CDL Govt. Polytechnic Nathusari Chopta (Sirsa) Electrical Engineering Department

Lesson plan

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| **Name of Faculty** | | | | **Sh. Anil Jindal** | |
| **Discipline** | | | | **Electrical Engineering** | |
| **Semester** | | | | **5th** | |
| **Subject** | | | | **Electrical Machines-II** | |
| **Lesson Plan Duration** | | | | **From 01 October 2021 to 28 Jan. 2022** | |
| **Work load [Theory + Practical] Per Week** | | | | **[04+03]** | |
| **Week** | **Day** | **Theory Topic/ Assignment/ Test** | **No.** | | **Practical** |
| **1st** | **1** | **Unit1: Introduction to Induction Motors** | **1** | | **Determination of efficiency by**  **(a) no load test and blocked rotor test on an induction motor** |
| **2** | **constructional features of squirrel cage and slip**  **ring 3-phase induction Motors** |
| **3** | **Principle of operation, slip and its significance** |
| **4** | **Locking of rotor and stator fields** |
| **2nd** | **1** | **Rotor resistance, inductance** | **2** | | **Determination of effect of rotor resistance on torque speed curve of an induction motor** |
| **2** | **Emf Equation and current relations** |
| **3** | **Relationship between copper loss and motor slip** |
| **4** | **Power flow diagram of an induction motor** |
| **3rd** | **1** | **Factors determining the torque, Torque-slip**  **curve, stable and unstable zones** | **3** | | **Revision/ file checking** |
| **2** | **Effect of rotor resistance upon the torque slip**  **relationship** |
| **3** | **Double cage rotor motor and its applications** |
| **4** | **Starting of 3-phase induction motors, DOL** |
| **4th** | **1** | **Star-delta, auto transformer starting** | **4** | | **To study the effect of a capacitor on the single phase induction motor to reverse the**  **direction of rotation.** |
| **2** | **Causes of low power factor of induction motors** |
| **3** | **Testing of 3-phase induction motor on no load** |
| **4** | **And blocked rotor test and to find efficiency** |
| **5th** | **1** | **Speed control of induction motor** | **5** | | **Revision of Experiment** |
| **2** | **Harmonics and its effects** |
| **3** | **cogging and crawling in Induction Motors** |
| **4** | **Revision of important topics** |
| **6th** | **1** | **Assignment** | **6** | | **Demonstration of revolving field set up by a 3-phase wound stator** |
| **2** | **Problem solution** |
| **3** | **Unit2: Fractional Kilo Watt (FKW) Motors** |
| **4** | **Single phase induction motors** |
| **7th** | **1** | **Construction characteristics and applications** | **7** | | **To plot relationship between no load terminal voltage and excitation current in a synchronous**  **generator at constant speed** |
| **2** | **Nature of field produced in single phase**  **induction motor** |
| **3** | **Split phase induction motors** |
| **4** | **Capacitors start and run Motor** |

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| **8th** | **1** | **Shaded pole, Reluctance start motor** | **8** | **Determination of the relationship between the voltage and load current of an alternator,**  **keeping excitation and speed** |
| **2** | **Alternating current series motor and universal**  **motors** |
| **3** | **1-phase synchronous motor Reluctance type** |
| **4** | **Hysteresis motor** |
| **9th** | **1** | **Problem solution** | **9** | **Revision/ file checking** |
| **2** | **Revision/Review of old HSBTE Papers** |
| **3** | **Revision of important topics** |
| **4** | **Assignment** |
| **10th** | **1** | **Problem solution** | **10** | **Determination of the regulation and efficiency of alternator from the open circuit test** |
| **2** | **Unit3: Introduction Synchronous Machines** |
| **3** | **Constructional features of synchronous machine** |
| **4** | **Generation of three phase emf** |
| **11th** | **1** | **Production of rotating magnetic field in a three**  **phase winding** | **11** | **Determination of the regulation and efficiency of alternator from the short circuit test** |
| **2** | **Concept of distribution and coil span factor** |
| **3** | **Drive Emf equation, synchronous speed** |
| **4** | **Armature reaction at unity, lag and lead power**  **factor** |
| **12th** | **1** | **Voltage regulation using synchronous**  **impedance method** |
| **2** | **Need and necessary conditions of parallel**  **operation of alternators** | **12** | **Determination of the effect of variation of excitation on performance of a synchronous motor** |
| **3** | **Operation of synchronous machine as a motor –**  **its starting methods** |
| **4** | **Effect of change in excitation of a synchronous**  **motor** |
| **13th** | **1** | **Concept and Cause of hunting and its prevention** | **13** | **Study of ISI/BIS code for 3- phase induction motors** |
| **2** | **Rating and cooling of synchronous machines** |
| **3** | **Applications of synchronous machines (as an**  **alternator, as a synchronous condenser)** |
| **4** | **Revision of important topic** |
| **14th** | **1** | **Assignment** | **14** | **Revision/ file checking** |
| **2** | **Unit4:Special Purpose Machines** |
| **3** | **Construction and working principle of linear**  **induction motor** |
| **4** | **stepper motor** |
| **15th** | **1** | **Servomotor** | **15** | **Revision of Experiment** |
| **2** | **submersible motor** |
| **3** | **introduction to energy efficient motors** |
| **4** | **Problem solution** |
| **16th** | **1** | **Assignment** | **16** | **Internal Practical** |
| **2** | **Problem solution** |
| **3** | **Revision/Review/Test of old HSBTE Papers** |
| **4** | **Revision/Review/Test of old HSBTE Papers** |