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 | Nodalanalysisusingvoltageandcurrentsources |
| 3 | Superpositiontheorem |
| 2nd | 1 | Thevenin’stheorem | 2 | Usevoltmeter,ammetertodeterminecurrentthrough the given branch of a electricnetworkbyapplyingnodeanalysis. |
| 2 | Nortontheorem |
| 3 | Maximumpowertransfertheorem |
| 3rd | 1 | Activeandpassivenetwork,LinearandNonLinearnetwork | 3 | VerificationofSuperpositionTheorem. |
| 2 | Problemsolutionbasedonabovetheorems |
| 3 | GenerationofalternatingVoltageandcurrent. |
| 4th | 1 | Differencebetweenacanddc,Equationofalternatingquantity. | 4 | VerificationofThevenin’stheorem. |
| 2 | ACTerminology:waveform,cycle,frequency,timeperiod,amplitude |
| 3 | Instantaneousvalue,alternation,andtheirimportantrelations(timeperiodandfrequency, |
| 5th | 1 | Angularvelocityandfrequencyetc.) | 5 | VerificationofNorton’sTheorems. |
| 2 | Valuesofalternatingvoltageandcurrent:Instantaneousvalue,peakvalueaveragevalue, |
| 3 | R.M.S.value,formfactorandpeakfactor |
| 6th | 1 | Vectorrepresentationofalternatingquantities | 6 | VerificationofMaximumPowertransferTheorem. |
| 2 | Conceptofphase,phasedifferenceandphasors |
| 3 | Representationofelectricalquantitiesthroughphasors |
| 7th | 1 | Additionoftwoalternatingquantities:parallelogrammethod, | 7 | ObservethewaveshapeofanalternatingsupplyonCROandcalculateaverage,RMSvalue,frequencyandtimeperiod. |
| 2 | A.C circuit containing pure Resistance,Inductance,CapacitancewiththeconceptofComponentmethodpowerconsumed, |
| 3 | PhaseAngle,inductiveandcapacitivereactanceetc. |
| 8th | 1 | ACseriescircuit:R-L,R-C,R-L-Calongwiththeconceptofphasordiagram, | 8 | Measureinputcurrent,power,powerfactorofR-Lseriescircuitanddrawthepowertriangle. |
| 2 | Phaseangle,Impedance,impedancetriangle,power,powertriangleetc. |
| 3 | ConceptofTruepower,apparentpowerandreactivepower, |
|  | 1 | Significance,disadvantagesoflowpowerfactor,causeoflowpowerfactor, |  | Measureinputcurrent,power,powerfactorofR-Cseriescircuitanddrawthepower |
| 9th | 2 | Powerfactoranditsimprovementofpowerfactor. | 9 | triangle. |
| 3 | Activeandreactivecomponentsofcurrent |
| 10th | 1 | ResonanceinRLCseriescircuit,Quality(Q)factor | 10 | Measureinputcurrent,power,powerfactorofR-L-Cseriescircuitanddrawthepowertriangle. |
| 2 | ConceptofACparallelcircuit |
| 3 | MethodsofsolvingparallelACcircuit:vectormethod, |
| 11th | 1 | Admittancemethod,symbolicorJ-method | 11 | Usevariablefrequencysupplytocreateresonanceingivenseries R-L-Ccircuitorbyusingvariableinductororvariablecapacitor. |
| 2 | ParallelResonance,Q-factor |
| 3 | Comparisonofseriesandparallelresonance. |
| 12th | 1 | IntroductiontotransientandHarmonicsinA.C.circuits | 12 | Todeterminecurrent,p.f.,active,reactiveandapparentpowerinR-CparallelA.C.circuit. |
| 2 | 5.1Principleofgenerationof3–øalternatingemf. |
| 3 | AdvantagesofPolyphasecircuitoversinglephasecircuit,PhaseSequence. |
| 13th | 1 | Typesofthreephaseconnections-Starconnectionanddeltaconnection. | 13 | Todeterminecurrent,p.f.,active,reactiveandapparent power for given R-L-C parallelcircuit with series connection of resistor andinductorinparallelwithcapacitor. |
| 2 | Conceptofbalancedandunbalancedload. |
| 3 | Relationbetweenphaseandlinequantitiesofstaranddeltaconnection. |
| 14th | 1 | Poly-PhaseSystems,Advantagesof3Øover1-Ø | 14 | UsevariablefrequencysupplycreateresonanceingivenparallelR-L-Ccircuitorbyusingvariableinductororcapacitor. |
| 2 | SystemStar&deltaconnectionswithphaseandlinevoltageandcurrentrelations. |
| 3 | 3-phasebalancedandunbalancedcircuits |
| 15th | 1 | Powerin3-phasecircuits |  |  |
| 2 | Revision/Review/TestofoldHSBTEPapers |
| 3 | Revision/Review/TestofoldHSBTEPapers |