GANDHI SCHOOL OF ENGINEERING

BHABANDHA, BERHAMPUR

SUBJECT- CIRCUIT AND NETWORK THEORY

BRANCH: ELECTRICAL ENGINEERING

SEM:3RD

NAME OF THE FACULTY :ER. AMARESH CHOUDHURY & ER. S.K MAHARANA

			Topic to be taken			Actual topic taken		
Sl. No	**Topic/Module**	**No. of period**	**Details of the topics**	**Date**	**Topic No.**	**Topic Name**	**Date**	**Remarks**
1	**MAGNETIC CIRCUITS**	**07**	**MAGNETIC CIRCUITS** 1 . 1 Introduction 1 . 2 Magnetizing force, Intensity, MMF, flux and their relations 1 . 3 Permeability, reluctance and permeance 1 . 4 Analogy between electric and Magnetic Circuits 1 . 5 B-H Curve 1 . 6 Series & parallel magnetic circuit 1 . 7 Hysteresis loop	**20.09.2022 TO 30.09.2022**	**1.1** **1.2** **1.3** **1.4** **1.5** **1.6** **1.7**	Introduction Magnetizing force, Intensity, MMF, flux and their relations Permeability, reluctance and permeance Analogy between electric and Magnetic Circuits B-H Curve Series & parallel magnetic circuit Hysteresis loop	**20.09.2022** **21.09.2022** **23.09.2022** **24.09.2022** **26.09.2022** **28.09.2022** **29.09.2022** **30.09.2022**	

2	**COUPLED CIRCUITS:**	**05**	**COUPLED CIRCUITS:** 2 . 1 Self Inductance and Mutual Inductance 2 . 2 Conductively coupled circuit and mutual impedance 2 . 3 Dot convention 2 . 4 Coefficient of coupling 2 . 5 Series and parallel connection of coupled inductors. 2 . 6 Solve numerical problems	**12.10.2022 TO 19.10.2022**	**2.1** **2.2** **2.3** **2.4** **2.5** **2.6**	Self Inductance and Mutual Inductance Conductively coupled circuit and mutual impedance Dot convention Coefficient of coupling Series and parallel connection of coupled inductors. Solve numerical problems	**12.10.2022** **13.10.2022** **14.10.2022** **15.10.2022** **17.10.2022** **19.10.2022**	
3	**CIRCUIT ELEMENTS AND ANALYSIS:**	**06**	**CIRCUIT ELEMENTS AND ANALYSIS:** 3 . 1 Active, Passive, Unilateral & bilateral, Linear & Non linear elements 3 . 2 Mesh Analysis, Mesh Equations by inspection 3 . 3 Super mesh Analysis 3 . 4 Nodal Analysis, Nodal Equations by inspection 3 . 5 Super node Analysis. 3 . 6 Source Transformation Technique 3 . 7 Solve numerical problems (With Independent Sources Only)	**20.10.2022 TO 04.11.2022**	**3.1** **3.2** **3.3** **3.4** **3.5** **3.6** **3.7**	Active, Passive, Unilateral & bilateral, Linear & Non linear elements Mesh Analysis, Mesh Equations by inspection Super mesh Analysis Nodal Analysis, Nodal Equations by inspection Super node Analysis. Source Transformation Technique Solve numerical problems (With Independent Sources Only)	**20.10.2022** **22.10.2022** **27.10.2022** **02.11.2022** **03.11.2022** **04.11.2022**	
4	**NETWORK THEOREMS:**	**08**	**NETWORK THEOREMS:** 4.1 Star to delta and delta to star transformation 4.2 Super position Theorem 4.3 Thevenin's Theorem	**05.11.2022 TO 19.11.2022**	**4.1** **4.2** **4.3** **4.4** **4.5**	Star to delta and delta to star transformation Super position Theorem Thevenin's Theorem Norton's Theorem	**05.11.2022** **09.11.2022** **10.11.2022** **11.11.2022** **12.11.2022**	

			4.4 Norton's Theorem 4.5 Maximum power Transfer Theorem. 4.6 Solve numerical problems (With Independent Sources Only)		**4.6**	Maximum power Transfer Theorem. Solve numerical problems (With Independent Sources Only)	**14.11.2022 17.11.2022 19.11.2022**	
5	**AC CIRCUIT AND RESONANCE:**	**08**	**AC CIRCUIT AND RESONANCE:** 5.1 A.C. through R-L, R-C & R-L-C Circuit 5.2 Solution of problems of A.C. through R-L, R-C & R-L-C series Circuit by complex algebra method. 5.3 Solution of problems of A.C. through R-L, R-C & R-L-C parallel & Composite Circuits 5.4 Power factor & power triangle. 5.5 Deduce expression for active, reactive, apparent power. 5.6 Derive the resonant frequency of series resonance and parallel resonance circuit 5.7 Define Bandwidth, Selectivity & Q-factor in series circuit. 5.8 Solve numerical problems	**21.11.2022 TO 02.12.2022**	**5.1 5.2 5.3 5.4 5.5 5.6 5.7 5.8**	A.C. through R-L, R-C & R-L-C Circuit Solution of problems of A.C. through R-L, R-C & R-L-C series Circuit by complex algebra method. Solution of problems of A.C. through R-L, R-C & R-L-C parallel & Composite Circuits Power factor & power triangle. Deduce expression for active, reactive, apparent power. Derive the resonant frequency of series resonance and parallel resonance circuit Define Bandwidth, Selectivity & Q-factor in series circuit. Solve numerical problems	**21.11.2022 23.11.2022 23.11.2022 23.11.2022 25.11.2022 26.11.2022 02.12.2022**	
6	**POLYPHASE CIRCUIT**	**06**	**POLYPHASE CIRCUIT** 6.1 Concept of poly-phase system and phase sequence 6.2 Relation between phase and line quantities in star & delta connection 6.3 Power equation in 3-phase balanced circuit. 6.4 Solve numerical problems	**05.12.2022 TO 10.12.2022**	**6.1 6.2 6.3 6.4 6.5 6.6**	Concept of poly-phase system and phase sequence Relation between phase and line quantities in star & delta connection Power equation in 3-phase balanced circuit. Solve numerical problems Measurement of 3-phase	**05.12.2022 07.12.2022 08.12.2022 09.12.2022 10.12.2022**	

			6.5 Measurement of 3-phase power by two wattmeter method. 6.6 Solve numerical problems.			power by two wattmeter method. Solve numerical problems.		
7	**TRANSIENTS:**	**06**	**TRANSIENTS:** 7.1 Steady state & transient state response. 7.2 Response to R-L, R-C & RLC circuit under DC condition. 7.3 Solve numerical problems	**12.12.2022 TO 19.12.2022**	**7.1** **7.2** **7.3**	Steady state & transient state response. Response to R-L, R-C & RLC circuit under DC condition. Solve numerical problems	**12.12.2022** **13.12.2022** **14.12.2022** **15.12.2022** **16.12.2022** **19.12.2022**	
8	**TWO-PORT NETWORK:**	**08**	**TWO-PORT NETWORK:** 8.1 Open circuit impedance (z) parameters 8.2 Short circuit admittance (y) parameters 8.3 Transmission (ABCD) parameters 8.4 Hybrid (h) parameters. 8.5 Inter relationships of different parameters. 8.6 T and π representation. 8.7 Solve numerical problems	**21.12.2022 TO 24.12.2022**	**8.1** **8.2** **8.3** **8.4** **8.5** **8.6** **8.7**	Open circuit impedance (z) parameters Short circuit admittance (y) parameters Transmission (ABCD) parameters Hybrid (h) parameters. Inter relationships of different parameters. T and π representation. Solve numerical problems	**21.12.2022** **22.12.2022** **22.12.2022** **23.12.2022** **22.12.2022** **23.12.2022** **24.12.2022**	

9	**FILTERS:**	**09**	**FILTERS:** 9.1 Define filter 9.2 Classification of pass Band, stop Band and cut-off frequency. 9.3 Classification of filters 9.4 Constant – K low pass filter. 9.5 Constant – K high pass filter. 9.6 Constant – K Band pass filter. 9.7 Constant – K Band elimination filter. 9.8 Solve Numerical problems	**23.12.2022 TO 05.01.2023**	**9.1** **9.2** **9.3** **9.4** **9.5** **9.6** **9.7** **9.8**	Define filter Classification of pass Band, stop Band and cut-off frequency. Classification of filters Constant – K low pass filter. Constant – K high pass filter. Constant – K Band pass filter. Constant – K Band elimination filter. Solve Numerical problems	**23.12.2022** **24.12.2022** **03.01.2023** **05.01.2023**	

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