**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**

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| **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