Govt.Polytechnic Education society,Manesar

**LessonPlan**

**NameoftheFaculty**:-Mr. Himanshu Yadav

**Discipline** :-Electronics&CommunicationEngg.

**Semester** :-3rd

**Subject** :-NFTL

**LessonPlan Duration:**-15weeks(fromSep2022toJan2023)

WorkLoad(Lecture/Practical) perWeek(InHours):-Lecture-**03**,Practical-**04**

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| **WEEK** | **THEORY** | **PRACTICAL** |
| **LECTU-REDAY** | **TOPIC****(Includingassignment/test)** | **PRACTI-****CALDAY** | **TOPIC** |
| 1st | 1st | Study about network One port, Two port (fourterminals) network | 1stGroup-1 | IntroductionaboutPracticalofNFTL |
| 2nd | Basic concept of the Symmetrical andasymmetricalnetworks |
| 3rd | Balancedandunbalancednetwork | 2ndGroup-2 | IntroductionaboutPracticalofNFTL |
| 4th | T-network,Лnetwork |
| 2nd | 5th | Laddernetwork,Latticenetwork | 3rdGroup-1 | TomeasurethecharacteristicimpedanceofsymmetricalTandЛnetworks |
| 6th | L-networkandBridgeT-network |
| 7th | SymmetricalNetworkconceptandsignificanceofthetermscharacteristicimpedance. | 4thGroup-2 | Tomeasurethecharacteristicimpedance of symmetrical TandЛnetworks |
|  | 8th | SymmetricalNetworkConceptandsignificanceofthetermspropagation constant |
| 3rd | 9th | Phase shift constant and insertion loss of T-network | 5thGroup-1 | Tomeasure the imageimpedanceof agivenasymmetricalTandЛnetworks |
| 10th | PhaseshiftconstantandinsertionlossofЛNetwork |
| 11th | AsymmetricalNetwork-Conceptandsignificanceofiterativeimpedance | 6thGroup-2 | Tomeasure the imageimpedanceof agivenasymmetricalTandЛnetworks |
| 12th | Conceptandsignificanceof imageimpedance |
| 4th | 13th | Imagetransferconstantandinsertionloss | 7thGroup-1 | Revision |
| 14th | Thehalfsection(L-section) |
| 15th | SymmetricalTintohalfsections | 8thGroup-2 | Revision |
| 16th | Лsectionsintohalfsections |
| 5th | 17th | Revision | 9thGroup-1 | Foraprototypelowpassfilter:a)Determinethecharacteristic |
| 18th | Attenuators |

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|  |  | Unitsofattenuation(DecibelsandNepers) |  | impedanceexperimentallyb)Plottheattenuationcharacteristic |
| 19th | Generalcharacteristicsof attenuators | 10thGroup-2 | For aprototypelowpassfilter:1. Determinethe characteristicimpedanceexperimentally
2. Plottheattenuationcharacteristic
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| 20th | AnalysisanddesignofsimpleattenuatorofSymmetricalTtype |
| 6th | 21th | AnalysisanddesignofsimpleattenuatorofЛtype,Ltype**Assignments** | 11thGroup-1 | To design and measure theattenuationofasymmetricalT/Лtypeattenuator |
| 22th | **Test** |
| 23th | BriefideaoftheFilters | 12thGroup-2 | To design and measure theattenuationofasymmetricalT/Лtypeattenuator |
| 24th | Use of filter networks in differentcommunicationsystems |
| 7th | 25th | Conceptoflowpassandhighpassfilters | 13thGroup-1 | Foraprototypehighpassfilter:1. Determinethe characteristicimpedanceexperimentally
2. Toplottheattenuationcharacteristic
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| 26th | Conceptofbandpassandbandstopfilters |
| 27th | PrototypeFiltersectionImpedancecharacteristicsvsfrequency | 14thGroup-1 | Foraprototypehighpassfilter:1. Determinethe characteristicimpedanceexperimentally
2. Toplottheattenuationcharacteristic
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| 28th | Characteristicsofalowpassfilterandtheirsignificance |
| 8th | 29th | Impedancecharacteristicsvsfrequencycharacteristicsofahighpassfilterandtheirsignificance | 15thGroup-1 | 1. To plot the Impedancecharacteristicofaprototypeband-passfilter
2. Toplottheattenuation

characteristicofaprototypebandpassfilter |
| 30th | AttenuationVsfrequency;PhaseshiftVsfrequencyofTfilters |
| 31st | CharacteristicsimpedancevsfrequencyofTfiltersandtheirsignificance | 16thGroup-2 | 1. To plot the Impedancecharacteristicofaprototypeband-passfilter
2. Toplottheattenuation

characteristicofaprototypebandpassfilter |
| 32nd | Phase shift Vs frequency, characteristicsimpedance vs frequency of Л filters and theirsignificance |
| 9th | 33rd | Simpledesignproblemsofprototypelowpassfilter | 17thGroup-1 | a) To plot the impedancecharacteristicofm-derivedlowpass filter b) To plot theattenuationcharacteristicsofm-derivedhighpassfilter |
| 34th | M-DerivedFilterSections |
| 35th | Limitationofprototypefilters,needofm-derivedfilters | 18thGroup-2 | 1. To plot the impedancecharacteristicofm-derivedlowpassfilter
2. Toplottheattenuation

characteristicsofm-derived |
| 36th | CrystalFiltersCrystalanditsequivalentcircuits, |

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|  |  |  |  | highpassfilter |
| 10th | 37th | Specialpropertiesof piezoelectricfiltersandtheiruse | 19thGroup-1 | To observe the information ofstanding waves on atransmission line andmeasurementofSWRandcharacteristicimpedanceoftheline |
| 38th | ActiveFiltersBasicconceptofactivefiltersandtheircomparisonwithpassivefilters.Assignment |
| 39th | Quiz,Assignment | 20thGroup-2 | To observe the information ofstanding waves on atransmission line andmeasurementofSWRandcharacteristicimpedanceoftheline |
| 40th | Test |
| 11th | 41st | TransmissionLinesandtheir types. | 21stGroup-1 | Draw the attenuationcharacteristicsofacrystalfilter |
| 42nd | ApplicationsoftransmissionlinesDistributedconstants |
| 43rd | Trepresentationoftransmissionlinesection | 22ndGroup-2 | Drawthe attenuationcharacteristicsofacrystalfilter |
| 44th | Лrepresentationoftransmissionlinesection |
| 12th | 45th | Definition of characteristic impedance,propagationconstant | 23rdGroup-1 | **Revision** |
| 46th | Attenuationconstant |
| 47th | Phaseshiftconstant | 24thGroup-2 | **Revision** |
| 48th | Conceptof infiniteline |
| 13th | 49th | Conditionforminimumdistortionandminimumattenuationofsignalon-the-line | 25thGroup-1 | **Revision** |
| 50th | Introductiontoloading methods |
| 51st | Conceptofreflectionandstandingwaves,definitionofreflectioncoefficient | 26thGroup-2 | **Revision** |
| 52nd | SWR&VSWRandtheirrelation(noderivation) |
| 14th | 53rd | Transmissionlineequation, expressionforvoltage,currentandimpedenceata point ontheline | 27thGroup-1 | **Revision** |
| 54th | ExpressionforCurrentandimpedanceatapointontheline. |
| 55th | Conceptoftransmissionlinesathighfrequencies | 28thGroup-2 | **Revision** |
| 56th | Introduction to stubs. (single, open and shortstubs) |
| 15th | 57th | HVDC (High Voltage DC transmission) –Concept. | 29thGroup-1 | **Viva** |
| 58th | Advantage,DisadvantageandareasofapplicationAssignment |
| 59th | Quiz,Assignment | 30thGroup-2 | **Viva** |
| 60th | **Test** |