Govt. Polytechnic Chhapar

Lesson Plan

**Name of the faculty:** Mrs. Mukesh

**Discipline:** Electrical

**Semester: 5**th

**Subject:** Utilization of electrical engineering

**Lesson Plan Duration:** w.e.f.**15/09/2022 to 16/01/2023**

Workload per week :Lectures-04

|  |  |  |
| --- | --- | --- |
| **Week** | **Theory** | |
| **Lectureday** | **Topic(Includingassignment/test)** |
| 1st | Ist | Introduction |
| 2nd | Natureoflight,visibilityspectrumcurveofrelativesensitivityofhumaneyeandwavelengthof  light |
| 3rd | Definition:Luminousflux,solidangle,luminousintensity,illumination,luminousefficiency,  depreciationfactor,coefficientofutilization,spacetoheightratio,reflectionfactor,glare,shadow, lux. |
| 4th | Lawsofilluminationsimplenumericals |
| 5th | Differenttypeoflamps,constructionandworkingofincandescent,fittingsrequiredforfilament  lamp, |
| 2nd | Ist | construction and working of discharge lamps – their characteristics,mercury vapour sodium lamp,fluorescentlamp, |
| 2nd | halogenlamp,neonlampconstructionandworking |
| 3rd | compactfilamentlamp(CFL),LEDLamp,comparisonofincandescent,fluorescent,CFL&LED |
| 4th | Calculationofnumberoflightpointsforinteriorillumination,calculationofilluminationat  differentpoints,considerationsinvolvedinsimpledesignproblems. |
| 5th | Illuminationschemes;indoorandoutdoorilluminationlevels |
| 3rd | Ist | Mainrequirementsofproperlighting |
| 2nd | absenceofglare,contrast andshadow |
| 3rd | Awarenessabouttimeswitches,streetlighting,floodlighting,monumentlightinganddecorative  lighting,lightcharacteristicsetc. |
| 4th | Advantagesofelectricalheating |
| 5th | Resistanceheating–directandindirectresistanceheating,electricovens,theirtemperature  range, properties of resistance heating elements, domestic water heaters and other heatingappliances, thermostatcontrol circuit |
| 4th | Ist | Inductionheating;principleofcoretypeandcoreless inductionfurnace, theirconstructionand  applications |
| 2nd | Electricarcheating;directandindirectarcheating,construction,workingandapplicationsofarc  furnace |
| 3rd | Dielectricheating,applicationsinvariousindustrialfields |
| 4th | Infra-redheatinganditsapplications(constructionandworkingoftwoappliances |
| 5th | Microwaveheatinganditsapplications(constructionandworkingoftwoappliances |
| 5th | Ist | SolarHeatingCalculationofresistanceheatingelements(simpleproblems) |
| 2nd | Calculationofresistanceheatingelements(simpleproblems) |
| 3rd | revision&Copycheck |
| 4th | revision&Copycheck |
| 5th | Advantagesofelectricwelding |
|  | Ist | Weldingmethod3.2.1Principlesofresistancewelding,types–spot,projection,seamandbutt  welding, |
| 2nd | weldingequipments |

|  |  |  |
| --- | --- | --- |
| 6th | 3rd | Principleofarcproduction,electricarcwelding,characteristicsofarc;carbonarc |
| 4th | metalarc,hydrogenarcweldingmethodandtheirapplications. |
| 5th | Power supply requirement. Advantages of using coated electrodes, comparison between AC andDCarcwelding, welding controlcircuits, welding ofaluminumandcopper |
| 7th | Ist | revision&Copycheck |
| 2nd | .ElectrolyticProcesses:(10hrs)4.1Needofelectro-deposition |
| 3rd | 2Lawsofelectrolysis,processofelectro-deposition-clearing,operation,depositionofmetals,  polishingandbuffing |
| 4th | Equipmentandaccessoriesforelectroplating |
| 5th | Factorsaffectingelectro-deposition |
| 8th | Ist | Principleofgalvanizinganditsapplications |
| 2nd | 6Principlesofanodizinganditsapplications |
| 3rd | Electroplatingofnon-conductingmaterials4.8Manufactureofchemicalsbyelectrolyticprocess  Powersuppliesforelectroplating |
| 4th | ElectricalCircuitsusedinRefrigeration,AirConditioningandWaterCoolers,introduction |
| 5th | 5.1Principleofairconditioning,vapourpressure,refrigerationcycle, |
| 9th | Ist | eco-friendlyrefrigerants |
| 2nd | DescriptionofElectricalcircuitusedinRefrigerato |
| 3rd | DescriptionofElectricalcircuitusedinAir-conditioner |
| 4th | DescriptionofElectricalcircuitusedinWatercooler |
| 5th | revision&Copycheck |
| 10th | Ist | Advantagesofelectricdrives |
| 2nd | Characteristicsofdifferentmechanicalloads |
| 3rd | Typesofmotorsusedaselectricdrive |
| 4th | ElectricbrakingPlugging |
| 5th | Rheostaticbraking |
| 11th | Ist | Regenerativebraking |
| 2nd | Generalideaaboutthemethodsofpower transferbydirectcouplingbyusingdeviceslikebelt  drive,gears,chaindrivesetc. |
| 3rd | Examplesofselection ofmotorsfordifferenttypesofdomesticloads |
| 4th | Selectionofdriveforapplicationssuchasgeneralworkshop,textilemill,papermill,steelmill,  printingpress,craneandlift etc. |
| 5th | Applicationofflywheel. |
| 12th | Ist | Specificationsofcommonlyusedmotorse.g.squirrelcagemotors, |
| 2nd | Specificationsofcommonlyusedmotorsslipringinductionmotors, |
| 3rd | SpecificationsofcommonlyusedmotorsACseriesmotors, |
| 4th | SpecificationsofcommonlyusedmotorsFractionalkiloWatt(FKW)motors |
| 5th | SpecificationsofcommonlyusedmotorsFractionalkiloWatt(FKW)motors |
| 13th | Ist | SelectionofmotorsforDomesticAppliances |
| 2nd | revision&Copycheck |
| 3rd | ElectricTraction:(10hrs) |
| 4th | Advantagesofelectrictractionoverothertypesoftraction.7.2Differentsystemsofelectric  traction,DCandACsystems,dieselelectricsystem |
| 5th | Typesofservices–urban,sub-urban,andmainlineandtheir speed-timecurves |
| 14th | Ist | Differentaccessoriesfortrackelectrification;suchasoverheadcatenarywire,conductorrail  system,currentcollector-pentagraph |
| 2nd | Factorsaffectingscheduledspeed7 |
| 3rd | Electricalblockdiagramofanelectriclocomotivewithdescriptionofvariousequipmentand  accessoriesused. |
| 4th | Typesofmotorsusedfor electrictraction |
| 5th | Powersupplyarrangements |

|  |  |  |
| --- | --- | --- |
| 15th | Ist | Startingandbrakingofelectriclocomotives |
| 2nd | IntroductiontoEMUandmetrorailways |
| 3rd | TrainLightingSchemeNote:Studentsshouldbetakenforvisitstonearestelectrifiedrailwaytrack  andrailwaystationtostudytheelectrictractionsystem. |
| 4th | revision&Copycheck |
| 5th | revision&Copycheck |