**G V P COLLEGE OF ENGINEERING FOR WOMEN (JG), VISAKHAPATNAM**

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

**LECTURE SCHEDULE**

**INSTRUCTOR: N.VEEKSHITHA YEAR: 2017 – 2018**

**CLASS: III B.Tech II Semester BRANCH: EEE SUBJECT: SGP**

|  |  |  |  |
| --- | --- | --- | --- |
| **UNIT** | **TOPIC** | **No. of Periods** | |
| **I** | **Circuit Breakers-I** |  | |
|  | Elementary principles of arc interruption | 2 | |
| Recovery, Restriking Voltage and Recovery voltages- Restriking Phenomenon and derivations | 1 | |
| Average and Max RRRV | 1 | |
| Current Chopping and Resistance Switching | 1 | |
| Problems | 1 | |
| CB ratings and Specifications | 1 | |
| Auto Reclosures | 1 | |
| Problems | 1 | |
| Description and Operation of Air Blast Circuit Breakers, Vacuum and SF6 circuit breakers. | 2 | |
| Advantages, Disadvantage and Applications of Air Blast Circuit Breaker | 1 | |
| Description and Operation of Vacuum circuit breakers. | 2 | |
| Advantages, Disadvantage and Applications of Vaccum Circuit Breaker | 1 | |
| Description and Operation of SF6 circuit breakers | 2 | |
| Advantages, Disadvantage and Applications of SF6 Circuit Breaker | 1 | |
| **Total number of periods** | **18** | |
| **II** | **Electromagnetic Protection** |  | |
| . | Principle of Operation and Construction of Attracted armature, Balanced Beam relays. | 1 | |
| Principle of Operation and Construction of Induction Disc and Induction Cup relays. | 1 | |
| Relays classification: Instantaneous, DMT and IDMT types. | 1 | |
| Over current / under voltage relays | 1 | |
| Direction relays | 1 | |
| Differential Relays and Percentage Differential Relays and Percentage Differential Relays. | 2 | |
| Problems | 1 | |
| Universal torque equation & Distance relays: Impedance, Reactance Relays | 1 | |
| Mho and Off – Set Mho relays | 1 | |
| Characteristics of Distance Relays and Comparison. | 1 | |
| **Total number of periods** | **11** | |
| **III** | **Generator Protection** |  | |
|  | Protection of generators against Stator faults | 2 | |
| Protection of generators against Rotor faults, and Abnormal Conditions | 3 | |
| Protection of generators against Restricted Earth fault and Inter-turn fault Protection | 2 | |
| Numerical Problems on % Winding Unprotected | 1 | |
| **Total number of periods** | **8** | |
|  | | **Transformer Protection** | |  | |
|  | | Transformers faults | | 1 | |
| Protection of transformers of Percentage Differential Protection | | 3 | |
| Numerical Problem on Design of CT’s Ratio | | 2 | |
| Buchholz relay Protection. | | 1 | |
| **Total number of Periods** | | **7** | |
| **IV** | | **Feeder and Bus – Bar Protection**  – uncontrolled case and controlled case, tie - line bias control | |  | |
|  | | Protection of Lines: | | 1 | |
| Over Current, Carrier Current Protection | | 2 | |
| Three – zone distance relay protection using Impedance relays. | | 2 | |
| Translay relay. | | 1 | |
| Protection of Bus bars – differential Protection. | | 1 | |
| **Total Number of periods** | | **7** | |
| **V** | | **Static and digital Relays** | |  | |
|  | | Introduction to Static Relays and Digital Relays | | 1 | |
| Static relays components | | 2 | |
| Static over current relay | | 1 | |
| Static distance relay | | 1 | |
| Microprocessor based digital Relays | | 1 | |
| **Total Number of periods** | | **6** | |
| **VI** | | **Protection against over voltage and grounding** | |  | |
|  | | Generation of Over voltages in Power Systems | | 1 | |
| Protection against Lightning Over Voltages | | 1 | |
| Valve type and Zinc - Oxide Lighting Arresters | | 1 | |
| Insulation Coordination – BIL, Impulse Ration, Standard Impulse Test Wave | | 1 | |
| Volt – Time Characteristics | | 1 | |
| Effects of Ungrounded Neutral on system performance | | 1 | |
| Methods of Neutral Grounding: Solid grounding | | 1 | |
| Reactance and Reactance grounding Arcing Grounds and Grounding Practices. | | 1 | |
| Arcing Grounds and Grounding Practices. | | 1 | |
| **Total Number of periods** | | **9** | |

**Total No. of Periods**: 18+11+8+7+7+6+9= 66