Lesson Plan

Name of faculty : Sita Devi

Discipline : Electrical Engineering

Semester : 5th

Subject : Advanced Power Electronics and Drive

Lesson plan duration : 15 weeks

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| **Week** | **Lecture**  | **Topic (Including Assignment / Test) : Planned** | **Actually covered on** **(date)** | **HOD’s Sign** | **DP’s****Sign** |
| 1st | 1 | Classification of choppers |  |  |  |
| 2 | Principle of operation |  |  |  |
| 3 | output voltage control techniques |  |  |  |
| 2nd | 4 | one, two, and four quadrant choppers |  |  |  |
| 5 | Step up chopper |  |  |  |
| 6 | Switching mode Regulators |  |  |  |
| 3rd | 7 | Buck regulator |  |  |  |
| 8 | Boost regulator |  |  |  |
| 9 | Buck-Boost regulator |  |  |  |
| 4th | 10 | Cuk regulator |  |  |  |
| 11 | Current commutated Chopper |  |  |  |
| 12 | voltage commutated chopper |  |  |  |
| 5th | 13 | Electrical Drives**:** Introduction |  |  |  |
| 14 | Torque Equation |  |  |  |
| 15 | Multi-quadrant Operation of Electrical Drives |  |  |  |
| 6th | 16 | Duty Cycles |  |  |  |
| 17 | Selection of Rating of Electrical Motor |  |  |  |
| 18 | Electrical Braking of Machines |  |  |  |
| **7th** |  | **1stSessionals** |  |  |  |
| 8th | 19 | Constant Torque and Constant Power Drives |  |  |  |
| 20 | Rotor Energy  |  |  |  |
| 21 | Loss of Cage Induction Motors during Acceleration |  |  |  |
| 9th | 22 | Stop and Reversal of Speed |  |  |  |
| 23 | Time taken during acceleration  |  |  |  |
| 24 | Single-phase half controlled converter fed dc motor drives |  |  |  |
| 10th | 25 | fully controlled converter fed dc motor drives |  |  |  |
| 26 | operation of dc drives with continuous armature current |  |  |  |
| 27 | voltage and current waveforms.  |  |  |  |
| 11th | 28 | Principle of operation and control techniques ofChopper fed DC Drives |  |  |  |
| 29 |  chopper circuit configurations used in dc drives |  |  |  |
| 30 | Type A,B, Motoring operation of chopper fed separately excited dc motor |  |  |  |
| 12th | 31 | Type C,D and E; Motoring operation of chopper fed separately excited dc motor |  |  |  |
| 32 | steady state analysis of drive with time-ratio control  |  |  |  |
| 33 | Introduction to electric drives |  |  |  |
| 13th | 34 | DC drives – converter and chopper fed dc drives  |  |  |  |
| 35 | Concept of Slip Power in Induction Motors |  |  |  |
| 36 | Static Kramer and Sherbius Drives |  |  |  |
| **14th** |  | **2ndSessionals** |  |  |  |
| 15th | 37 | Static Rheostatic Control of Induction motors |  |  |  |
| 38 | Voltage and Frequency Controlled Induction Motor Drive |  |  |  |
| 39 | Revision |  |  |  |