No. of Periods	Tutorial	DATE	Mode of Delivery
54	Digital voltmeter	From: 9.6.2021 To: 30.6.2021	Online classes with MS Teams
55	Successive approximation DVM		
56	Ramp type DVM		
57	Integrating type DVM		
58	Digital frequency meter		
59	Digital multimeter		
60	Digital tachometer		
61	Digital Energy Meter		
62	LCR Q meter		
63	Power Analyzer		

64	Measurement of phase difference		
65	Measurement of Frequency		
66	hysteresis loop		
67	using lissajous patterns in CRO		

Signature of the Faculty

S. Sri Gowri
Signature of the HOD

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

UNIT-III : Single phase motors **CO3 : Able to 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**			
27	**Single phase motors**	From: 03-05-21 To: 08-05-21	Online Classes with MS Teams
28	Single phase induction motors		
29	Constructional features		
30	Equivalent circuit		
31	Problem of starting		
32	Double revolving field theory		
33	Starting methods		
34	Split phase induction motor		
UNIT-IV Construction, operation and Voltage regulation of synchronous generator **CO4 : 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**			
35	Constructional features of non–salient pole type Synchronous generator	From: 13-05-21 To: 12-06-21	Online Classes with MS Teams
36	Constructional features of salient pole type Synchronous generator		
37	Armature windings –Distributed and concentrated windings		
38	Distribution– Pitch and winding factors		
39	E.M.F equation		
40	Problems on EMF Equation		
41	Problems on EMF Equation		
42	Improvements of waveform and armature reaction		
43	Armature Reaction		
44	Voltage regulation by EMF method		
45	Problems		
46	Voltage regulation by MMF method		
47	Potier triangle method–		
48	Phasor diagrams		
49	Two reaction analysis of salient pole machines and phasor diagram		
50	Phasor Diagram		
51	Parallel operation with infinite bus and other alternators		
52	Synchronizing power		
53	Load sharing		
54	Control of real and reactive power		
UNIT-V : 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**			
55	Synchronous Motor principle and theory of operation	From: 14-06-21	Online Classes
56	Phasor diagram		
57	Starting Torque		

58	Variation of current and power factor with excitation	To: 30-06-21	Online Classes with MS Teams
59	Synchronous condenser		
60	Mathematical analysis for power developed		
61	Hunting and its suppression		
62	Methods of starting- applications		

S. Nag
Signature of the Faculty

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

S. Sri Gowri
Signature of the HOD

TENTATIVE LESSON PLAN:R1922023
DIGITAL ELECTRONICS

Course Title: DIGITAL ELECTRONICS		
Section: A	**Date:** 20/3/2021	**Page No:** 1 to 3
Revision No: 00	**Prepared By:** CH J GAYATHRI	**Approved By:** HOD

Tools: Black board, PPTs and Online

S. No.	Topic	Date	Mode of Delivery
UNIT-I REVIEW OF NUMBER SYSTEMS & CODES AND BOOLEAN THEOREMS AND LOGIC OPERATIONS:			
CO1: An ability to define different number systems, binary addition and subtraction, 2's complement representation and operations with this representation.			
TB1: Digital Design, 5/e, M. Morris Mano, Michael D Ciletti, PEA.			
1	Representation of numbers of different radix	**From: 22/03/21** **To: 07/04/21**	Online class with Ms Teams Lecture interspersed with discussions
2	Conversation from one radix to another radix		
3	r-1's and r's compliments of signed members		
4	Problems		
5	4-bit codes- BCD		
6	Excess-3, 2421, 84-2-1 9's compliment code etc		
7	Logic operations error detection & correction codes		
8	NOT, OR, AND, Universal building blocks		
9	EX-OR, EX-NOR - Gates		
10	Standard SOP and POS Forms		
11	Gray code		
12	Error detection codes		
13	Error correction codes		
14	Parity checking, Even parity, Odd parity, Hamming code		
15	NAND-NAND and NOR-NOR realizations		
UNIT-II MINIMIZATION TECHNIQUES			
CO2: An ability to understand the different switching algebra theorems and apply them for logic functions.			
TB1: Digital Design, 5/e, M. Morris Mano, Michael D Ciletti, PEA.			
16	Boolean Theorems		

17	Principle of complementation & duality	From: 08/04/21 To: 24/04/21	Online class with Ms Teams Lecture interspersed with discussions
18	De-Morgan's theorems.		
19,20	Minimization of logic functions using Boolean theorems variables		
21,22	Minimization of switching functions using K-Map up to 6		
23,24	Tabular minimization		
25,26	Problem solving (code-converters using K-Map etc...).		
27	Tutorial		
UNIT-III COMBINATIONAL LOGIC CIRCUITS DESIGN AND INTRODUCTION OF PLD's: **CO3:** An ability to define the Karnaugh map for a few variables and perform an algorithmic reduction of logic functions. **TB2: Digital Logic and Computer Design, M. Morris Mano, PEA.**			
28,29	Design of Half adder, full adder, half subtractor, full subtractor	From: 26/04/21 To: 22/05/21	Online class with Ms Teams Lecture interspersed with discussions
30	Applications of full adders, 4-bit binary subtractor		
31,32	BCD adder circuit, Excess 3 adder circuit		
33	Adder-subtractor circuit		
34	Carry look-ahead adder circuit		
35,36, 37	Design of decoder, demultiplexer, 7 segment decoder		
38	Higher order demultiplexing		
39,40	Encoder, multiplexer, higher order multiplexing		
41,42, 43	Realization of Boolean functions using decoders and multiplexers		
44,45	Priority encoder, 4-bit digital comparator.		
46,47	Design of Half adder, full adder, half subtractor, full subtractor		
48	problems		
UNIT-IV SEQUENTIAL CIRCUITS I: **CO4:** Able to design various logic gates starting from simple ordinary gates to complex programmable logic devices & arrays. **TB2: Digital Logic and Computer Design, M. Morris Mano, PEA.**			
49,50	Classification of sequential circuits (synchronous and asynchronous)		
51,52	Operation of NAND & NOR Latches and flip-flops		

53,54, 55,56	Truth tables and Excitation tables of RS flip-flop, JK flip-flop	**From: 24/05/21** **To: 12/06/21**	Online class with Ms Teams Lecture interspersed with discussions
57	Design of ripple Counters		
58,59	Design of Synchronous Counters		
60	Johnson Counter, Ring Counter		
61,62	Design of Registers :Buffer Register, Control Buffer Register		
63,64	Shift Register, Bi-Directional Shift Register		
65	Universal Shift Register.		
66	problems		
UNIT-V SEQUENTIAL CIRCUITS II: **CO5:** Able to design various sequential circuits starting from flip-flop to registers and counters. **TB2: Digital Logic and Computer Design, M. Morris Mano, PEA.**			
67,68	Finite state machine; Analysis of clocked sequential circuits	**From: 14/06/21** **To: 30/06/21**	Online class with Ms Teams Lecture interspersed with discussions
69,70	state diagrams		
71	State tables		
72	Reduction of state tables		
73	State assignment		
74	Design procedures		
75,76, 77	Realization of circuits using various flip-flops..		
78,79	Mealy to Moore conversion and vice-versa		
80,81	Problems		

TB1: Digital Design, 5/e, M. Morris Mano, Michael D Ciletti, PEA.
TB2: Digital Logic and Computer Design, M. Morris Mano, PEA.

Signature of the Faculty

S. Sri Gowri
Signature of HOD

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

LTI systems using Routh's stability criterion and the root locus method. **TB:: A.Nagoor Kani " Control systems ", RBA Publications, 2nd edition.**			
14	Introduction	**From: 08.04.2021 To: 24.04.2021**	Online Classes with MS Teams
15	Standard test signals		
16	Time response of first and second order systems		
17	Time domain specifications		
18	Steady state errors and error constants		
19	Proportional		
20	Proportional Integrator		
21	The concept of stability		
22	Routh's stability criterion		
23	limitations of Routh's stability		
24	Root locus concept		
25	Construction of root loci (simple problems), Effect of addition of poles and zeros root locus		
26	Numerical Problems,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.**			
27,28	Introduction to frequency domain specifications	**From: 26.04.2021 To: 08.05.2021**	Online Classes with MS Teams
29,30,31	Bode diagrams		
32,33,34	Transfer function from the Bode diagram		
35,36,37	Phase margin and gain margin		
38,39	Stability analysis from Bode plots	**From: 13.05.2021 To:**	Online Classes with MS Teams
40,41,42	Polar plots		

43,44	Nyquist stability criterion	**22.05.2021**	
45	Numerical Problems		
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.**			
46,47,48	Introduction	**From: 24.05.2021 To: 12.06.2021**	Online Classes with MS Teams
49,50,51	Lag compensators		
52,53,54	Lead compensators		
55,56,57	Lag-Lead compensators		
58,59,60	Design of compensators using Bode plots		
61,62,63	Numerical Problem		
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.**			
64	Introduction	**From: 14.06.2021 To: 30.06.2021**	Online Classes with MS Teams
65	Concepts of state		
66,67	State variables and state model		
68,69	State space representation of transfer function		
70,71	Diagonalization		
72,73	Solving the time invariant state equations		
74,75	State Transition Matrix and it's Properties		
76,77	Concepts of controllability and observability		
78	Numerical Problems		

Signature of Faculty

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

Signature of HOD

TENTATIVE LESSON PLAN: R1922025

Course Title: POWER SYSTEM-I (R1922025)		
Section :	Date : 22.3.2021	Page No : 01 of 03
Revision No : 00	Prepared By: N.E.K.CHANDRA	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-I Thermal Power Stations **CO1 :Students are able to identify the different components of thermal power plants.** **TB:: A Text Book on Power System Engineering by M.L.Soni, P.V.Gupta, U.S.Bhatnagar and A. Chakrabarti, Dhanpat Rai & Co. Pvt. Ltd.**			
1	Introduction to Thermal power station	From: 22.3.2021 To: 6.4.2021	Online classes with MS Team
2	Selection of site		
3	layout of a thermal power plant		
4	Advantages & Disadvantages, Boilers, Super heaters		
5	Economizers, steam Turbines		
6	Condensers, Electrostatic precipitators, Water treatment		
7	Cooling towers , feed water circuit and Chimney		
8	Tutorial		
UNIT-II: Nuclear power plant **CO2 :Students are able to identify the different components of nuclear Power plants.** **TB:: A Text Book on Power System Engineering by M.L.Soni, P.V.Gupta, U.S.Bhatnagar and A. Chakrabarti, Dhanpat Rai & Co. Pvt. Ltd.**			
9	Introduction to nuclear power plant	From: 7.4.2021 To:20.4.2021	Online classes with MS Teams
10	Location of nuclear power plant		
11	Working principle		
12	Nuclear fission		
13	Nuclear fuels		
14	Nuclear chain reaction		
15	Nuclear reactor Components		
16	PWR		
17	BWR		
18	FBR		
19	Radiation hazards and Shielding		

20	Nuclear waste disposal		
21	Tutorial		

UNIT-III Substations

CO3 : Students are able to identify the different components of air and gas insulated substations.

TB:: A Text Book on Power System Engineering by M.L.Soni, P.V.Gupta, U.S.Bhatnagar and A. Chakrabarti, Dhanpat Rai & Co. Pvt. Ltd.

22	Classification of substations	From: 21.4.2021 To:8.5.2021	Online classes with MS Teams
23	Substations layouts of 33/11 Kv		
24	Bus bar arrangements in the Sub-Stations		
25	Gas Insulated Substations		
26	Different types of gas insulated substation		
27	Advantages of Gas insulated substations		
28	Single line diagram of gas insulated substations		
29	Constructional, Installation and maintenance of GIS		
30	Comparison of Air insulated substations and Gas insulated substations.		
31	Tutorial		

UNIT-IV Cables

CO4 : Students are able to identify single core and three core cables with different insulating materials.

TB :: A Text Book on Power System Engineering by M.L.Soni, P.V.Gupta, U.S.Bhatnagar and A. Chakrabarti, Dhanpat Rai & Co. Pvt. Ltd.

No. of Periods	TOPIC	DATE	Mode of Delivery
32	Types of Cables	From: 14.5.2021 To: 8.6.2021	Online classes with MS Teams
33	Construction		
34	Types of Insulating materials		
35	Calculation of Insulation resistance		
36	Stress in Insulation and Power factor of cable		
37	Capacitance of single and 3-Core belted Cables		
38	Capacitance grading and Intersheath grading		
39	Tutorial		

UNIT-V Economic Aspects of Power Generation & Tariff Economic Aspects
CO5 : Students are able to able to analyse the different economic factors of power generation and tariffs
TB :: A Text Book on Power System Engineering by M.L.Soni, P.V.Gupta, U.S.Bhatnagar and A. Chakrabarti, Dhanpat Rai & Co. Pvt. Ltd.

No. of Periods	Tutorial	DATE	Mode of Delivery
40	Load curve, load duration	From: 9.6.2021 To: 30.6.2021	Online classes with MS Teams
41	Integrated load duration curves		
42	connected load, maximum demand, demand, load factors		
43	Diversity,power capacity and plant use factors		
44	Base and peak load plants		
45	Costs of Generation and their division into Fixed, Semifixed and Running Costs		
46	Characteristics of a Tariff Method		
47	Tariff Methods		
48	Numerical Problems		
49	Tutorial		

N. E. K. Chary
Signature of the Faculty

S. Sri Gouri
Signature of the HOD

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

TENTATIVE LESSON PLAN: R1922026
SIGNALS AND SYSTEMS

Course Title: SIGNALS AND SYSTEMS		
Section : Sec I	Date: 23-07-2021	Page No : 1 of 3
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 INTRODUCTION **CO1:** Able to learn about classifications of signals and systems and how to perform basic operations on signals and systems. **TB1:Signals and Systems by A.Anand Kumar,PHI**			
1	Introduction, Definition of Signals and Systems	12-04-2021	Lecture interspersed with discussions
2	Classification of Signals	15-04-2021	
3	Basic Elementary Signals	15-04-2021	
4	Operations on signals: time-shifting, time-scaling, amplitude-shifting, amplitude-scaling	15-04-2021	
5	Problems on time scaling, amplitude scaling	16-04-2021	
6	Analogy between vectors and signals	17-04-2021	
7	Orthogonal signal space, approximation	19-04-2021	
8	MSE, Complete set of orthogonal functions	22-04-2021	
9	Orthogonality in complex functions	23-04-2021	
10	Related problems	24-04-2021	
UNIT-II FOURIER SERIES AND FOURIER TRANSFORM **CO2:** Able to perform transformations on signals. **TB1: Signals and Systems by A. Anand Kumar, PHI**			
11	Fourier series representation	26-04-2021	Lecture interspersed with discussions
12	properties of Fourier series	29-04-2021	
13	Dirichlet's conditions, problems	30-04-2021	
14	Exponential Fourier series	01-05-2021	
15	Relation between FFS and EFS	04-05-2021	

16	Complex Fourier spectrum	05-05-2021	
17	Related problems	06-05-2021	
18	Fourier transform from Fourier series	07-05-2021	
19	Fourier transform of standard signals	08-05-2021	
20	properties of Fourier transforms	11-05-2021	
21	Inverse F.T and related problems	12-05-2021	
22	F.T for periodic signals	13-05-2021	
23	F.T involving impulse and signum function	15-05-2021	
24	Introduction to Hilbert transform	18-05-2021	
UNIT-III SAMPLING THEOREM **CO3:** Able to state sampling theorem and its applications. **TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.**			
25	Graphical and analytical proof for Band Limited Signals	19-05-2021	ONLINE
26	impulse sampling	21-05-2021	
27	Natural and Flat top Sampling	22-05-2021	
28	Reconstruction of signal from its samples	25-05-2021	
29	effect of under sampling –Aliasing	26-05-2021	
30	Introduction to Band Pass sampling	27-05-2021	
31	Tutorial	28-05-2021	
32	Problems	29-05-2021	
UNIT-IV ANALYSIS OF LINEAR SYSTEMS **CO4:** Able to analyze the signal transmission through linear systems and how to apply correlation and convolution techniques for different signals. **TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.**			
33	Introduction to Linear system	04-06-2021	
34	LIT and LTV systems	05-06-2021	

35	Concept of conv in time, frequency domain	08-06-2021	ONLINE
36	Transfer function of LTI system	09-06-2021	
37	Filter characteristics of linear system	10-06-2021	
38	Distortion less transmission through LTI system	11-06-2021	
39	Ideal LPF, HPF, BPF characteristics	12-06-2021	
40	Relation between B.W and Rise time	15-06-2021	
41	Auto and Cross Correlation function	16-06-2021	
42	Properties of Correlation function	17-06-2021	
43	Energy density spectrum, Parseval's theorem	30-06-2021	
44	Power density spectrum, relation between auto and cross	18-06-2021	
45	Detection of periodic signals in noise	19-06-2021	
46	Extraction of signals from noise by filtering	22-06-2021	
UNIT-V LAPLACE TRANSFORMS AND Z - TRANSFORMS **CO5:** Able to Perform transformations on signals **TB1: Signals and Systems by Narayan Iyer and K Satya Prasad Cengage Pub.**			
47	Introduction to LT	24-06-2021	ONLINE
48	Region of convergence	25-06-2021	
49	ROC for various class of signals	26-06-2021	
50	ROC for various class of signals	29-06-2021	
51	Properties of Laplace Transform	30-06-2021	
52	Properties of Laplace Transform	01-07-2021	
53	Inverse Laplace Transform	02-07-2021	
54	Inverse Laplace Transform	03-07-2021	
55	Problems on ILT	05-07-2021	
56	Relation between L.T and F.T	06-07-2021	
57	L.T using wave form synthesis	07-07-2021	

58	Concept of Z- Transform	08-07-2021	
59	Region of convergence	10-07-2021	
60	Constrains on ROC for various signals	12-07-2021	
61	Inverse Z-transform	13-07-2021	
62	Inverse Z-transform	14-07-2021	
63	properties of Z-transforms	15-07-2021	
64	Distribution between L.T, Z.T AND F.T, problems	16 -07-2021	

TB1: Signal and Systems by A. Anand Kumar, PHI
TB2: Signals and Systems - A.V. Oppenheim, A.S. Willsky and S. H. Nawab, PHI, 2nd Edn
TB3: Signals, Systems & Communications - B.P. Lathi, BS Publications, 2003.

Signature of Faculty

Signature of HOD

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

TENTATIVE LESSON PLAN: R1632021
POWER ELECTRONIC CONTROLLERS & DRIVES

Course Title: POWER ELECTRONIC CONTROLLERS & DRIVES (R1632021)			
Section :	**Date: 22-03-2021**	**Page No: 1 of 3**	
Revision No:	**Prepared by : Mr. S.NAGESWARA RAO**	**Approved by :HOD**	
Tools : MS Teams, PPTs			
No.of periods	**Topics**	**Date**	**Mode of Delivery**
UNIT-I: Fundamntals of Electric drives **CO1 : Able to explain the fundamentals of electric drive and different electric braking methods** **TB:: Fundamentals of Electric Drives – by G K Dubey Narosa Publications** **TB:: Power Semiconductor Drives, by S.B. Dewan, G.R.Slemon, A.Straughen, Wiley-India**			
1	**Fundamentals of Electric Drive**	From: 22-03-21 To: 10-04-21	Online Classes with MS Teams
2	Electric Drive		
3	Fundamental Torque equation		
4	Load Torque components		
5	Nature and Classification load torques		
6	Steady state stability		
7	Load Equalization		
8	Four quadrant operation of drive (hoist control)		
9	Braking methods - Dynamic Braking		
10	Plugging- Regenerative Braking		
UNIT-II: Controlled Converter Fed DC motor Drives **CO2 : Able to analyze the operation of three phase converter controlled dc motors and four quadrant operation of dc motors using dual converters.** **TB:: Fundamentals of Electric Drives – by G K Dubey Narosa Publications** **TB:: Power Electronic Circuits, Devices and applications by M.H. Rashid, PHI**			
11	**Controlled converter Fed DC motor drives**	From: 12-04-21 To: 24-04-21	Online Classes with MS Teams
12	Single phase half controlled fed Separately excited motor		
13	Single phase full controlled fed Separately excited motor		
14	Series excited motor controlled by half converter		
15	Series excited motor controlled by full converter		
16	output voltage and current waveforms		
17	Speed torque expressions		
18	Speed torque characteristics		
19	Numerical problems		
20	Four quadrant operation using dual converters		
21	Numerical problems		

UNIT-III: DC–DC converters Fed DC motor Drives **CO3 : Able to learn the converter control of dc motors in various quadrants of operation.** **TB:: Fundamentals of Electric Drives – by G K Dubey Narosa Publications** **TB:: Power Electronic Circuits, Devices and applications by M.H. Rashid, PHI**			
22	**DC–DC converters Fed DC motor Drive**	From:26-04-21 To: 08-05-21	Online Classes with MS Teams
23	Single quadrant chopper fed separately excited		
24	Two quadrant chopper fed separately excited motor		
25	Continuous current operation		
26	Output voltage and current waveforms		
27	Speed–torque expressions		
28	Speed–torque characteristics		
29	Four quadrant operations		
30	Closed loop operation (Block diagram only)		
UNIT-IV: Stator side control of 3- phase Induction motor Drive **CO4 : Able to explain the concept of speed control of induction motor by using AC voltage controllers and voltage source inverters.** **TB :: Fundamentals of Electric Drives – by G K Dubey Narosa Publications** **TB:: Power Semiconductor Drives by S.Sivanagaraju, PHI**			
31	**Stator side control of Induction motor Drive**	From:17-05-21 To: 29-05-21	Online Classes with MS Teams
32	Variable voltage characteristics		
33	Control of Induction Motor by AC Voltage Controllers		
34	Waveforms –Speed torque characteristics		
35	Variable Voltage control of induction motor by voltage source inverter		
36	Variable Frequency control of induction motor by voltage source inverter		
37	PWM control		
38	Closed loop operation of induction motor drives (Block Diagram Only).		
39	Tutorial		
40	Tutorial		
41	Tutorial		
UNIT-V:Rotor side control of 3- phase Induction motor Drive **CO5 : Able to differentiate the stator side control and rotor side control of three phase induction motor.** **TB:: Fundamentals of Electric Drives – by G K Dubey Narosa Publications** **TB:: Power Semiconductor Drives by S.Sivanagaraju, PHI**			
42	**Rotor side control of Induction motor Drive**	From:31-05-21 To: 16-06-21	Online Classes with MS Teams
43	Static rotor resistance control		
44	Slip power recovery schemes		
45	Static Scherbius drive		
46	Static Kramer drive		
47	Problems		
48	Problems		

49	Performance and speed torque characteristics		
50	Advantages		
51	Applications		
UNIT-VI: Control of Synchronous Motors **CO6 : Able to explain the speed control mechanism of synchronous motors** **TB:: Fundamentals of Electric Drives – by G K Dubey Narosa Publications** **TB:: Power Semiconductor Drives by S.Sivanagaraju, PHI**			
52	**Control of Synchronous Motors**	From:17-06-21 To: 30-06-21	Online Classes with MS Teams
53	Separate control &self control of synchronous motors		
54	Operation of self controlled synchronous motors by VSI		
55	Closed Loop control operation of synchronous motor drives (Block Diagram Only)		
56	Variable frequency control		
57	Pulse width modulation.		
58	Tutorial		
59	Problems		
60	Problems		

S. Naga

Signature of the Faculty

S. Sri Gowri

Signature of the HOD

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

TENTATIVE LESSON PLAN: R1632022

Course Title: POWER SYSTEM ANALYSIS (R1632022)		
Section :	**Date : 22.3.2021**	**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 : **Per Unit Representation & Topology** **CO1 :Students are able to draw an impedance diagram for a power system network and to understand per unit quantities.** **TB::''Electrical Power System Analysis" by Dr. S. Siva Naga Raju, B. V Rami Reddy**			
1	Per Unit Quantities	From: 22.3.2021 To: 06.4.2021	Online classes with MS Teams
2	Single line diagram		
3	Impedance diagram of a power system		
4	Graph theory definition		
5	Formation of element node incidence matrix		
6	Formation of bus incidence matrix		
7	Primitive network representation		
8	Formation of Y–bus matrix by singular transformation method		
9	Formation of Y–bus matrix by direct inspection method		
UNIT-II Power Flow Studies **CO2 :Students are able e to form a Ybus and Zbus for a power system networks** **TB:: ''Electrical Power System Analysis" by Dr. S. Siva Naga Raju, B. V Rami Reddy**			
10	Necessity of power flow studies	From: 7.4.2021 To: 22.4.2021	Online classes with MS Teams
11	Derivation of static power flow equations		
12	Power flow solution using Gauss-Seidel Method		
13	Newton Raphson Method (Rectangular and polar coordinates form)		
14	Decoupled and Fast Decoupled methods		
15	Algorithmic approach		
16	Problems on 3–bus system only.		
UNIT-III Z–Bus formulation **CO3 :Students are able to understand the load flow solution of a power system using different methods.** **TB:: ''Electrical Power System Analysis" by Dr. S. Siva Naga Raju, B. V Rami Reddy**			

17	Partial network	From: 23.4.2021 To: 8.5.2021	Online classes with MS Teams
18	Algorithm for the Modification of Zbus Matrix for addition element for Addition of element from a new bus to reference (Derivations and Numerical Problems)		
19	Algorithm for the Modification of Zbus Matrix for addition element for Addition of element from a new bus to an old bus (Derivations and Numerical Problems)		
20	Algorithm for the Modification of Zbus Matrix for addition element for Addition of element between an old bus to reference (Derivations and Numerical Problems)		
21	Algorithm for the Modification of Zbus Matrix for addition element for Addition of element between two old busses (Derivations and Numerical Problems)		
22	Modification of Z–Bus for the changes in network (Problems).		

UNIT-IV Symmetrical Fault Analysis

CO4 : Students are able to find the fault currents for all types faults to provide data for the design of protective devices

TB:: ''Electrical Power System Analysis" by Dr. S. Siva Naga Raju, B. V Rami Reddy

No. of Periods	TOPIC	DATE	Mode of Delivery
23	Transients on a Transmission line-Short circuit of synchronous machine(on no-load)	From: 13.5.2021 To: 29.5.2021	Online classes with MS Teams
24	3-Phase short circuit currents		
25	reactances of synchronous machine.		
26	Short circuit MVA calculations		
27	Series reactors		
28	selection of reactors		

UNIT-V Symmetrical Components & Fault analysis

CO5 : Students are able to find the sequence components of currents for unbalanced power system network.

TB :: ''Electrical Power System Analysis" by Dr. S. Siva Naga Raju, B. V Rami Reddy

No. of Periods	Tutorial	DATE	Mode of Delivery

29	Definition of symmetrical components symmetrical	From: 29.5.2021 To: 14.6.2021	Online classes with MS Teams
30	components of unbalanced three phase systems		
31	Power in symmetrical components Sequence impedances		
32	Synchronous generator		
33	Transmission line and transformers		
34	Sequence networks		
35	Various types of faults LG– LL– LLG and LLL on unloaded alternator		
36	unsymmetrical faults on power system.		
UNIT-VI Power System Stability Analysis **CO5 : Students are able to analyze the steady state, transient and dynamic stability concepts of a power system.** **TB :: ''Electrical Power System Analysis" by Dr. S. Siva Naga Raju, B. V Rami Reddy**			
37	Elementary concepts of Steady state	From: 15.6.2021 To: 30.6.2021	Online classes with MS Teams
38	Dynamic and Transient Stabilities		
39	Description of Steady State Stability Power Limit		
40	Transfer Reactance		
41	Synchronizing Power Coefficient		
42	Power Angle Curve		
43	Determination of Steady State Stability		
44	Derivation of Swing Equation		
45	Determination of Transient Stability by Equal Area Criterion		
46	Applications of Equal Area Criterion		
47	Methods to improve steady state and transient stability.		

Signature of the Faculty

Signature of the HOD

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

TENTATIVE LESSON PLAN: R1632023
MICROPROCESSORS AND MICROCONTROLLERS

Course Title: MICROPROCESSORS AND MICROCONTROLLERS		
Section : A	**Date : 20/03/2021**	**Page No :** 01 of 03
Revision No : 00	**Prepared By : CH J GAYATHRI**	**Approved By : HOD**

Tools : Black board, PPTs, MS Teams

No. of Periods	TOPIC	Date	Mode of Delivery
Unit –I Introduction to Microprocessor Architecture **CO1: Student can understand the basics of 8086 microprocessors.** **TB : A.K.Ray, K.M.Bhurchandi,"Advanced Microprocessors and Peripherals", Tata McGraw Hill Publications, 2000.**			
1	Introduction to Microprocessor Architecture	**From: 22/03/21 To: 06/04/21**	Online class with Ms Teams and Lecture interspersed with discussions
2	Introduction and evolution of Microprocessors		
3,4	Architecture of 8086		
5,6	8086–Register Organization of 8086		
7,8	Memory organization of 8086		
9,10	General bus operation of 8086		
11	Introduction to 80286		
12	Introduction to 80386		
13	Introduction to 80486		
14	Introduction to Pentium		
Unit –II Minimum and Maximum Mode Operations **CO2: Able to develop programs for different addressing modes in machine and assembly languages.** **TB: A.K.Ray, K.M.Bhurchandi,"Advanced Microprocessors and Peripherals", Tata McGraw Hill Publications, 2000.**			
15,16	Instruction set	**From: 07/04/21 To: 20/04/21**	Online class with Ms Teams and Lecture interspersed with discussions
17	Addressing modes		
18	Minimum mode operations of 8086		
19	Maximum mode operations of 8086		
20	Control signal interfacing		
21	Read cycle timing diagrams		
22	Write cycle timing diagrams		
Unit-III I/O Interface **CO3: Able to interface 8086 with different peripherals and implement programs.** **TB : A.K.Ray, K.M.Bhurchandi,"Advanced Microprocessors and Peripherals", Tata McGraw Hill Publications, 2000.**			
23	Architecture of 8255		
24	Modes of operation		
25	Interfacing I/O devices to 8086 using8255		
26	Interfacing A to D converters, Interfacing D to A		

TENTATIVE LESSON PLAN: R1632023
MICROPROCESSORS AND MICROCONTROLLERS

Course Title: MICROPROCESSORS AND MICROCONTROLLERS		
Section : A	Date : 20/03/2021	Page No : 02 of 03
Revision No : 00	Prepared By : CH J GAYATHRI	Approved By : HOD

Tools : Black board, PPTs, Ms Teams

No. of Periods	TOPIC	Date	Mode of Delivery
27	Stepper motor interfacing, Static memory interfacing	From: 20/04/21 To: 8/05/21	Online class with Ms Teams and Lecture interspersed with discussions
28	(8257)-Architecture		
29	Interfacing 8257 DMA controller		
30	Programmable Interrupt Controller (8259)		
31	Command words of 8259		
32	Interfacing of 8259 Keyboard/display controller		
33	(8279)–Architecture		
34	(8279)–Architecture, Command words of 8279		
35	Interfacing of 8279		
Unit – IV Introduction to 8051 Micro Controller **CO4: Student can understand the advanced microprocessor 80386 and co processor 80387.** **TB: A.K.Ray, K.M.Bhurchandi,"Advanced Microprocessors and Peripherals", Tata McGraw Hill Publications, 2000.**			
36,37	Overview of 8051 Micro Controller	From: 13/05/2021 To:28/05/2021	Online class with Ms Teams and Lecture interspersed with discussions
38,39	Architecture		
40,41	Register set		
42	I/O ports		
43,44	Memory Organization		
45,46	Interrupts		
47	Timers and Counters		
48	Serial Communication		
Unit –V PIC Architecture **CO5: Ability to understand the microcontroller and able to write the programs on 8051.** **TB: Ajay V Deshmukh,"Microcontrollers", TATA McGraw Hill publications, 2012.**			
49,50, 51	Block diagram of basic PIC 18 micro controller	From: 29/05/21 To: 8/06/21	Online class with Ms Teams and Lecture interspersed with discussions
52,53, 54	Registers		
55,56, 57	I/O Ports		

TENTATIVE LESSON PLAN: R1632023
MICROPROCESSORS AND MICROCONTROLLERS

Course Title: MICROPROCESSORS AND MICROCONTROLLERS		
Section : A	Date : 20/03/2021	Page No : 03 of 03
Revision No : 00	Prepared By : CH J GAYATHRI	Approved By : HOD

Tools : Black board, PPTs, Ms Teams

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-VI Programming in C for PIC **CO6 : Student can understand PIC microcontroller and ARM processors.** **TB : Ajay V Deshmukh,"Microcontrollers", TATA McGraw Hill publications, 2012. Raj Kamal,"Microcontrollers", Pearson publications, 2009.**			
58, 59, 60	Data types	**From: 9/06/21 To: 30/06/21**	Online class with Ms Teams and Lecture interspersed with discussions
61, 62	Programming with data types		
63, 64, 65	I/O programming		
66, 67, 68	C18 programs		
69, 70, 71	logical operations		
72, 73, 74	data conversion		
75, 76	Programming on c18 with data conversions and logical operators		
77, 78, 79, 80	Tutorial		

Signature of the Faculty

S. Sri Gowri
Signature of the HOD

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

TENTATIVE LESSON PLAN: R1632024

Course Title : DATA STRUCTURES		
Section : EEE	**Date : 6/4/2021**	
Revision No : 00	**Prepared By** : M VENKATA LAKSHMI	**Approved By : HOD**

Tools: MS TEAMS, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT-1: ARRAYS **CO-1:** Summarize the properties and behaviors of basic abstract data types **Text Book:** Fundamentals of Data Structures in C, 2nd Edition, E. Horowitz ,S. Sahni and Susan			
1.	Introduction Data Structures, Definition	From: 6/4/2021 To: 20/4/2021	Online Classes With Ms Teams
2.	Abstract Data Types, Arrays		
3.	Array as an ADT, Representation of Arrays		
4.	Complexity of Algorithms-Time and Space		
5.	Time Complexity - Notations		
6.	Linear Arrays, Insertion, Deletion and Traversal of a Linear Array		
7.	Space Complexity, MD Arrays with Example		
8.	The Array Example Programs		
9.	Introduction to strings, Declarations, ADT		
10.	Strings, String Operations		
11.	Tutorial		
UNIT-2: STACKS AND QUEUES **CO-2:** Describes use of stacks, queues in evaluation of expressions and its applications. **Text Book:** Fundamentals of Data Structures in C, 2nd Edition, E. Horowitz ,S. Sahni and Susan			
12.	Stack, Definition	From: 22/4/2021 To: 4/5/2021	Online Classes With Ms Teams
13.	Array Representation of Stack		
14.	The Stack Abstract Data Type		
15.	Applications of Stacks: Prefix, Infix and Postfix Arithmetic Expressions		
16.	Conversions of Expression from one form to others		
17.	Recursion, Towers of Hanoi		
18.	Queues, Definition, Array Representation of Queue		
19.	The Queue Abstract Data Type		
20.	Circular Queues, Dequeues, Priority Queues		
21.	Tutorial		
Unit – 3:LINKED LISTS **CO3:** Describe how arrays and linked list data structures varied in implementation and usage **Text Book:** Data Structures and Algorithms Made Easy, Narasimha Karumanchi			
22.	Pointers, Pointer Arrays		
23.	Linked Lists, Node Representation		

24.	Single Linked List- Traversing and Searching a Single Linked List	From: 5/5/2021 To: 1/6/2021	Online Classes With Ms Teams
25.	Insertion into and Deletion from a Single Linked List		
26.	Header Linked Lists		
27.	Circularly Linked Lists		
28.	Doubly Liked Lists		
29.	Linked Stacks and Queues		
30.	Polynomials, Polynomial Representation		
31.	Sparse Matrices		
32.	Tutorial		

UNIT – 4: TREES

CO4: Demonstrate different methods for traversing trees and its applications

Text Book: Data Structures and Algorithms Made Easy, Narasimha Karumanchi,

No. of Periods	TOPIC	DATE	Mode of Delivery
33.	Introduction, Terminology, Representation of Trees	From: 3/6/2021 To: 12/6/2021	Online Classes With Ms Teams
34.	Representation of Trees, Properties of Binary Trees, Binary Tree Representations		
35.	Binary Tree Traversal - Preorder, Inorder and Postorder Traversal		
36.	Threads, Thread Binary Trees		
37.	Balanced Binary Trees		
38.	Heaps, Max Heap, Insertion into and Deletion from a Max Heap		
39.	Binary Search Trees-Searching, Insertion and Deletion from a Binary Search Tree		
40.	Height Balanced Binary Search Tree, m-way Search Trees		
41.	B-Trees		
42.	Tutorial		

UNIT – 5: GRAPHS

CO4: Demonstrate different methods for traversing a graph and its applications.

Text Book: Fundamentals of Data Structures in C, 2nd Edition, E. Horowitz ,S. Sahni and Susan

43.	Graph Theory Terminology-Introduction	From: 15/6/2021 To: 26/6/2021	Online Classes With Ms Teams
44.	Definition, Graph Representation		
45.	Graph Operations, Depth First Search		
46.	Breadth First Search		
47.	Connected Components, Biconnected Components		
48.	Spanning Trees, Minimum Cost Spanning Trees		
49.	Kruskal's Algorithm, Prim's Algorithm		
50.	Shortest Paths , Transitive Closure		

51.	All-Pairs Shortest Path		
52.	Warshall's Algorithm		
53.	Tutorial		
UNIT – 6: Searching and Sorting **CO-6**: Discuss the computational efficiency of the principal algorithms for sorting & searching **Text Book:** Fundamentals of Data Structures in C, 2nd Edition, E. Horowitz ,S. Sahni and Susan			
54.	Introduction to searching, Linear Search, Binary Search	From: 28/6/2021 To: 5/7/2021	Online Classes With Ms Teams
55.	Fibonacci search, introduction to Sorting, Definition, Bubble Sort		
56.	Insertion Sort, Selection Sort		
57.	Quick Sort, Merge Sort, Iterative and Recursive Merge Sort		
58.	Shell Sort, Radix Sort,		
59.	Heap Sort , Hashing		
60.	Tutorial		

Signature of the Faculty

S. Sri Gowri

Signature of the HOD

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

TENTATIVE LESSON PLAN: R163202F

Course Title: Energy Audit and Conservation&Management (R1632022)		
Section :	Date : 22.3.2021	Page No : 01 of 03
Revision No : 00	Prepared By: Mr.N.E.K.Chandra	Approved By : HOD

Tools: Black board, PPTs

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT –I : **Basic Principles of Energy Audit and management** **CO1 :Students are able to explain energy efficiency, conservation and various technologies.** **TB:: Electric Energy Utilization and Conservation by S C Tripathy, Tata McGraw hill publishing company Ltd. New Delhi.**			
1	Energy audit	From: 22.3.2021 To: 06.4.2021	Online classes with MS Teams
2	Concept		
3	Types of audit		
4	Energy index		
5	Sankey diagrams		
6	Load profiles		
7	Energy conservation schemes		
8	Principles of energy management		
9	Initiating, planning		
10	controlling, promoting		
11	Energy manager		
12	Qualities and functions		
13	Questionnaire		
14	Check list for top management		
UNIT-II Lighting **CO2 :Students are able to design energy efficient lighting systems.** **TB:: Electric Energy Utilization and Conservation by S C Tripathy, Tata McGraw hill publishing company Ltd. New Delhi.**			
15	Modification of existing systems	From: 7.4.2021 To: 22.4.2021	Online classes with MS Teams
16	Replacement of existing systems		
17	Luminous efficiency		
18	Polar curve		
19	Calculation of illumination level		
20	Luminance or brightness		
21	Types of lamps		

22	Types of lighting		
23	Flood lighting		
24	Energy conservation measures		
UNIT-III Power Factor and energy instruments **CO3 :Students are able to calculate power factor of systems and propose suitable compensation techniques.** **TB:: Electric Energy Utilization and Conservation by S C Tripathy, Tata McGraw hill publishing company Ltd. New Delhi.**			
25	Power factor	From: 23.4.2021 To: 8.5.2021	Online classes with MS Teams
26	Methods of improvement		
27	Location of capacitors		
28	Effect of harmonics on Power factor		
29	Watt–hour meter		
30	Data loggers		
31	Thermocouples		
32	Lux meters		
33	Tong testers –		
UNIT-IV : Space Heating and Ventilation **CO4 : Students are able to explain energy conservation in HVAC systems.** **TB:: Electric Energy Utilization and Conservation by S C Tripathy, Tata McGraw hill publishing company Ltd. New Delhi.**			
No. of Periods	**TOPIC**	**DATE**	**Mode of Delivery**
34	Air–Conditioning (HVAC)	From: 13.5.2021 To: 29.5.2021	Online classes with MS Teams
35	Space heating methods		
36	Ventilation and air–conditioning		
37	Insulation		
38	Cooling load		
39	Electric water heating systems		
40	Energy conservation methods		
UNIT-V **CO5 : Students are able to calculate life cycle costing analysis and return on investment on energy efficient technologies.** **TB :: Electric Energy Utilization and Conservation by S C Tripathy, Tata McGraw hill publishing company Ltd. New Delhi.**			
No. of Periods	**Tutorial**	**DATE**	**Mode of Delivery**

41	Depreciation Methods	From: 29.5.2021 To: 14.6.2021	Online classes with MS Teams
42	Rate of return		
43	Present worth method		
44	Replacement analysis		
45	Life cycle costing		
46	Energy efficient motors		
47	Economics of energy efficient motors		
UNIT-VI Computation of Economic Aspects **CO5 : Students are able to calculate life cycle costing analysis and return on investment on energy efficient technologies.** **TB :: Electric Energy Utilization and Conservation by S C Tripathy, Tata McGraw hill publishing company Ltd. New Delhi.**			
48	Need of investment	From: 15.6.2021 To: 30.6.2021	Online classes with MS Teams
49	Calculation of simple payback period		
50	Net present value		
51	Internal rate of return		
52	Lighting		
53	Applications of life cycle costing analysis		
54	Return on investment		
55	Numerical examples		

N.E.K.Cary
Signature of the Faculty

S.Sri Gowri
Signature of the HOD

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108