**Lesson plan**

**Name of the faculty** : Mr. Manoj Bansal

**Discipline** : Electrical & Electronics Engineering

**Semester** : 4th

**Subject** : Electrical Machine- II

**Lesson Plan Duration** : 15 weeks (From May-2021 to August-2021)

**Work Load (Lecture/ Practical) per week (in hours):** Lecture-03, Practical-02

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| **Week** | **Theory** | **Practical** |
| **Lecture day** | **Topic(Including assignment/test)** | **Practical Day** | **Topic** |
| 1st | 1st | **Poly-phase Induction Machine:** Constructional features, Principal of operation production of rotating field | 1st | Study of the No Load and Block Rotor Test in a Three Phase Slip Ring Induction Motor & draw its circle diagram |
| 2nd | Induction motor action, torque production |
| 2nd | 1st | Testing, development of equivalent circuit | 2nd | To Study the Starting of Slip Ring Induction Motor by Rotor Resistance Starter |
| 2nd | Performance characteristics, circle diagram |
| 3rd | 1st | Starting methods, double cage and deep bar motors ,methods of speed control - stator voltage control, stator resistance control | 3rd | To Study and Measure Direct and Quadrature Axis Reactance of a 3 phase alternator by Slip Test |
| 2nd | frequency control, rotor resistance control, slip power recovery control |
| 4th | 1st | **Induction Generator:** Principle of operation | 4th | . To Study and Measure Positive, Negative and Zero Sequence Impedance of a Alternator |
| 2nd | types and applications |
| 5th  | 1st | **Single phase Induction Motors:** Double revolving field theory | 4th | To Study and Measure Synchronous Impedance and Short circuit ratio of Synchronous Generator |
| 2nd | Cross field theory, different types of single phase induction motors |
| 6th | 1st | circuit model of single phase induction motor | 6th | Study of Power (Load) sharing between two Three Phase alternators in parallel operation condition |
| 2nd | **Synchronous Generator:** Principle, construction of cylindrical rotor and salient pole machines |
| 7th | **Sessional -I Examination+Activity** |
| 8th | 1st | winding, EMF equation, Armature reaction | 8th | Synchronization of two Three Phase Alternators, by a) Synchroscope Method b) Three dark lamp Method c) Two bright one dark lamp Method |
| 2nd | testing, model of the machine |
| 9th | 1st | regulation --synchronous reactance method | 9th  | To plot V- Curve of synchronous motor |
| 2nd | Potier triangle method  |
| 10th | 1st | Output powerEquation | 10th  | To study and verify Load characteristics of Long Shunt & short shunt Commutatively Compound Generator using 3 phase induction motor as prime mover |
| 2nd | power angle curve |
| 11th | 1st | slip test, transient and sub-transient reactances | 11th  | To perform O.C. test on synchronous generator. And determine the full load regulation of a three phase synchronous generator by synchronous impedance method |
| 2nd | synchronization, parallel operation |
| 12th | 1st | **Synchronous Motor:** Principles of synchronous motor |  |  |
| 2nd | power angle curve, V-curve |
| 13th | 1st | starting, damper winding |  |  |
| 2nd | synchronous condenser, applications |
| 14th | 1st | Revision Section A |  |  |
| 2nd | Revision Section B |
| 15th | 1st | Revision Section C |  |  |
| 2nd | Revision Section D |
| 16th | **Sessional -II Examination+Activity** |

**Faculty Signature**