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|----------------------|---------------------------------------|
| <b>Course Name</b>   | Electric Drives Laboratory            |
| <b>Course Code</b>   | EE791                                 |
| <b>Course Credit</b> | 2                                     |
| <b>Contact Hour</b>  | 30                                    |
| <b>Prerequisite</b>  | Electrical Machine, Power Electronics |

**Course Objective**

The objectives of this course are

1. The skill to analyze the response of any Electric Drives system.
2. The ability to troubleshoot the operation of Electric Drives system.
3. The ability to select suitable Drives control for a given application.
4. The ability to know how to control different types of motor output as per requirements.

**Course Outcome**

On completion of the course students will be able to

1. Understand the concept & able to operate thyristor controlled DC drive
2. Conduct experiment & analysis of chopper fed DC drives
3. Study the VSI fed & CSI fed 3 phase Induction Motor Drive
4. Study speed control using V/f control of 3 phase Induction Motor
5. Understand the fundamental concepts of AC single phase Motor speed control using TRIAC.
6. Get the idea of PC/PLC based Motor control operation

**CO Mapping with departmental POs**

H: High, M: Medium, L: Low

|      | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| CO 1 | H    | H    | H    | H    | H    |      |      |      |      |       |       |       |
| CO 2 | H    | H    | H    | H    | H    |      |      |      |      |       |       |       |
| CO 3 | H    | H    | H    | H    | H    |      |      |      |      |       |       |       |
| CO 4 | H    | H    | H    | H    | H    |      |      |      |      |       |       |       |
| CO 5 | H    | H    | H    | H    | H    |      |      |      |      |       |       |       |
| CO 6 | H    | H    | H    | H    | H    |      |      |      |      |       |       |       |

**Course Content**

Experiments on

1. Study of thyristor controlled DC Drive.
2. Study of Chopper Fed DC Drive.
3. Study of AC Single Phase Motor speed control using TRIAC.
4. PWM Inverter Fed 3 Phase Induction Motor Control using PSPICE/MATLAB/PSIM software.
5. VSI fed Induction Motor Drive analysis using PSPICE/MATLAB/PSIM software.
6. CSI fed Induction Motor Drive analysis using PSPICE/MATLAB/PSIM software.
7. Study of V/f control operation of 3 phase Induction Motor Drive.
8. Regenerative / Dynamic braking operation for DC Motor study using software.
9. Regenerative / Dynamic braking operation for AC Motor study using software.
10. PC/PLC Based AC/DC Motor Control Operation.