Lesson plan

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| **NameofFaculty** | | **Expert Lecturer** | | |
| **Discipline** | | **ElectricalEngineering** | | |
| **Semester** | | **2nd(Even-semester)** | | |
| **Subject** | | **ELECTRICALNETWORKS** | | |
| **Lesson Plan** | | **From Feb 2024 to June 2024** | | |
| **Workload(Theory** | | **(03+04)** | | |
| **Week** | **Day** | **Topics** | **No.** | **Practical** |
| 1st | 1 | Meshanalysis | 1 | Usevoltmeter,ammetertodeterminecurrentthrough the given branch of a electricnetworkbyapplyingmeshanalysis. |
| 2 | Nodalanalysisusingvoltageandcurrent  sources |
| 3 | Superpositiontheorem |
| 2nd | 1 | Thevenin’stheorem | 2 | Usevoltmeter,ammetertodeterminecurrentthrough the given branch of a electricnetworkbyapplyingnodeanalysis. |
| 2 | Nortontheorem |
| 3 | Maximumpowertransfertheorem |
| 3rd | 1 | Activeandpassivenetwork,LinearandNon  Linearnetwork | 3 | VerificationofSuperpositionTheorem. |
| 2 | Problemsolutionbasedonabovetheorems |
| 3 | GenerationofalternatingVoltageandcurrent. |
| 4th | 1 | Differencebetweenacanddc,Equationof  alternatingquantity. | 4 | VerificationofThevenin’stheorem. |
| 2 | ACTerminology:waveform,cycle,frequency,  timeperiod,amplitude |
| 3 | Instantaneousvalue,alternation,andtheirimportantrelations(timeperiodand  frequency, |
| 5th | 1 | Angularvelocityandfrequencyetc.) | 5 | VerificationofNorton’sTheorems. |
| 2 | Valuesofalternatingvoltageandcurrent:  Instantaneousvalue,peakvalueaveragevalue, |
| 3 | R.M.S.value,formfactorandpeakfactor |
| 6th | 1 | Vectorrepresentationofalternatingquantities | 6 | VerificationofMaximumPowertransferTheorem. |
| 2 | Conceptofphase,phasedifferenceand  phasors |
| 3 | Representationofelectricalquantitiesthrough  phasors |
| 7th | 1 | Additionoftwoalternatingquantities:  parallelogrammethod, | 7 | ObservethewaveshapeofanalternatingsupplyonCROandcalculateaverage,RMS  value,frequencyandtimeperiod. |
| 2 | A.C circuit containing pure Resistance,Inductance,Capacitancewiththeconceptof  Componentmethodpowerconsumed, |
| 3 | PhaseAngle,inductiveandcapacitive  reactanceetc. |
| 8th | 1 | ACseriescircuit:R-L,R-C,R-L-Calongwith  theconceptofphasordiagram, | 8 | Measureinputcurrent,power,powerfactorofR-Lseriescircuitanddrawthepower  triangle. |
| 2 | Phaseangle,Impedance,impedance  triangle,power,powertriangleetc. |
| 3 | ConceptofTruepower,apparentpowerand  reactivepower, |
|  | 1 | Significance,disadvantagesoflowpower  factor,causeoflowpowerfactor, |  | Measureinputcurrent,power,powerfactorofR-C  seriescircuitanddrawthepower |
| 9th | 2 | Powerfactoranditsimprovementofpower  factor. | 9 | triangle. |
| 3 | Activeandreactivecomponentsofcurrent |
| 10th | 1 | ResonanceinRLCseriescircuit,Quality(Q)  factor | 10 | Measureinputcurrent,power,powerfactorofR-L-  Cseriescircuitanddrawthepowertriangle. |
| 2 | ConceptofACparallelcircuit |
| 3 | MethodsofsolvingparallelACcircuit:vector  method, |
| 11th | 1 | Admittancemethod,symbolicorJ-method | 11 | Usevariablefrequencysupplytocreateresonanceingivenseries R-L-Ccircuitorby  usingvariableinductororvariablecapacitor. |
| 2 | ParallelResonance,Q-factor |
| 3 | Comparisonofseriesandparallelresonance. |
| 12th | 1 | IntroductiontotransientandHarmonicsin  A.C.circuits | 12 | Todeterminecurrent,p.f.,active,reactiveandapparentpowerinR-CparallelA.C.  circuit. |
| 2 | 5.1Principleofgenerationof3–øalternating  emf. |
| 3 | AdvantagesofPolyphasecircuitoversingle  phasecircuit,PhaseSequence. |
| 13th | 1 | Typesofthreephaseconnections-Star  connectionanddeltaconnection. | 13 | Todeterminecurrent,p.f.,active,reactiveandapparent power for given R-L-C parallelcircuit with series connection of resistor andinductorinparallelwithcapacitor. |
| 2 | Conceptofbalancedandunbalancedload. |
| 3 | Relationbetweenphaseandlinequantitiesof  staranddeltaconnection. |
| 14th | 1 | Poly-PhaseSystems,Advantagesof3Øover  1-Ø | 14 | UsevariablefrequencysupplycreateresonanceingivenparallelR-L-Ccircuitorby  usingvariableinductororcapacitor. |
| 2 | SystemStar&deltaconnectionswithphaseandlinevoltageandcurrentrelations. |
| 3 | 3-phasebalancedandunbalancedcircuits |
| 15th | 1 | Powerin3-phasecircuits |  |  |
| 2 | Revision/Review/TestofoldHSBTEPapers |
| 3 | Revision/Review/TestofoldHSBTEPapers |