Dr. Ambedkar Institute of Technology

Department of Electrical and Electronics Engineering

The NAAC documents enclosed are verified and approved.

5/11/22

HOD

Dept of EEE

Department of Electrical and Electronics Engg.
Dr. Ambedkar Institute of Technology
Bengaluru-560056

DR. AMBEDKAR INSTITUTE OF TECHNOLOGY, Bengaluru
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
Lesson Planning

Subject Title: Basic Electrical Engineering	**Name of the Faculty: Deepti S Shastrimath**	
Subject Code: 21EET203	**Academic Year : 2021-2022**	
No of Credits: 03 **No. of contact hours: 52(4hrs/week offline), 1hr/wk online**	**Semester: II**	**Branches: Mechanical Engineering Section : L-Sec**

Planned			Actual				
No. of Classes	**Unit No.**	**Planned Lesson**	**Date**	**Lesson Covered**	**No. of Students**	**Faculty Sign**	**Remarks**
1	1(a)	**D C Circuits:** Ohm's Law, Statement and Limitations Analysis of series, parallel and Series-parallel DC circuits excited by independent voltage sources. Related Problems	7/6	Ohm's law, Series, parallel, problems.	59		
2		Related Problems on Series, parallel, series-parallel circuits. Power and energy in electrical circuits.	8/6	Problems on series, parallel, series-parallel. energy & power.	59		
3		Kirchoff's Laws –Definition with illustration. Problems on Kirchoff's Laws (Analysis of T, Pi and Bridge networks, ladder networks)	11/6	KCL & KVL, problems.	59		
4		Problems on Kirchoff's Laws	14/6	Problems.	47		
5		Maximum power transfer theorem applied to series circuit and its applications	14/6	MPT & problem	32		
6		Problems on Maximum power transfer theorem	15/6	Problems.	38		

7	1(b)	**Electromagnetism:** Faradays Laws, Lenz's Law, Fleming's right hand rule, dynamically induced E.M.Fs. Statically induced E.M.Fs. Problems	18/6	Faraday's laws, Lenz's law, Fleming's RHR & LHR, Statically induced EMF.	51		
8		Concept of self and mutual inductance, coefficient of coupling. Energy stored in magnetic field. Force on current carrying conductor. Fleming's left hand rule.	21/6	Self & multual inductance co-efficient of coupling, energy stored in mag field	40		
9		Problems on L,M,K, Energy, Force	22/6	Problems	41		
10		Problems on L,M,K, Energy, Force	23/6	Problems.	45		
11		Generation of Sinusoidal voltage, Definition and derivation of Average and RMS values,	25/6	Generation of ∿ v/g, def & derivation of RMS, Avg value	40		
12		Problems on Average value, RMS value, Form factor, Peak factor	5/7	Problems on Avg value, RMS value, form factor, peak factor	40		
13	2 a)	**Single-phase A.C. Circuits:** Voltage , current and Power waveforms with phasor diagrams in R, L,C circuits.	6/7	v/g, current & power waveforms with phasor diagrams in R, L, C ckts	42		
14		Analysis of R-L, R-C, R-L-C Series and Parallel circuits.	7/7	R-L, R-C, R-L-C series & parallel ckts	34		
15		Real, Reactive and Apparent Powers, Power Triangle and Power factor	12/7	Real, Reactive & apparent power, power Δle & Pf.	46		
16		Problems in R-L, R-C and R-L-C series circuits(with phasor diagrams)	13/7	Problems in R-L, R-C & R-L-C series ckts.	44		
17		Problems on Series Circuits, Parallel circuits, Power calculations	14/7	Problems.	37		

18	2 b)	**Three Phase Circuits:** Advantages of three phase systems over 1 phase systems. Generation of three phase power Representation of balanced star (3 phase 4 wire) and Delta connected loads	16/7	3ϕ, Generation of 3ϕ power representation of balanced Star & Delta connected loads.	31		
19		Relationship between line and phase values of voltage and current for balanced Star and Delta connections from phasor diagrams Problems in Star and Delta connected 3 phase circuits	23/7	Relationship between line and phase values of v/g and current for balanced Star and delta connections	35		
20		Measurement of three phase power using two wattmeters	26/7	Measurement of 3ϕ power using two wattmeters	41		
21		Effect of Load Power factor on wattmeter readings. Problems	27/7	Effect of load Power factor on wattmeter readings. Prob	49		
22		Problems on Two wattmeter method	28/7	Problems on Two wattmeter method.	42		
23	3 a)	**DC Machines:** Introduction, principle of operation DC a generator.	30/7	Introduction. Principle of operation of DC generator.	38		
24		Constructional features. Types of generators	2/8	Constructional features, Types	43		
25		Derivation of EMF equation, Problems on EMF equation Generators	3/8	Derivation of EMF eqn, Problems.	48		
26		DC Motors: Principle of operation, back emf and Torque equations. Problems on Eb and Torque	4/8	Principle of operation, back emf & Torque eqn.	50		
27		Types of Motors, characteristics (shunt and series only) and applications Problems on back emf and Torque	6/8	Types of motors, ch (Shunt and series) & applications problems on back emf & Torq	14		
28	3 b)	**Transformers:** Necessity of transformer, principle of operation of single phase transformers.	10/8	Transformers :- Introduction.	45		

29		Types and Constructional features of single phase transformers, Derivation of EMF equation.	11/8	Types & constructional features.	47		
30		Losses, efficiency, Problems	13/8	Losses, η, Problems	30		
31		Condition for maximum efficiency, Problems	16/8	Condition for max η.	42		
32		Problems and Review	17/8	Problems.	40		
33	4 a)	**Three Phase Induction Motors**: Introduction. Concept of rotating magnetic field.	24/8	3ϕ IM :- Introduction	34		
34		Principle of operation.	29/8	Principle of operation.	34		
35		Constructional features. Of motor types- Squirrel cage and wound rotor. Applications	29/8	Constructional features.	47		
36		Slip, significance, rotor frequency and rotor induced EMF. Problems on slip calculations	1/9	Slip, f', Problems.	42		
37		Problems, Review	3/9	Problems	34		
38	4 b)	**Three phase Synchronous Generators:** Introduction, principle of operation. Types. Constructional features of salient pole type.	3/9	3ϕ Alternators. Introduction.	44		
39		Constructional features of Non-Salient pole type	6/9	Construction	47		
40		Synchronous speed, Frequency of generated voltage, emf equation (Concept of Winding factors- No derivation or calculation)	6/9	Ns, frequency, EMF equation	45		
41		Problems on EMF equation	7/9	Problems	43		
42		Problems, Review	8/9	Problems.	30		

43	5	**Power Transmission and Distribution:** Concept of Power Transmission and Distribution	10/9	Single line diagram.	35		
44		**Low voltage distribution system** (400V and 230V) for domestic, commercial and small scale industry through single line diagrams/Block diagrams only	10/9	LV Distribution.	42		
45		**Electricity Bill:** Power rating of Household Appliances (air conditioners, PCs, Laptops, printers, etc)	13/9	Electricity bill & related problems	41		
46		Definition of "UNIT", used for consumption of electrical energy,	13/9	Def of UNIT & Consumption of ele energy	45		
47		Two part electricity Tariff	14/9	Tariff.	46		
48		Calculation of Electricity Bill with simple example	14/9	Problems on Bill.	44		
49		**Equipment Safety Measures:** Working Principle of Fuse and MCB	15/9	Fuse & MCB	42		
50		Merits and Demerits of Fuse and MCB	16/9	Fuse & MCD	40		
51		**Personal safety Measures:** Electric shock, safety precautions, Earthing and types	17/9	Shock, safety measures, Earting & types	39		
52		Types of Earthing - Pipe and Plate earthing	17/9	Types of earthing.	35		

Signature of Faculty

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DR. AMBEDKAR INSTITUTE OF TECHNOLOGY, Bengaluru
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
Lesson Planning

Subject Title: Basic Electrical Engineering	Name of the Faculty: Deepti S Shastrimath	
Subject Code: 21EET103	Academic Year : 2021-2022	
No of Credits: 03 No. of contact hours: 52(4hrs/week offline), 1hr/wk online	Semester: I	Branches: Computer Science Section : C-Sec

Planned			Actual				
No. of Classes	Unit No.	Planned Lesson	Date	Lesson Covered	No. of Students	Faculty Sign	Remarks
1	1(a)	**D C Circuits:** Ohm's Law. Statement and Limitations Analysis of series, parallel and Series-parallel DC circuits excited by independent voltage sources. Related Problems	31/12	Ohm's law, series, parallel & series-parallel DC circuit Problems.	51		
2		Related Problems on Series, parallel, series-parallel circuits. Power and energy in electrical circuits.	1/1	Problems. Power & energy.	51		
3		Kirchoff's Laws –Definition with illustration. Problems on Kirchoff's Laws (Analysis of T, Pi and Bridge networks, ladder networks)	3/1	KCL & KVL.	51		
4		Problems on Kirchoff's Laws	5/1	Problems.	51		
5		Maximum power transfer theorem applied to series circuit and its applications	5/1	MPT with illustration	51		
6		Problems on Maximum power transfer theorem	7/1	Problems on MPT	51		

7	1(b)	**Electromagnetism:** Faradays Laws, Lenz's Law, Fleming's right hand rule, dynamically induced E.M.Fs. Statically induced E.M.Fs. Problems	8/1	Faraday's laws, Lenz's law, Fleming's RHR & LHR. Induced EMF & Problems.	52		
8		Concept of self and mutual inductance, coefficient of coupling. Energy stored in magnetic field. Force on current carrying conductor. Fleming's left hand rule.	10/1	L, M & K. Energy stored in mag. field.	53		
9		Problems on L,M,K, Energy, Force	12/1	Problems	51		
10		Problems on L,M,K, Energy, Force	14/1	Problems.	54		
11		Generation of Sinusoidal voltage, Definition and derivation of Average and RMS values,	15/1	Generation of N v/g, RMS, average, peak & form.	51		
12		Problems on Average value, RMS value, Form factor, Peak factor	17/1	Problems.	55		
13	2 a)	**Single-phase A.C. Circuits:** Voltage , current and Power waveforms with phasor diagrams in R, L,C circuits.	19/1	v/g, current & power waveform with phasor R,L & C	51		
14		Analysis of R-L, R-C, R-L-C Series and Parallel circuits.	20/1	R-L, R-C, R-L-C.	53		
15		Real, Reactive and Apparent Powers, Power Triangle and Power factor	21/1	Real, reactive & apparent powers, power factor.	52		
16		Problems in R-L, R-C and R-L-C series circuits(with phasor diagrams)	22/1	Problems	54		
17		Problems on Series Circuits. Parallel circuits, Power calculations	24/1	Problems, power calculations.	55		

18	2 b)	**Three Phase Circuits:** Advantages of three phase systems over 1 phase systems. Generation of three phase power Representation of balanced star (3 phase 4 wire) and Delta connected loads	28/1	Advantages of 3ϕ systems over 1ϕ. Generation of three phase power representation of balanced star & Δ	51		
19		Relationship between line and phase values of voltage and current for balanced Star and Delta connections from phasor diagrams Problems in Star and Delta connected 3 phase circuits	28/1	λ & Δ. Problems.	53		
20		Measurement of three phase power using two wattmeters	29/1	Measurement of 3ϕ power using two wattmeters	52		
21		Effect of Load Power factor on wattmeter readings. Problems	31/1	Effect of load power factor on wattmeter reading.	54		
22		Problems on Two wattmeter method	2/2	Problems.	51		
23	3 a)	**DC Machines:** Introduction, principle of operation DC a generator.	4/2	Intro DC M/C	47		
24		Constructional features. Types of generators	5/2	Construction	50		
25		Derivation of EMF equation. Problems on EMF equation Generators	9/2	EMF eqn.	52		
26		DC Motors: Principle of operation, back emf and Torque equations. Problems on Eb and Torque	11/2	Back emf.	54		
27		Types of Motors, characteristics (shunt and series only) and applications Problems on back emf and Torque	12/2	Types, Characteristics & problems.	53		
28	3 b)	**Transformers:** Necessity of transformer, principle of operation of single phase transformers.	14/2	Transformers: Intro, Principle of operation	51		

29		Types and Constructional features of single phase transformers. Derivation of EMF equation.	18/2	Construction, EMF eqn	51		
30		Losses, efficiency, Problems	21/2	Losses, η, problems	52		
31		Condition for maximum efficiency, Problems	21/2	$W_i = W_c$, Problemes	54		
32		Problems and Review	23/2	Problems	50		
33	4 a)	**Three Phase Induction Motors**: Introduction. Concept of rotating magnetic field.	23/2	3φ IM intro, rotating mag field.	48		
34		Principle of operation.	25/2	Operating principle.	47		
35		Constructional features. Of motor types- Squirrel cage and wound rotor. Applications	28/2	Types of rotor.	46		
36		Slip, significance, rotor frequency and rotor induced EMF. Problems on slip calculations	4/3	Slip, rotor freq	54		
37		Problems, Review	5/3	Problems	51		
38	4 b)	**Three phase Synchronous Generators:** Introduction, principle of operation. Types. Constructional features of salient pole type.	5/3	3φ Alternator, Types of rotor.	50		
39		Constructional features of Non-Salient pole type	11/3	construction	51		
40		Synchronous speed, Frequency of generated voltage, emf equation (Concept of Winding factors- No derivation or calculation)	14/3	Synch speed, Problems.	52		
41		Problems on EMF equation	14/3	Problems	54		
42		Problems, Review	16/3	Problems.	53		

43	5	**Power Transmission and Distribution:** Concept of Power Transmission and Distribution	16/3	Power transmission & distribution	50		
44		**Low voltage distribution system** (400V and 230V) for domestic, commercial and small scale industry through single line diagrams/Block diagrams only	17/3	LV Distribution. 400V & 230V	50		
45		**Electricity Bill:** Power rating of Household Appliances (air conditioners, PCs, Laptops, printers, etc)	17/3	Electricity Bill, examples.	49		
46		Definition of "UNIT", used for consumption of electrical energy.	18/3	UNIT & consumption of energy.	51		
47		Two part electricity Tariff	18/3	Tariff & examples.	45		
48		Calculation of Electricity Bill with simple example	21/3	Problems on Bill.	42		
49		**Equipment Safety Measures:** Working Principle of Fuse and MCB	21/3	Fuse & MCB.	42		
50		Merits and Demerits of Fuse and MCB	23/3	Fuse & MCB	43		
51		**Personal safety Measures:** Electric shock, safety precautions, Earthing and types	23/3	Shock, Earthing necessity.	41		
52		Types of Earthing - Pipe and Plate earthing	24/3	Earthing types	40		

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DR. AMBEDKAR INSTITUTE OF TECHNOLOGY, BANGALORE
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
LESSON PLANNING

SUBJECT TITLE: LOGIC DESIGN — III Sem. 2021-22. — SUBJECT CODE: 18EE32
NO OF CREDITS: 3 — NO OF HOURS: 39

PLANNED		ACTUAL					
Class no.	PLANNED LESSON	Unit No	Date	LESSON COVERED	No of students	Faculty Sign	Remarks
PRINCIPLES OF COMBINATIONAL LOGIC - I							
1.	Karnaugh maps introduction	1	9/11/21	K-map introduction	54		
2.	K-map – 3, 4 & 5 variables		9/11	K-map, 3, 4 & 5 variable	54		
3.	Problems on K-map		10/11	Problems	54		
4.	Incompletely specified functions		10/11	Dont care terms	54		
5.	Simplifying Max term equation		10/11	POS functions.	54		
6.	Problems on K-map		11/11	Problems	54		
7.	Problems on K-map		12/11	Problems	54		
PRINCIPLES OF COMBINATIONAL LOGIC - II							
8.	Limitations of K-map	2	12/11	Limitations of K-map	54		
9.	Quine-McCluskey tabulation algorithm		16/11	Quine MC-cluskey	48		
10.	Problems on Quine-McCluskey tabulation algorithm		16/11	Problems	47		
11.	Quine-McCluskey tabulation algorithm using don't care terms		17/11	Problems on dont care	45		
12.	Problems on Quine-McCluskey tabulation algorithm using don't care terms		18/11	Problems.	48		
13.	Map entered variables		23/11	MEV	48		
14.	Map entered variables		24/11	MEV	47		
15.	Problems on Map entered variables		25/11	Problems	45		

ANALYSIS AND DESIGN OF COMBINATIONAL LOGIC II		3					
16.	Digital multiplexers		26/11	Digital MUX	48		
17.	Digital multiplexers		2/12	Digital MUX	47		
18.	Digital multiplexers		13/12	Digital MUX	45		
19.	Binary adders and subtractors		14/12	Binary adders & subtractors	48		
20.	Binary adders and subtractors		17/12	Binary adders & subtractors	47		
21.	Binary adders and subtractors		22/12	Binary adders & subtractors	45		
22.	Binary comparators		23/12	Binary comparators	48		
23.	Binary comparators		30/12	Binary comparators	47		
SEQUENTIAL CIRCUITS - I							
24.	Basic bistable element		4/1	Basic bistable element	45		
25.	Latches		5/1	Latches	48		
26.	SR latch & Applications of SR latch		6/1	SR latch & applications	47		
27.	Gated D latch, Gated SR latch	4	7/1	Master slave SR FF	45		
28.	Master slave SR flip flops		12/1	Master slave SR FF	63		
29.	Master slave JK flip flops		13/1	Master slave JK FF	63		
30.	Positive edge triggered D flip flop		14/1	+ve edge triggered DFF	63		
31.	Negative edge triggered D flip flop		19/1	-ve edge triggered DFF	63		
SEQUENTIAL CIRCUITS - II							
32.	Characteristics equations, Registers		20/1	Characteristics eq^n, registers	63		
33.	Binary ripple counter		21/1	Binary ripple counter	63		
34.	Synchronous binary counter	5	27/1	Synchronous binary counter	63		
35.	Ring and Johnson counter		28/1	Ring & Johnson counter	63		
36.	Design of Mod-6 counter using clocked JK & SR flip flop		2/2	Design of Mod-6 counter using clocked JK & SR FF	63		

37.	Design of Mod-6 counter using clocked D & T flip flop		3/2	Design of Mod 6 counter using clokked D & T FF	63		
38.	Melay and Moore models		4/2	Melay and Moore models	63		
39.	Melay and Moore models		14/2	Melay and Moore models	63		

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