SUBJECT- CIRCUIT AND NETWORK THEORY

SUBJECT CODE-TH2

Module No.	Topic to be covered	No. of periods	Tentative date for
140.		required	completion
1	MAGNETIC CIRCUITS	. equil eu	
1.1	Introduction	1	
1.2	Magnetizing force, Intensity, MMF, flux and their relations	1	
1.3	Permeability, reluctance and permeance	1	
1.4	Analogy between electric and Magnetic Circuits	1	
1.5	B-H Curve	1	
1.6	Series & parallel magnetic circuit.	1	
1.7	Hysteresis loop	1	
2	COUPLED CIRCUITS		
2.1	Self Inductance and Mutual Inductance	1	
2.2	Conductively coupled circuit and mutual impedance	1	
2.3	Dot convention		
2.4	Coefficient of coupling	1	
2.5	Series and parallel connection of coupled inductors.	1	
2.6	Solve numerical problems	1	
3	CIRCUIT ELEMENTS AND ANALYSIS	_	
3.1	Active, Passive, Unilateral & bilateral, Linear & Non linear elements	1	
3.2	Mesh Analysis, Mesh Equations by inspection	1	
3.3	Super mesh Analysis	1	
3.4	Nodal Analysis, Nodal Equations by inspection	1	
3.5	Super node Analysis.		
3.6	Source Transformation Technique	1	
3.7	Solve numerical problems (With Independent Sources Only)	1	
4	NETWORK THEOREMS:	1	
4.1	Star to delta and delta to star transformation	1	
4.2	Super position Theorem	1	
4.3	Thevenin's Theorem	1	
4.4	Norton's Theorem	1	
4.5	Maximum power Transfer Theorem.	1	
4.6	Solve numerical problems (With Independent Sources Only)	2	
5	AC CIRCUIT AND RESONANCE:		
5.1	A.C. through R-L, R-C & R-L-C Circuit	1	
5.2	Solution of problems of A.C. through R-L, R-C & R-L-C series	1	
3.2	Circuit by complex algebra method	_	
5.3	Solution of problems of A.C. through R-L, R-C & R-L-C parallel &	1	
5.5	Composite Circuits	_	
5.4	Power factor & power triangle	1	
5.5	Deduce expression for active, reactive, apparent power	1	

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 1 6 POLYPHASE CIRCUIT 6.1 Concept of poly-phase system and phase sequence 1 connection 6.2 Relation between phase and line quantities in star & delta connection 6.3 Power equation in 3-phase balanced circuit 1 connection 6.4 Solve numerical problems 1 Solve numerical problems 1 TRANSIENTS 7.1 Steady state & transient state response 7.2 Response to R-L, R-C & RLC circuit under DC condition 2 Transient open circuit impedance (z) parameters 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 1 1 8.6 Tand π representation. 1 1 8.7 Solve numerical problems 2 PILTERS 9.1 Define filter 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 Classification of filters. 1 1 9.4 Constant – K low pass filter. 1 9.5 Constant – K Band pass filter. 1 9.7 Constant – K Band pass filter. 1 1 9.8 Solve Numerical problems 1 1 9.8 Solve Numerical problems 1 1 9.8 Solve Numerical problems 1 1				
5.7 Define Bandwidth, Selectivity & Q-factor in series circuit 5.8 Solve numerical problems 6 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 1 6.5 Measurement of 3-phase power by two wattmeter method 6.6 Solve numerical problems 1 7 TRANSIENTS 7.1 Steady state & transient state response 7.2 Response to R-L, R-C & RLC circuit under DC condition 2 7.3 Solve numerical problems 2 8 TWO-PORT NETWORK: 8.1 Open circuit impedance (z) parameters 8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 8.4 Hybrid (h) parameters 1 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 1 2 9 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 low pass filter. 1 9.7 Constant – K Band pass filter. 1 1 1 1 1 1 1 1 1 1 1 1 1	5.6	Derive the resonant frequency of series resonance and parallel	1	
5.8 Solve numerical problems 6 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 6.5 Measurement of 3-phase power by two wattmeter method 6.6 Solve numerical problems 1 7 TRANSIENTS 7.1 Steady state & transient state response 7.2 Response to R-L, R-C & RLC circuit under DC condition 2 7.3 Solve numerical problems 2 8 TWO-PORT NETWORK: 8.1 Open circuit impedance (2) parameters 8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 8.4 Hybrid (h) parameters. 1 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 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 1 9.5 Constant – K Band pass filter. 1 9.6 Constant – K Band pass filter. 1 9.7 Constant – K Band pass filter. 1 1 1		resonance circuit		
6 POLYPHASE CIRCUIT 6.1 Concept of poly-phase system and phase sequence 1 Concept of poly-phase system and phase sequence 1 Concept of poly-phase system and phase sequence 1 Concept of poly-phase and line quantities in star & delta connection 6.3 Power equation in 3-phase balanced circuit 1 Concept of Solve numerical problems 2 Concept of Solve numerical problems 3 Concept of Solve numerical problems 4 Concept of Solve numerical problems 5 Constant - K low pass filter 5 Constant - K low pass filter 5 Constant - K low pass filter. 5 Constant - K Band pass filter.	5.7	Define Bandwidth, Selectivity & Q-factor in series circuit	1	
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 1 Measurement of 3-phase power by two wattmeter method 6.5 Measurement of 3-phase power by two wattmeter method 1 Solve numerical problems 1 TRANSIENTS 7.1 Steady state & transient state response 7.2 Response to R-L, R-C & RLC circuit under DC condition 2 Solve numerical problems 2 TWO-PORT NETWORK: 8.1 Open circuit impedance (z) parameters 8.2 Short circuit admittance (y) parameters 1 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 3 And Transmission (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 3 Asymptotic (ABCD) parameters 4 Asymptotic (ABCD) parameters 5 Asymptotic (ABCD) parameters 6 Asymptotic (ABCD) parameters 7 Asymptotic (ABCD) parameters 8 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 3 Asymptotic (ABCD) parameters 4 Asymptotic (ABCD) parameters 5 Asymptotic (ABCD) parameters 6 Asymptotic (ABCD) parameters 7 Asymptotic (ABCD) parameters 8 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) paramete	5.8	Solve numerical problems	1	
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 1 Measurement of 3-phase power by two wattmeter method 6.5 Measurement of 3-phase power by two wattmeter method 1 Solve numerical problems 1 TRANSIENTS 7.1 Steady state & transient state response 7.2 Response to R-L, R-C & RLC circuit under DC condition 2 Solve numerical problems 2 TWO-PORT NETWORK: 8.1 Open circuit impedance (z) parameters 8.2 Short circuit admittance (y) parameters 1 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 3 And Transmission (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 3 Asymptotic (ABCD) parameters 4 Asymptotic (ABCD) parameters 5 Asymptotic (ABCD) parameters 6 Asymptotic (ABCD) parameters 7 Asymptotic (ABCD) parameters 8 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 3 Asymptotic (ABCD) parameters 4 Asymptotic (ABCD) parameters 5 Asymptotic (ABCD) parameters 6 Asymptotic (ABCD) parameters 7 Asymptotic (ABCD) parameters 8 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 1 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) parameters 2 Asymptotic (ABCD) paramete				
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 1 1 6.6 Measurement of 3-phase power by two wattmeter method 1 1 6.6 Solve numerical problems 1 1 7 TRANSIENTS 7.1 Steady state & transient state response 7.2 Response to R-L, R-C & RLC circuit under DC condition 2 7.3 Solve numerical problems 2 2 8 TWO-PORT NETWORK: 8.1 Open circuit impedance (2) parameters 1 8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 1 8.4 Hybrid (h) parameters. 1 1 8.5 Inter relationships of different parameters 1 1 8.6 Tand π representation. 1 2 9 FILTERS 9.1 Define filter 9.2 Classification of filters. 1 1 9.4 Constant – K low pass filter. 9.5 Constant – K low pass filter. 9.6 Constant – K Band pass filter. 1 1 9.7 Constant – K Band elimination filter	6	POLYPHASE CIRCUIT		
connection 6.3 Power equation in 3-phase balanced circuit 6.4 Solve numerical problems 1 6.5 Measurement of 3-phase power by two wattmeter method 1 6.6 Solve numerical problems 1 7 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 2 8 TWO-PORT NETWORK: 8.1 Open circuit impedance (2) parameters 8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 8.4 Hybrid (h) parameters. 1 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 8.7 Solve numerical problems 2 9 FILTERS 9.1 Define filter 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 Classification of filters. 1 9.4 Constant – K low pass filter. 9.5 Constant – K high pass filter. 9.6 Constant – K Band pass filter. 1 9.7 Constant – K Band elimination filter	6.1	Concept of poly-phase system and phase sequence	1	
6.3 Power equation in 3-phase balanced circuit 6.4 Solve numerical problems 6.5 Measurement of 3-phase power by two wattmeter method 6.6 Solve numerical problems 7 TRANSIENTS 7.1 Steady state & transient state response 7.2 Response to R-L, R-C & RLC circuit under DC condition 2 Solve numerical problems 2 ** 8 TWO-PORT NETWORK: 8.1 Open circuit impedance (z) parameters 8.2 Short circuit admittance (y) parameters 8.3 Transmission (ABCD) parameters 1 Hybrid (h) parameters. 8.4 Hybrid (h) parameters. 8.5 Inter relationships of different parameters 1 ** 8.6 T and π representation. 8.7 Solve numerical problems 2 ** 9 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 low pass filter. 9.6 Constant – K Band pass filter. 9.7 Constant – K Band pass filter. 1 ** 9.6 Constant – K Band pass filter. 1 ** 9.7 Constant – K Band elimination filter	6.2	Relation between phase and line quantities in star & delta	1	
6.4 Solve numerical problems 6.5 Measurement of 3-phase power by two wattmeter method 6.6 Solve numerical problems 7 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 8 TWO-PORT NETWORK: 8.1 Open circuit impedance (z) parameters 8.2 Short circuit admittance (y) parameters 1 1 8.3 Transmission (ABCD) parameters 1 1 8.4 Hybrid (h) parameters 1 1 8.5 Inter relationships of different parameters 1 1 8.6 T and \(\pi\) representation. 1 2 8.7 Solve numerical problems 9 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. 1 1 9.7 Constant - K Band pass filter. 1 1		connection		
6.5 Measurement of 3-phase power by two wattmeter method 6.6 Solve numerical problems 7 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 8 TWO-PORT NETWORK: 8.1 Open circuit impedance (z) parameters 1 Short circuit admittance (y) parameters 1 Short circuit admittance (y) parameters 1 Hybrid (h) parameters. 1 Inter relationships of different parameters 1 Inter relationships of different parameters 2 Solve numerical problems 9 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 logh pass filter. 1 Constant – K Band pass filter. 1 Constant – K Band elimination filter	6.3	Power equation in 3-phase balanced circuit	1	
6.6 Solve numerical problems 1 7 TRANSIENTS 2 7.1 Steady state & transient state response 2 7.2 Response to R-L, R-C & RLC circuit under DC condition 2 7.3 Solve numerical problems 2 8 TWO-PORT NETWORK: 2 8.1 Open circuit impedance (z) parameters 1 8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 8.4 Hybrid (h) parameters. 1 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 FILTERS 9.1 9.1 Define filter 9.2 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 9.3 Classification of filters. 1 9.4 Constant – K low pass filter. 1 9.5 Constant – K high pass filter. 1 9.6 Constant – K Band pass filter. 1 9.7 Constant – K Band elimination filter 1	6.4	Solve numerical problems	1	
7 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 8 TWO-PORT NETWORK: 8.1 Open circuit impedance (z) parameters 1 Short circuit admittance (y) parameters 1 Hybrid (h) parameters 1 Inter relationships of different parameters 1 Inter relationships of different parameters 1 Solve numerical problems 9 FILTERS 9.1 Define filter 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 Classification of filters. 1 Constant – K low pass filter. 9.5 Constant – K Band pass filter. 1 Constant – K Band pass filter. 1 Constant – K Band elimination filter	6.5	Measurement of 3-phase power by two wattmeter method	1	
7.1 Steady state & transient state response 2 7.2 Response to R-L, R-C & RLC circuit under DC condition 2 7.3 Solve numerical problems 2 8 TWO-PORT NETWORK: 2 8.1 Open circuit impedance (z) parameters 1 8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 8.4 Hybrid (h) parameters. 1 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 FILTERS 9.1 Define filter 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 Classification of filters. 1 9.4 Constant – K low pass filter 1 9.5 Constant – K high pass filter. 1 9.6 Constant – K Band pass filter. 1 9.7 Constant – K Band elimination filter 1	6.6	Solve numerical problems	1	
7.1 Steady state & transient state response 2 7.2 Response to R-L, R-C & RLC circuit under DC condition 2 7.3 Solve numerical problems 2 8 TWO-PORT NETWORK: 2 8.1 Open circuit impedance (z) parameters 1 8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 8.4 Hybrid (h) parameters. 1 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 FILTERS 9.1 Define filter 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 Classification of filters. 1 9.4 Constant – K low pass filter 1 9.5 Constant – K high pass filter. 1 9.6 Constant – K Band pass filter. 1 9.7 Constant – K Band elimination filter 1				
7.2 Response to R-L, R-C & RLC circuit under DC condition 2 7.3 Solve numerical problems 2 8 TWO-PORT NETWORK: 2 8.1 Open circuit impedance (z) parameters 1 8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 8.4 Hybrid (h) parameters. 1 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 FILTERS 2 9.1 Define filter 2 9.2 Classification of pass Band, stop Band and cut-off frequency 2 9.3 Classification of filters. 1 9.4 Constant – K low pass filter 1 9.5 Constant – K high pass filter. 1 9.6 Constant – K Band elimination filter 1	7	TRANSIENTS		
7.3 Solve numerical problems 2 8 TWO-PORT NETWORK: 8.1 Open circuit impedance (z) parameters 1 8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 8.4 Hybrid (h) parameters. 1 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 FILTERS 2 9.1 Define filter 2 9.2 Classification of pass Band, stop Band and cut-off frequency 2 9.3 Classification of filters. 1 9.4 Constant – K low pass filter 1 9.5 Constant – K high pass filter. 1 9.6 Constant – K Band pass filter. 1 9.7 Constant – K Band elimination filter 1	7.1	Steady state & transient state response	2	
8 TWO-PORT NETWORK: 8.1 Open circuit impedance (z) parameters 8.2 Short circuit admittance (y) parameters 1 1 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	7.2	Response to R-L, R-C & RLC circuit under DC condition	2	
8.1 Open circuit impedance (z) parameters 1 8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 8.4 Hybrid (h) parameters. 1 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 FILTERS 9.1 Define filter 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 Classification of filters. 1 9.4 Constant – K low pass filter 1 9.5 Constant – K high pass filter. 1 9.6 Constant – K Band pass filter. 1 9.7 Constant – K Band elimination filter 1	7.3	Solve numerical problems	2	
8.1 Open circuit impedance (z) parameters 1 8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 8.4 Hybrid (h) parameters. 1 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 FILTERS 9.1 Define filter 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 Classification of filters. 1 9.4 Constant – K low pass filter 1 9.5 Constant – K high pass filter. 1 9.6 Constant – K Band pass filter. 1 9.7 Constant – K Band elimination filter 1				
8.2 Short circuit admittance (y) parameters 1 8.3 Transmission (ABCD) parameters 1 8.4 Hybrid (h) parameters. 1 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 FILTERS 2 9.1 Define filter 2 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 9.3 Classification of filters. 1 9.4 Constant – K low pass filter 1 9.5 Constant – K high pass filter. 1 9.6 Constant – K Band pass filter. 1 9.7 Constant – K Band elimination filter 1	8	TWO-PORT NETWORK:		
8.3 Transmission (ABCD) parameters 8.4 Hybrid (h) parameters. 8.5 Inter relationships of different parameters 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8.1	Open circuit impedance (z) parameters	1	
8.4 Hybrid (h) parameters. 8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 FILTERS 9.1 Define filter 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 Classification of filters. 1 9.4 Constant – K low pass filter 9.5 Constant – K high pass filter. 1 9.6 Constant – K Band pass filter. 9.7 Constant – K Band elimination filter	8.2	Short circuit admittance (y) parameters	1	
8.5 Inter relationships of different parameters 1 8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 FILTERS 2 9.1 Define filter 9.2 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 9.3 Classification of filters. 1 9.4 Constant – K low pass filter 1 9.5 Constant – K high pass filter. 1 9.6 Constant – K Band pass filter. 1 9.7 Constant – K Band elimination filter 1	8.3	Transmission (ABCD) parameters	1	
8.6 T and π representation. 1 8.7 Solve numerical problems 2 9 FILTERS 9.1 9.1 Define filter 9.2 9.2 Classification of pass Band, stop Band and cut-off frequency 9.3 9.3 Classification of filters. 1 9.4 Constant – K low pass filter 1 9.5 Constant – K high pass filter. 1 9.6 Constant – K Band pass filter. 1 9.7 Constant – K Band elimination filter 1	8.4	Hybrid (h) parameters.	1	
8.7 Solve numerical problems 9 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 1	8.5	Inter relationships of different parameters	1	
9FILTERS9.1Define filter9.2Classification of pass Band, stop Band and cut-off frequency9.3Classification of filters.9.4Constant – K low pass filter9.5Constant – K high pass filter.9.6Constant – K Band pass filter.9.7Constant – K Band elimination filter	8.6	T and π representation.	1	
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	8.7	Solve numerical problems	2	
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				
9.2Classification of pass Band, stop Band and cut-off frequency9.3Classification of filters.19.4Constant – K low pass filter19.5Constant – K high pass filter.19.6Constant – K Band pass filter.19.7Constant – K Band elimination filter1	9	FILTERS		
9.3Classification of filters.19.4Constant – K low pass filter19.5Constant – K high pass filter.19.6Constant – K Band pass filter.19.7Constant – K Band elimination filter1	9.1	Define filter		
9.4Constant – K low pass filter19.5Constant – K high pass filter.19.6Constant – K Band pass filter.19.7Constant – K Band elimination filter1	9.2	Classification of pass Band, stop Band and cut-off frequency		
9.5Constant – K high pass filter.19.6Constant – K Band pass filter.19.7Constant – K Band elimination filter1	9.3	Classification of filters.	1	
9.6Constant – K Band pass filter.19.7Constant – K Band elimination filter1	9.4	Constant – K low pass filter	1	
9.7 Constant – K Band elimination filter 1	9.5	Constant – K high pass filter.	1	
	9.6	Constant – K Band pass filter.	1	
9.8 Solve Numerical problems 1	9.7	Constant – K Band elimination filter	1	
	9.8	Solve Numerical problems	1	

SUBJECT- ELECTRICAL ENGINEERING MATERIAL

SUBJECT CODE-TH4

Module	Topic to be covered	No. of	Tentative
No.		periods required	date for completion
1	Conducting Materials:	1	Completion
1.1	Introduction	1	
1.2	Resistivity, factors affecting resistivity	1	
1.3	Classification of conducting materials into low-resistivity and	2	
	high resistivity materials		
1.4	Low Resistivity Materials and their Applications. (Copper,	2	
	Silver, Gold, Aluminum, Steel)		
1.5	Stranded conductors	1	
1.6	Bundled conductors	1	
1.7	Low resistivity copper alloys	1	
1.8	High Resistivity Materials and their Applications (Tungsten,	2	
	Carbon, Platinum, Mercury)		
1.9	Superconductivity	1	
1.10	Superconducting materials	2	
1.11	Application of superconductor materials	1	
2	Semiconducting Materials:		
2.1	Introduction		
2.2	Semiconductors	1	
2.3	Electron Energy and Energy Band Theory		
2.4	Excitation of Atoms		
2.5	Insulators, Semiconductors and Conductors	1	
2.6	Semiconductor Materials	1	
2.7	Covalent Bonds		
2.8	Intrinsic Semiconductors		
2.9	Extrinsic Semiconductors	1	
2.10	N-Type Materials		
2.11	P-Type Materials	1	
2.12	Minority and Majority Carriers		
2.13	Semi-Conductor Materials		
2.14	Applications of Semiconductor materials		
2.14.1	Rectifiers	1	
2.14.2	Temperature-sensitive resisters or thermistors		
2.14.3	Photoconductive cells		
2.14.4	Photovoltaic cells	1	
2.14.5	Varisters		
2.14.6	Transistors	1	
2.14.7	Hall effect generators	1	
2.14.8	Solar power	1	
3	Insulating Materials:		
3.1	Introduction		

3.2	General properties of Insulating Materials	1	
3.2.1	Electrical properties	1	
3.2.2	Visual properties	1	
3.2.3	Mechanical properties		
3.2.4	Thermal properties	1	
3.2.5	Chemical properties	_	
3.2.6	Ageing	1	
3.3	Insulating Materials – Classification, properties, applications	1	
3.3.1	Introduction		
3.3.2	Classification of insulating materials on the basis physical and	1	
	chemical structure	_	
3.4	Insulating Gases	1	
3.4.1	Introduction.		
3.4.2	Commonly used insulating gases	1	
	, 33		
4	Dielectric Materials:		
4.1	Introduction	1	
4.2	Dielectric Constant of Permittivity	1	
4.3	Polarization	1	
4.4	Dielectric Loss	1	
4.5	Electric Conductivity of Dielectrics and their Break Down	2	
4.6	Properties of Dielectrics	1	
4.7	Applications of Dielectrics	1	
5	Magnetic Materials:		
5.1	Introduction		
5.2	Classification	1	
5.2.1	Diamagnetism	1	
5.2.2	Para magnetism		
5.2.3	Ferromagnetism	1	
5.3	Magnetization Curve		
5.4	Hysteresis	1	
5.5	Eddy Currents		
5.6	Curie Point	1	
5.7	Magneto-striction		
5.8	Soft and Hard magnetic Materials	1	
5.8.1	Soft magnetic materials	1	
5.8.2	Hard magnetic materials	1	
6	Materials for Special Purposes:		
6.1	Introduction	1	
6.2	Structural Materials		
6.3	Protective Materials	1	
6.3.1	Lead		
6.3.2	Steel tapes, wires and strips	1	
6.4	Other Materials	1	
6.4.1	Thermocouple materials	1	
6.4.2	Bimetals	1	
6.4.3	Soldering Materials	1	
6.4.4	Fuse and Fuse materials.	1	
6.4.5	Dehydrating material	1	

SUBJECT- ELEMENTS OF MECHANICAL ENGINEERING SUBJECT CODE- TH3

Module No.	Topic to be covered	No. of periods required	Tentative date for completion
1	THERMODYNAICS:	1	
1.1	State Unit of Heat and work, 1st law of thermodynamics	2	
1.2	State Laws of perfect gases	1	
1.3	Determine relationship of specific heat of gases at constant volume and constant pressure.	2	
2	PROPERTIES OF STEAM	1	
2.1	Use steam table for solution of simple problem	2	
2.2	Explain total heat of wet, dry and super heated steam	2	
3	BOILERS:	1	
3.1	State types of Boilers	3	
3.2	Describe Cochran, Babcock Wilcox boiler	3	
3.3	Describe Mountings and accessories	3	
4	STEAM ENGINES:	1	
4.1	Explain the principle of Simple steam engine	2	
4.2	Draw Indicator diagram	1	
4.3	Calculate Mean effective pressure, IHP and BHP and mechanical efficiency	3	
4.4	Solve Simple problem	3	
5	STEAM TURBINES	1	
5.1	State Types	2	
5.2	Differentiate between impulse and reaction Turbine	3	
6	CONDENSER:	1	
6.1	Explain the function of condenser	2	
6.2	State their types	2	
7	I.C. ENGINE:	1	
7.1	Explain working of two stroke and 4 stroke petrol and Diesel engines	2	
7.2	Differentiate between them	1	
8	HYDROSTATICS:	1	
8.1	Describe properties of fluid	2	
8.2	Determine pressure at a point, pressure measuring Instruments	2	
0	LVDDOVINETICS	1	1
9	HYDROKINETICS: Deduce equation of continuity of flow	1	
9.1	Deduce equation of continuity of flow	1	

9.2	Explain energy of flowing liquid	1	
9.3	State and explain Bernoulli's theorem	2	
10	HYDRAULIC DEVICES AND PNEUMATICS	1	
10.1	Intensifier	1	
10.2	Hydraulic lift	1	
10.3	Accumulator	1	
10.4	Hydraulic ram	1	

SUBJECT- ENVIRONMENTAL STUDIES

SUBJECT CODE-TH5

Module No.	Topic to be covered	No. of periods required	Tentative date for completion
1	The Multidisciplinary nature of environmental studies:	1	
1.1	Definition, scope and importance	1	
1.2	Need for public awareness	2	
2	Natural Resources:		
	Renewable and non renewable resources:		
2.1	Natural resources and associated problems.	1	
2.1.1	Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people	2	
2.1.2	Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems	1	
2.1.3	Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources	1	
2.1.4	Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity, .	1	
2.1.5	Energy Resources: Growing energy need, renewable and non- renewable energy sources, use of alternate energy sources, case studies.	1	
2.1.6	Land Resources: Land as a resource, land degradation, man induces landslides, soil erosion, and desertification.	1	
2.2	Role of individual in conservation of natural resources.	1	
2.3	Equitable use of resources for sustainable life styles.	1	
3	Systems:		
3.1	Concept of an eco system		
3.2	Structure and function of an eco system	1	
3.3	Producers, consumers, decomposers	1	
3.4	Energy flow in the eco systems	1	
3.5	Ecological succession.	1	
3.6	Food chains, food webs and ecological pyramids	1	
3.7	Introduction, types, characteristic features, structure and function of the following eco system:	1	
3.8	Forest ecosystem	1	
3.9	Aquatic eco systems (ponds, streams, lakes, rivers, oceans,	1	
4	Biodiversity and it's Conservation:	1	
4.1	Introduction-Definition: genetics, species and ecosystem diversity.	1	
4.2	Biogeographically classification of India.	1	

4.3 Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and optin values. 4.4 Biodiversity at global, national and local level. 4.5 Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts. 5 Environmental Pollution: 5.1 Definition Causes, effects and control measures of: 5.1.1 Air pollution. 5.1.2 Water pollution. 5.1.3 Soil pollution 5.1.4 Marine pollution 5.1.5 Noise pollution 5.1.6 Thermal pollution 5.1.7 Nuclear hazards. 5.1 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 1 Cause of Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 1 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 1 Population growth and variation among nations. 1 Population growth and variation among nations. 1 Population growth and variation among nations. 1 Population prowth and variation among nations. 1 Population for formation technology in environment and human health 1 Human rights. 1 Population formation technology in environment and human health 1 Population formation technology in environment and human health 1 Population formation technology in environment and human health		<u>, </u>		
4.4 Biodiversity at global, national and local level. 4.5 Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts. 5 Environmental Pollution: 5.1 Definition Causes, effects and control measures of: 5.1.1 Air pollution. 5.1.2 Water pollution. 5.1.3 Soil pollution 5.1.4 Marine pollution 5.1.5 Noise pollution 5.1.6 Thermal pollution 5.1.7 Nuclear hazards. 5.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 1 2 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 1 Population growth and variation among nations. 7 Human population explosion-family welfare program 7.1 Population growth and variation among nations. 7.2 Population explosion-family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human	4.3	•	2	
4.5 Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts. 5 Environmental Pollution: 5.1 Definition Causes, effects and control measures of: 1 5.1.1 Air pollution. 5.1.2 Water pollution. 5.1.3 Soil pollution 5.1.4 Marine pollution 5.1.5 Noise pollution 1 1 5.1.5 Noise pollution 5.1.6 Thermal pollution 1 1 5.1.7 Nuclear hazards. 5.1 Soil dwaste Management: Causes, effects and control measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 7 Human population and the environment: 7.1 Population explosion- family welfare program 1 7.2 Population explosion- family welfare program 1 7.3 Environment and human health 7.4 Human rights. 1 7.5 Value education 7.6 Role of information technology in environment and human 2	4.4		1	
wildlife conflicts. 5 Environmental Pollution: 5.1 Definition Causes, effects and control measures of: 1 5.1.1 Air pollution. 5.1.2 Water pollution. 5.1.3 Soil pollution 5.1.4 Marine pollution 5.1.5 Noise pollution 5.1.5 Noise pollution. 5.1.6 Thermal pollution 5.1.7 Nuclear hazards. 5.1 Soil dwaste Management: Causes, effects and control measures of urban and industrial wastes. 5.2 Soild waste Management: Causes, effects and control measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 1 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed 1 management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer 2 depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 1 Concern. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 1 7.3 Environment and human health 1 7.4 Human rights. 1 7.5 Value education 1 7.6 Role of information technology in environment and human 2		· -		
5 Environmental Pollution: 5.1 Definition Causes, effects and control measures of: 5.1.1 Air pollution. 5.1.2 Water pollution. 5.1.3 Soil pollution 5.1.4 Marine pollution 1 1 5.1.5 Noise pollution 1 1 5.1.6 Thermal pollution 1 1 5.1.7 Nuclear hazards. 5.1 Soil dwaste Management: Causes, effects and control measures of urban and industrial wastes. 5.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 1 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 1 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 1 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 1 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 1 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 1 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 1 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust,			_	
5.1. Definition Causes, effects and control measures of: 5.1.1 Air pollution. 5.1.2. Water pollution. 5.1.3 Soil pollution 5.1.4 Marine pollution 5.1.5 Noise pollution 5.1.5 Noise pollution. 5.1.6 Thermal pollution 5.1.7 Nuclear hazards. 5.1 Soil dwaste Management: Causes, effects and control measures of urban and industrial wastes. 5.2 Soilid waste Management: Floods, earth quake, cyclone and landslides 6.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion-family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human				
5.1. Definition Causes, effects and control measures of: 5.1.1 Air pollution. 5.1.2. Water pollution. 5.1.3 Soil pollution 5.1.4 Marine pollution 5.1.5 Noise pollution 5.1.5 Noise pollution. 5.1.6 Thermal pollution 5.1.7 Nuclear hazards. 5.1 Soil dwaste Management: Causes, effects and control measures of urban and industrial wastes. 5.2 Soilid waste Management: Floods, earth quake, cyclone and landslides 6.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6.1 Form unsustainable to sustainable development 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion-family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human	5	Environmental Pollution:	1	
5.1.1 Air pollution. 1 5.1.2 Water pollution. 1 5.1.3 Soil pollution 1 5.1.4 Marine pollution 1 5.1.5 Noise pollution. 1 5.1.5 Noise pollution. 1 5.1.6 Thermal pollution 1 5.1.7 Nuclear hazards. 1 5.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 1 5.3 Role of an individual in prevention of pollution. 1 5.4 Disaster management: Floods, earth quake, cyclone and landslides 1 6 Social issues and the Environment: 1 6.1 Form unsustainable to sustainable development 1 6.2 Urban problems related to energy. 1 6.3 Water conservation, rain water harvesting, water shed management. 1 6.4 Resettlement and rehabilitation of people; its problems and concern. 1 6.5 Environmental ethics: issue and possible solutions. 1 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 1 6.7 Air (prevention and control of pollution) Act. 1 6.8 Water (prevention and control of pollution) Act. 1 6.9 Public awareness. 1 7 Human population and the environment: 1 7.1 Population growth and variation among nations. 1 7.2 Population explosion-family welfare program 1 7.3 Environment and human health 1 7.4 Human rights. 1 7.5 Value education 1 7.6 Role of information technology in environment and human 2				
5.1.2. Water pollution. 5.1.3 Soil pollution 5.1.4 Marine pollution 5.1.5 Noise pollution. 5.1.5 Noise pollution. 5.1.6 Thermal pollution 5.1.7 Nuclear hazards. 5.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 1 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human				
5.1.3 Soil pollution 5.1.4 Marine pollution 5.1.5 Noise pollution 5.1.5 Noise pollution 5.1.6 Thermal pollution 5.1.7 Nuclear hazards. 5.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human				
5.1.4 Marine pollution 5.1.5 Noise pollution. 5.1.6 Thermal pollution 5.1.7 Nuclear hazards. 5.1 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human				
5.1.5 Noise pollution. 5.1.6 Thermal pollution 5.1.7 Nuclear hazards. 5.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 7 Human population and the environment: 7 Human population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human		·		
5.1.6 Thermal pollution 1 5.1.7 Nuclear hazards. 1 5.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 1 5.3 Role of an individual in prevention of pollution. 1 5.4 Disaster management: Floods, earth quake, cyclone and landslides 1 6 Social issues and the Environment: 1 6.1 Form unsustainable to sustainable development 1 6.2 Urban problems related to energy. 1 6.3 Water conservation, rain water harvesting, water shed management. 1 6.4 Resettlement and rehabilitation of people; its problems and concern. 1 6.5 Environmental ethics: issue and possible solutions. 1 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 2 6.7 Air (prevention and control of pollution) Act. 1 6.8 Water (prevention and control of pollution) Act. 1 6.9 Public awareness. 1 7 Human population and the environment: 1 7.1 Population growth and variation among nations. 1 7.2 Population explosion-family welfare program 1 7.3 Environment and human health<	-	·		
5.1.7 Nuclear hazards. 5.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 1 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 1 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human				
5.2 Solid waste Management: Causes, effects and control measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 1 1 6.9 Public awareness. 1 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 1 1 7.5 Value education 7.6 Role of information technology in environment and human				
measures of urban and industrial wastes. 5.3 Role of an individual in prevention of pollution. 5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 1 0.2 Urban problems related to energy. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5.2	Solid waste Management: Causes, effects and control		
5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human		,		
5.4 Disaster management: Floods, earth quake, cyclone and landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human	5.3	Role of an individual in prevention of pollution.	1	
landslides 6 Social issues and the Environment: 6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human 7.6	5.4			
6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human				
6.1 Form unsustainable to sustainable development 6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human				
6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 1 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human	6	Social issues and the Environment:		
6.2 Urban problems related to energy. 6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 1 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human	6.1	Form unsustainable to sustainable development	1	
6.3 Water conservation, rain water harvesting, water shed management. 6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 1 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human	6.2	·	1	
6.4 Resettlement and rehabilitation of people; its problems and concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 1 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human	6.3		1	
concern. 6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 1 7 Human population and the environment: 1 7.1 Population growth and variation among nations. 1 7.2 Population explosion- family welfare program 1 7.3 Environment and human health 1 7.4 Human rights. 1 7.5 Value education 1 7.6 Role of information technology in environment and human 2		management.		
6.5 Environmental ethics: issue and possible solutions. 6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 1 0.9 Public awareness. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6.4	Resettlement and rehabilitation of people; its problems and	1	
6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 1 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human 2		concern.		
depletion, nuclear accidents and holocaust, case studies. 6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 1 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human 2	6.5	Environmental ethics: issue and possible solutions.	1	
6.7 Air (prevention and control of pollution) Act. 6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 1 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human 2	6.6	Climate change, global warming, acid rain, ozone layer	2	
6.8 Water (prevention and control of pollution) Act. 6.9 Public awareness. 7 Human population and the environment: 7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human 2		depletion, nuclear accidents and holocaust, case studies.		
6.9 Public awareness. 1 7 Human population and the environment: 1 7.1 Population growth and variation among nations. 1 7.2 Population explosion- family welfare program 1 7.3 Environment and human health 1 7.4 Human rights. 1 7.5 Value education 1 7.6 Role of information technology in environment and human 2	6.7	Air (prevention and control of pollution) Act.	1	
7 Human population and the environment: 1 7.1 Population growth and variation among nations. 1 7.2 Population explosion- family welfare program 1 7.3 Environment and human health 1 7.4 Human rights. 1 7.5 Value education 1 Role of information technology in environment and human 2	6.8	Water (prevention and control of pollution) Act.	1	
7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human 2	6.9	Public awareness.	1	
7.1 Population growth and variation among nations. 7.2 Population explosion- family welfare program 7.3 Environment and human health 7.4 Human rights. 7.5 Value education 7.6 Role of information technology in environment and human 2				
7.2Population explosion- family welfare program17.3Environment and human health17.4Human rights.17.5Value education17.6Role of information technology in environment and human2	7	Human population and the environment:	1	
7.3Environment and human health17.4Human rights.17.5Value education17.6Role of information technology in environment and human2	7.1	Population growth and variation among nations.	1	
7.4Human rights.17.5Value education17.6Role of information technology in environment and human2	7.2	Population explosion- family welfare program	1	
7.5 Value education 1 7.6 Role of information technology in environment and human 2	7.3	Environment and human health	1	
7.6 Role of information technology in environment and human 2	7.4	Human rights.	1	
	7.5	Value education	1	
health	7.6	Role of information technology in environment and human	2	
		health		

SUBJECT-ENGINEEING MATHEMATICS-III SEM-3RD BRANCH-EE			SUBJECT CODE-TH1	
Module No.	Topic to be covered	No. of periods required	Tentative date for completion	
1	Complex Numbers			
1.1	Real and Imaginary numbers	1		
1.2	Complex numbers, conjugate, modulus, amplitude	1		
1.3	Geometrical Representation of Complex Numbers	1		
1.4	Properties of Complex Numbers	1		
1.5	Cube roots of unity and properties,			
1.6	De Moivre's theorem	1		
1.7	Problem solving on 1.1 - 1.6	1		
2	Matrices			
2.1	Define rank of a matrix			
2.2	Row transformations to determine rank	1		
2.3	Rouche's theorem	1		
2.4	Solve equations in three unknowns	1		
2.5	Problem solving on 2.1 – 2.4	1		
3	Linear Differential Equations			
3.1	Define Homogeneous and Non – Homogeneous Linear Differential Equations with constant coefficients with	1		
3.2	examples General solution in terms of C.F. and P.I.	1		
		1 1		
3.3	Rules for C.F. and P.I. using operator D			
3.4	Define partial differential equation (P.D.E)	1		
3.6	Form P.D.E by eliminating arbitrary constants/functions	1		
3.7	Solve P.D.E of the form Pp + Qq = R	1		
3.7	Problem solving on 3.1 - 3.6 Problem solving	1 1		
	Problem solving	1		
	Problem solving	1		
4	Laplace Transforms			
4.1	Define Gamma function	1		
4.2	Laplace and Inverse Laplace Transform	1		
4.3	L.T. of standard functions and existence conditions	2		
4.4	Linear and shifting properties	1		
4.5	L.T. of derivatives, integrals, multiplication/division	2		
4.6	Inverse L.T. and partial fractions	2		
4.7	Problem solving on 4.1 - 4.6	1		
	Problem solving	1		
	Problem solving	1		
5	Fourier Series			
5.1	Define periodic functions	1		
5.2	Dirichlet's conditions	1		

5.3	Fourier series for periodic functions	2	
5.4	Euler's formulae	1	
5.5	Even and Odd functions	1	
5.6	Fourier series with discontinuity	2	
5.7	Problem solving on 5.1 - 5.6	2	
	Problem solving	1	
	Problem solving	1	
6	Numerical Methods		
6.1	Appraise limitation of analytical methods of solution of		
0.1	Algebraic Equations		
6.2	Derive Iterative formula for finding the solutions of	1	
	Algebraic Equations by :	•	
6.2.1	Bisection method	1	
6.2.2	Newton-Raphson method	1	
6.3	Problem solving on 6.2	1	
7	Finite difference and interpolation		
7.1	Finite difference and tables	1	
7.2	Shift and difference operator relation	1	
7.3	Newton's interpolation formulae	1	
7.4	Lagrange's interpolation formula	1	
7.5	Numerical integration rules	1	
7.5.1	Newton's Cote's formula.	1	
7.5.2	Trapezoidal rule.	1	
7.5.3	Simpson's 1/3rd rule	1	
7.6	Problem solving on 7.1 - 7.5	1	
	Problem solving	1	
	Problem solving	1	
	Problem solving	1	

SUBJECT- CIRCUIT AND SIMULATION LABORATORY

SUBJECT CODE- Pr.2

Experiment No.	Experiment to be done	No. of periods required	Tentative date for completion
1	Measurement of equivalent resistance in series and parallel circuit	2	
2	Measurement of power and power factor using series R-L-C Load.	2	
3	Verification of KCL and KVL.	2	
4	Verification of Super position theorem	2	
5	Verification of Thevenin's Theorem	2	
6	Verification of Norton's Theorem	2	
7	Verification of Maximum power transfer Theorem	2	
8	Determine resonant frequency of series R-L-C circuit.	2	
9	Study of Low pass filter & determination of cut-off frequency	2	
10	Study of High pass filter & determination of cut-off frequency	2	
11	Analyze the charging and discharging of an R-C & R-L circuit with oscilloscope and Compute the time constant from the tabulated data and determine the rise time graphically	3	
12	Construct the following circuits using P-Spice/MATLAB software and compare the measurements and waveforms. i. Superposition theorem	3	
	ii. Series Resonant Circuit	2	
	iii. Transient Response in R-L-C series circuit	2	

SUBJECT- MECHANICAL ENGINEERING LABORATORY SUBJECT CODE- Pr.1

Experiment No.	Experiment to be done	No. of periods required	Tentative date for completion
1	APPLIED MECHANICS & MATERIAL TESTING		
1.1	Determination of M.A., V.R. and efficiency of Screw Jack	1	
1.2	Determination of friction co-efficient of bearing	1	
1.3	Determination of Young's modulus by Searle's Apparatus	1	
1.4	Determination of M.A., V.R. and efficiency of wheel train	1	
1.5	Determination of Bending stress in beam using strain gauge	1	
1.6	Study of Universal Testing Machine and determination of tensile stress and Young's module of M.S specification	1	
2	HYDRAULICS & HYDRAULIC MACHINE LAB		
2.1	Study of pressure measuring devices such as (a) Piezo-meter (b) Simple manometer	1	
2.2	Study of venturi-meter	1	
2.3	Verification of Bernouli's Theorem	1	
2.4	Model study of Centrifugal pumps, Francis, Turbine, Kaplan turbine and Pelton wheel.	2	
3	HEAT ENGINE LAB		
3.1	Study of Cochran Boiler	1	
3.2	Study and demonstration of Stream Engine	1	
3.3	Study and demonstration of Diesel Engine	1	
3.4	Study and demonstration of Petrol Engine	1	

SUBJECT- MECHANICAL WORKSHOP PRACTICE SUBJECT CODE- Pr.3

Experiment No.	Experiment to be done	No. of periods required	Tentative date for completion
1	Carpentry:	1	Completion
1.1	Name of carpentry tools and uses	3	
1.2	Different operations	3	
	a. Sawing		
	b. Planning		
	c. Chiseling		
1.3	Measuring & Marking	2	
1.4	Different types of timbers used by carpenters, substitutions of timbers.	3	
1.5	Jobs :	3	
	a. Slot. Notch		
	b. Mortise and tenon joint		
	c. Single dovetail joint		
2	Turning	1	
	Study of S. C. Lathes and their accessories, practice in lathe work involving various operations such as	2	
	plane turning,	3	
	step turning,	3	
	tapper turning,	3	
	knuckling	3	
	and external V. Threading. (One job only.)	2	