**GBN Govt. Polytechnic Nilokheri, Karnal**

**Electrical Engineering Department**

**Lesson plan**

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| **Lesson Plan** |
| **Name of Faculty** |  Sh. Mitesh Kumar |
| **Discipline** | ElectricalEngineering |
| **Semester** | 6th  |
| **Subject** | ElectricalPower-II |
| **LessonPlanDuration** | 15 week (From March 2023 to June 2023) Theory:04, Practical:03 |
| **Week** | **Theory** | **Practical** |
|  | **Lecture****Day** | **Topic (including Assignment / Test)** | **Practical****Day** | **Topic** |
| 1st | Day1 | **Unit 1: Faults; Introduction** | Day 1 | 1. Testing of the dielectricstrength of transformer oiland air
 |
| Day2 | Common type of faults in both overhead andUnderground systems |
| Day3 | symmetrical/Unsymmetrical faults |
| Day4 | Single line to ground fault |
| 2nd | Day1 | Double line to groundfault,3-phase to GroundFault open circuit | Day 2 | 1. Study of different types ofcircuitbreakersandisolators
 |
| Day2 | Simple problems relating to fault finding. |
| Day3 | Revision of important topics |
| Day4 | Assignment/Classtest |
| 3rd | Day1 | **Unit 2: Switch Gears:** Purpose of protective gear. Difference between switch, isolator and circuit breakers | Day 3 | Revision/file checking |
| Day2 | Function of isolator and circuit breaker. MakingCapacity and breaking Capacity. |
| Day3 | Capacity of circuit breaker (only definition) |
| Day4 | Circuit breakers. Types of circuit breakers,Bulk and minimum oil circuit breakers. |
| 4th | Day1 | Air, SF6 circuit breakers. | Day 4 | 1. Plot the time currentcharacteristics of over currentrelay
 |
| Day2 | Principles of Arc extinction blast circuitbreaker s in OCB and ACB, Constructional |
| Day3 | Features of OCB, ACB, and their working |
| Day4 | Method of arc extinction |
| 5th | Day1 | Miniature circuit breakers MCB, MCCB | Day 5 | 1. Power measurement by using CTs and PTs
 |
| Day2 | ELCB, for distribution and transmission system(Descriptive) |
| Day3 | Revision of important topics |
| Day4 | Assignment /Classtest |
| 6th | Day1 | **Unit 3: Protection devices**: Fuses; function of fuse. | Day 6 | Revision/filechecking |
| Day2 | Types of fuses HV and LV fuses, |
| Day3 | Rewire-able, cartridge, HRC |
| Day4 | **Earthing**: purpose of earthing, method ofearthing |
| 7th | Day1 | Equipment earthing, Substation earthing. | Day 7 | 1. Earthing of different equipment/ Main Distribution Board and Energy Meter Box
 |
| Day2 | System earthing as per Indian Electricity rules.Methods of reducing earth resistance. |
| Day3 | **Relays**: Introduction, types of relays |
| Day4 | Electromagnetic and thermal relays |
| 8th | Day1 | Relays construction and working | Day 8 | 1. Perform the overload andshort circuit test of MCB as per IS specifications
 |
| Day2 | Induction type over-current, earth fault relays |
| Day3 | Instantaneous, over current Relays |
| Day4 | Directional over-current, differential relays,And their functions |
| 9th | Day1 | d)Distancerelays,theirfunctions | Day 9 | Revision/filechecking |
| Day2 | e)Ideaofstaticrelaysandtheirapplications |
| Day3 | Revisionofimportanttopics |
| Day4 | Assignment/Classtest |
| 10th | Day1 | **Unit 4: Protection Scheme:** introduction | Day 10 | 1. Plot the time-current characteristics of Kit-Kat fuse wire
 |
| Day2 | Relays for generator protection |
| Day3 | 4.2 Relays for transformer protection includingBuchholtz relay protection |
| Day4 | 4.3Protectionoffeedersand busbars |
| 11th | Day1 | Overcurrentandearthfaultprotection. | Day 11 | 1. Taking reading of current onany LT line with clip onmeter
 |
| Day2 | 4.4Distanceprotectionfortransmissionsystem |
| Day3 | 4.5Relaysfor motorprotection |
| Day4 | Relaysforgeneratorprotection |
| 12th | Day1 | Revisionofimportanttopics |
| Day2 | Assignment/Classtest | Day 12 | Revision/file checking |
| Day3 | **Unit 5: Over-voltage Protection:** Protection ofSystem against over voltages |
| Day4 | causesofover voltages,utilityofgroundwire |
| 13th | Day1 | 5.2Lightningarrestors,rodgap | Day 13 | Revision/file checking |
| Day2 | Horngap,metal oxidetype. |
| Day3 | 5.3TransmissionLineprotectionagainstover-voltagesandlightning |
| Day4 | substationprotectionagainstover-voltagesandlightning |
| 14th | Day1 | Revisionofimportanttopics | Day 14 | Quiz /viva-voice related toelectrical machine |
| Day2 | Assignment/Classtest |
| Day3 | **Unit 6:Concept of Tariffs** |
| Day4 | 6.2 Block rate, flat rate tariff |
| 15th | Day1 | Maximum demand and two part tariffs | Day 15 | Quiz /viva-voice related toelectrical machine |
| Day2 | 6.3 Simple problems |
| Day3 | Assignment/ Class test |
| Day4 | Problem solution/ test check |