GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN DEPT. OF ELECTRICAL AND ELECTRONICS ENGINEERING

LECTURE PLAN

**SUBJECT: POWER SYSTEMS-I NAME OF THE FACULTY: A.S.V.VIJAYA LAKSHMI SEMESTER: II-II [2017-18]**

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| UNIT | TOPIC NAME | NO. OF LECTURES |
| Unit-I (Thermal Power Plants) | Selection of site | 1 |
| General layout of a thermal power plant showing paths  of coal, steam, water, air, ash and flue gases, ash handling system | 1 |
| Brief description of components: Boilers, superheaters,  economizers, electrostatic precipitators | 1 |
| Steam turbines: Impulse and reaction turbines,  condensers, feed water circuit, cooling towers and chimney | 2 |
| Unit-II (Nuclear Power Plants) | Location of nuclear power plant, working principle | 1 |
| Nuclear Fission, nuclear fuels, , nuclear chain reaction | 2 |
| Nuclear reactor components: moderators, control rods, reflectors, coolants.  Types of nuclear reactors. | 2 |
| Brief description of PWR, BWR and FBR. Radiation: Radiation hazards and shielding, nuclear  waste disposal. | 3 |
| Unit-III (Distribution Systems) | Classification of distribution systems, design features of  distribution systems | 2 |
| Radial distribution systems, ring main distribution,  voltage drop calculations | 4 |
| DC distributors for different cases,  AC distribution, comparison of AC and DC distribution | 5/ |
| Unit-IV (Substations) | Classification of substations. Air insulated substations | 3 |
| Bus bar arrangements in substations | 5 |
| Gas insulated substations | 4 |
| Comparison of air insulated substations and gas  insulated substations | 1 |
| Unit-V (Underground Cables) | Types of cables, construction | 4 |
| Calculation of insulation resistance, stress in insulation  and power factor of cable | 3 |
| Numerical problems | 2 |
| Unit-VI (Economic Aspects of Power Generation & Tariff) | Economic Aspects: Load curve, load duration and  integrated load duration curve | 1 |
| Discussion on economic aspects | 2 |
| Numerical problems | 2 |
| Tariff methods: cost of generation | 3 |
| Dersirable characteristics of a tariff method | 2 |
| Tariff methods | 4 |
| Numerical problems | 2 |

Total number of lectures: 62