

Govt. Polytechnic, Manesar

Lesson Plan

Name of the Faculty : - MS. Manju

Discipline : - Electronics & Communication Engg.

Semester : - 3rd

Subject : - NFTL

Lesson Plan Duration : - 15 weeks (from July 2019 to Nov 2019)

Work Load (Lecture/Practical) per Week (In Hours):- Lecture - 03, Practical - 04

WEEK	THEORY		PRACTICAL	
	LECTURE DAY	TOPIC (including assignment/test)	PRACTICAL DAY	TOPIC
1 st	1 st	Study about network One port, Two port (four terminals) network	1 st Group-1	Introduction about Practical of NFTL
	2 nd	Basic concept of the Symmetrical and asymmetrical networks		
	3 rd	Balanced and unbalanced network	2 nd Group-2	Introduction about Practical of NFTL
	4 th	T-network, Π network		
2 nd	5 th	Ladder network, Lattice network	3 rd Group-1	To measure the characteristic impedance of symmetrical T and Π networks
	6 th	L-network and Bridge T-network		
	7 th	Symmetrical Network concept and significance of the terms characteristic impedance.	4 th Group-2	To measure the characteristic impedance of symmetrical T and Π networks
8 th	Symmetrical Network Concept and significance of the terms propagation constant			
3 rd	9 th	Phase shift constant and insertion loss of T-network	5 th Group-1	To measure the image impedance of a given asymmetrical T and Π networks
	10 th	Phase shift constant and insertion loss of Π Network		
	11 th	Asymmetrical Network - Concept and significance of iterative impedance	6 th Group-2	To measure the image impedance of a given asymmetrical T and Π networks
	12 th	Concept and significance of image impedance		
4 th	13 th	Image transfer constant and insertion loss	7 th Group-1	Revision
	14 th	The half section (L-section)		
	15 th	Symmetrical T into half sections	8 th Group-2	Revision
	16 th	Π sections into half sections		
5 th	17 th	Revision	9 th Group-1	For a prototype low pass filter: a) Determine the characteristic
	18 th	Attenuators		

		Units of attenuation (Decibels and Nepers)		impedance experimentally b) Plot the attenuation characteristic
	19 th	General characteristics of attenuators	10 th	For a prototype low pass filter: a) Determine the characteristic impedance experimentally b) Plot the attenuation characteristic
	20 th	Analysis and design of simple attenuator of Symmetrical T type	Group-2	
6 th	21 th	Analysis and design of simple attenuator of Π type, L type Assignments	11 th	To design and measure the attenuation of a symmetrical T/ Π type attenuator
	22 th	Test	Group-1	
	23 th	Brief idea of the Filters	12 th	To design and measure the attenuation of a symmetrical T/ Π type attenuator
	24 th	Use of filter networks in different communication systems	Group-2	
7 th	25 th	Concept of low pass and high pass filters	13 th	For a prototype high pass filter: a) Determine the characteristic impedance experimentally b) To plot the attenuation characteristic
	26 th	Concept of band pass and band stop filters	Group-1	
	27 th	Prototype Filter section Impedance characteristics vs frequency	14 th	For a prototype high pass filter: a) Determine the characteristic impedance experimentally b) To plot the attenuation characteristic
	28 th	Characteristics of a low pass filter and their significance	Group-1	
	29 th	Impedance characteristics vs frequency characteristics of a high pass filter and their significance	15 th	a) To plot the Impedance characteristic of a prototype band-pass filter b) To plot the attenuation characteristic of a prototype band pass filter
8 th	30 th	Attenuation Vs frequency; Phase shift Vs frequency of T filters	Group-1	
	31 st	Characteristics impedance vs frequency of T filters and their significance	16 th	a) To plot the Impedance characteristic of a prototype band-pass filter b) To plot the attenuation characteristic of a prototype band pass filter
	32 nd	Phase shift Vs frequency, characteristics impedance vs frequency of Π filters and their significance	Group-2	
	33 rd	Simple design problems of prototype low pass filter	17 th	a) To plot the impedance characteristic of m- derived low pass filter b) To plot the attenuation characteristics of m-derived high pass filter
	34 th	M-Derived Filter Sections	Group-1	
9 th	35 th	Limitation of prototype filters, need of m-derived filters	18 th	a) To plot the impedance characteristic of m- derived low pass filter b) To plot the attenuation characteristics of m-derived
	36 th	Crystal Filters Crystal and its equivalent circuits,	Group-2	

				high pass filter
10 th	37 th	Special properties of piezoelectric filters and their use	19 th Group-1	To observe the information of standing waves on a transmission line and measurement of SWR and characteristic impedance of the line
	38 th	Active Filters Basic concept of active filters and their comparison with passive filters. Assignment		
	39 th	Quiz, Assignment	20 th Group-2	To observe the information of standing waves on a transmission line and measurement of SWR and characteristic impedance of the line
	40 th	Test		
11 th	41 st	Transmission Lines and their types.	21 st Group-1	Draw the attenuation characteristics of a crystal filter
	42 nd	Applications of transmission lines Distributed constants		
	43 rd	T representation of transmission line section	22 nd Group-2	Draw the attenuation characteristics of a crystal filter
	44 th	Π representation of transmission line section		
12 th	45 th	Definition of characteristic impedance, propagation constant	23 rd Group-1	Revision
	46 th	Attenuation constant		
	47 th	Phase shift constant	24 th Group-2	Revision
	48 th	Concept of infinite line		
13 th	49 th	Condition for minimum distortion and minimum attenuation of signal on-the-line	25 th Group-1	Revision
	50 th	Introduction to loading methods		
	51 st	Concept of reflection and standing waves, definition of reflection coefficient	26 th Group-2	Revision
	52 nd	SWR & VSWR and their relation (no derivation)		
14 th	53 rd	Transmission line equation, expression for voltage, current and impedance at a point on the line	27 th Group-1	Revision
	54 th	Expression for Current and impedance at a point on the line.		
	55 th	Concept of transmission lines at high frequencies	28 th Group-2	Revision
	56 th	Introduction to stubs. (single, open and short stubs)		
15 th	57 th	HVDC (High Voltage DC transmission) – Concept.	29 th Group-1	Viva
	58 th	Advantage, Disadvantage and areas of application Assignment		
	59 th	Quiz, Assignment	30 th Group-2	Viva
	60 th	Test		