

| Discipline:<br><b>ELECTRICAL</b>     | Semester:                                    | Name of the Teaching Faculty: <b>MRS. MONALISA PANI</b>   |
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|                                      | 5 <sup>th</sup> Sem                          |   |
| Subject: <b>ENERGY CONVERSION-II</b> | No. of days/per week class allotted: 4p/week | Semester From: 15.09.2022 to 22.12.2022   |
|                                      |  | No. of weeks: 15 weeks  |
| <b>Week</b>                          | <b>Class Day</b>                             | <b>Theory Topics</b>  |
| 1 <sup>st</sup>                      | 1 <sup>st</sup>                              | <b>1. ALTERNATOR:</b>   |
|                                      | 2 <sup>nd</sup>                              | 1.1. Types of alternator and their constructional features.   |
|                                      | 3 <sup>rd</sup>                              | 1.2. Basic working principle of alternator and the relation between speed and frequency.  |
|                                      | 4 <sup>th</sup>                              | 1.3. Terminology in armature winding and expressions for winding factors (Pitch factor, Distribution factor).                         |
| 2 <sup>nd</sup>                      | 1 <sup>st</sup>                              | 1.4. Explain harmonics, its causes and impact on winding factor.  |
|                                      | 2 <sup>nd</sup>                              | 1.5. E.M.F equation of alternator. (Solve numerical problems).  |
|                                      | 3 <sup>rd</sup>                              | 1.5. E.M.F equation of alternator. (Solve numerical problems).  |
|                                      | 4 <sup>th</sup>                              | 1.6. Explain Armature reaction and its effect on emf at different power factor of load.   |
| 3 <sup>rd</sup>                      | 1 <sup>st</sup>                              | 1.7. The vector diagram of loaded alternator. (Solve numerical problems)  |
|                                      | 2 <sup>nd</sup>                              | 1.8. Testing of alternator (Solve numerical problems)   |
|                                      | 3 <sup>rd</sup>                              | 1.8.1. Open circuit test.   |
|                                      | 4 <sup>th</sup>                              | 1.8.2. Short circuit test.  |
| 4 <sup>th</sup>                      | 1 <sup>st</sup>                              | 1.9. Determination of voltage regulation of Alternator by direct loading and synchronous impedance method. (Solve numerical problems) |
|                                      | 2 <sup>nd</sup>                              | 1.9. Determination of voltage regulation of Alternator by direct loading and Synchronous impedance method. (Solve numerical problems) |
|                                      | 3 <sup>rd</sup>                              | 1.10. Parallel operation of alternator using synchro-scope and dark & Bright lamp method.   |
|                                      | 4 <sup>th</sup>                              | 1.11. Explain distribution of load by parallel connected alternators.   |
| 4 <sup>th</sup>                      | 1 <sup>st</sup>                              | <b>2. SYNCHRONOUS MOTOR:</b>  |
|                                      | 2 <sup>nd</sup>                              | 2.1. Constructional feature of Synchronous Motor.   |
|                                      | 3 <sup>rd</sup>                              | 2.2. Principles of operation, concept of load angle   |
|                                      | 4 <sup>th</sup>                              | 2.3. Derive torque, power developed.  |

