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| **GBN Govt. Polytechnic Nilokheri, Karnal** |
| **Electrical Engineering Department** |

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| **Lessonplan** | | | |
| **NameofFaculty** | | | Sh. Gulshan Arora / Sh. Naveen Sharma |
| **Discipline** | | | ElectricalEngineering |
| **Semester** | | | 6th |
| **Subject** | | | Electrical Energy Conservation and Management |
| **LessonPlanDuration** | | | 16 week (From March 2023 to June 2023) Theory:05 |
| **Week** | **Theory** | | |
|  | **Lecture**  **Day** | **Topic (IncludingAssignment/ Test)** | |
| 1st | Day1 | **1LightingSystem** | |
| Day2 | 1.1.Basicdefinitions-Lux,lumenandilluminationspacetoheight ratio | |
| Day3 | 1.2Typesofdifferentlampsandtheir features | |
| Day4 | 1.3Energyefficientpracticesinlighting | |
| Day5 | 1.4.Tipsfor energysavingin building-New Building,ExistingBuilding | |
| 2nd | Day1 | 1.5LawsofIllumination | |
| Day2 | 1.6Calculationofilluminationatdifferentpoints,Mainrequirementsforproperlighting | |
| Day3 | 1.7Macrolevel approachatdesignstage | |
| Day4 | Revision/Assignment | |
| Day5 | **2EnergyConservationandECAct 2001** | |
| 3rd | Day1 | Introductionto energymanagement,energyconservation,energyefficiencyanditsneed | |
| Day2 | SalientfeaturesofEnergyConservationAct 2001& | |
| Day3 | TheEnergyConservation(Amendment)Act, 2010anditsimportance | |
| Day4 | Standardsand Labeling-Conceptofstar ratingandits importance,Types ofproduct  availableforstarrating | |
| Day5 | Revision/Assignment | |
| 4th | Day1 | ClassTest | |
| Day2 | **3Energy Audit** | |
| Day3 | Typesandmethodology | |
| Day4 | Energyauditingreportingformat | |
| Day5 | Energyauditinstruments | |
| 5th | Day1 | Revision/Assignment | |
| Day2 | 4**Electrical SupplySystemandMotors** | |
| Day3 | Typesofelectricalsupplysystem | |
| Day4 | Singlelinediagram | |
| Day5 | Transformerloading | |
| 6th | Day1 | Tipsforenergysavingsin transformers | |
| Day2 | MotorLoading | |
| Day3 | Variationinefficiencyandpower factorwithloading | |
| Day4 | Tipsforenergysavingsinmotors | |
| Day5 | Needforenergyefficient motors | |
| 7th | Day1 | Initialcostversuslikecyclecost | |
| Day2 | Cost analysisonlifecyclebasis | |
| Day3 | VariousconstructionalfeaturesofEEMs | |
| Day4 | EEMascomparedto standardmotors | |
| Day5 | Revision/Assignment | |
| 8th | Day1 | **5EnergyEfficiencyinElectricalUtilities** | |
| Day2 | UnderstandingElectricityBill,Tariffstructure | |
| Day3 | Components of power (kW, kA and kVAR)and powerfactor | |
| Day4 | Conceptofsanctionedload,maximumdemand, contract demandandmonthlyminimum  charges(MMC) | |

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|  | Day5 | **5.2Pumps;** Introduction topump anditsapplication,Efficientpumpingsystemoperation, |
| 9th | Day1 | Energyefficiencyinagriculturepumps,Tipsforenergysavinginpumps, |
| Day2 | **5.3CompressedAirSystem**Typesofaircompressoranditsapplications, |
| Day3 | Leakagetest,Energysavingopportunitiesincompressors |
| Day4 | **5.4EnergyConservationinHVACandRefrigeration System;** Introduction |
| Day5 | Conceptof EnergyEfficiencyRatio (EER) |
| 10th | Day1 | EnergysavingopportunitiesinHeating,Ventilationand |
| Day2 | Air-conditioning(HVAC)andRefrigerationSystems |
| Day3 | **5.5ThermalBasics**:Typesoffuels,Thermal energy |
| Day4 | Energycontentsin fuel,EnergyUnits and |
| Day5 | itsconversionintermsofmetric tonof oilequivalent(MTOE) |
| 11th | Day1 | Revision/Assignment |
| Day2 | ClassTest |
| Day3 | **6General EnergySavingTips;**LightingSystem,RoomAirConditioners |
| Day4 | Refrigerators,WaterHeater,Computers, |
| Day5 | Fans,Heaters |
| 12th | Day1 | BlowersandWashingMachines |
| Day2 | WaterPumps |
| Day3 | Kitchens,Transport |
| Day4 | Revision/Assignment |
| Day5 | **Class Test** |
| 13th  14th | Day1 | **7EnergyConservationBuildingCode** |
| Day2 | HaryanaECBCanditssalientfeaturesincludingthermalbehaviorofbuildings |
| Day3 | ECBCGuidelinesonBuildingEnvelope |
| Day4 | ECBCPrescriptiveRequirementsforBuildingEnvelope |
| Day5 | ECBCGuidelinesonHeating,VentilationandAirConditioning |
| 15th | Day1 | ECBCGuidelineson ServiceHotWaterandPumping |
| Day2 | ECBCGuidelinesonLighting |
| Day3 | ECBCGuidelinesonElectrical Power |
| Day4 | ECBCGuidelinesonStarLabellingand MinimumStar rating |
| Day5 | Revision/Assignment |
| 16th | Day1 | **Class Test** |
| Day2 | Revision/Review/TestofoldHSBTEPapers |
| Day3 | Revision/Review/TestofoldHSBTEPapers |
| Day4 | Revision/Review/TestofoldHSBTEPapers |
| Day5 | Revision/Review/TestofoldHSBTEPapers |