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| **Lesson Plan** |
| **Name of Faculty** | Satyender |
| **Discipline** | Electrical Engineering |
| **Semester** | 3rd  |
| **Subject** | Non-Conventional Sources of Energy |
| **Work load (Theory + Practical ) Per Week** | (04+00) |
| **Week** | **Theory** |
|  | **Day** | **Topics** |
| 1st | 1 | **1 Basic of Energy** Classification of Energy- |
| 2 | Primary and secondary energy |
| 3 | Commercial and non- commercial energy |
| 4 | Importance of non-conventional energy sources |
| 2nd | 1 | Present scenario, future prospectus  |
| 2 | Energy scenario in India |
| 3 | Sector-wise energy consumption (domestic, industrial, agriculture etc.) |
| 4 | Revision |
| 3rd | 1 | **2 Solar Energy** |
| 2 | Principle of conversion of solar radiation into heat, photo-voltaic cell |
| 3 | Electricity generation, application of solar energy |
| 4 | Solar water heaters |
| 4th | 1 | Solar furnaces |
| 2 | Solar cookers |
| 3 | Solar lighting |
| 4 | Solar pumping |
| 5th | 1 | Revision |
| 2 | **3 Bio-energy**: Bio-mass conversion technologies- |
| 3 | Wet and |
| 4 | Dry processes |
| 6th | 1 | Methods for obtaining energy from biomass |
| 2 | Power generation by using gasifiers |
| 3 | Revision |
| 4 | **4 Wind Energy:** |
| 7th | 1 | Wind energy conversion |
| 2 | Wind mills |
| 3 | Electricity generation from wind |
| 4 | Types of wind mills |
| 8th | 1 | local control |
| 2 | Energy storage |
| 3 | Revision |
| 4 | **5 Geo-thermal and Tidal Energy:** |
| 9th | 1 | Geo-thermal sources, |
| 2 | Ocean thermal electric conversion |
| 3 | Open and  |
| 4 | Closed cycles |
| 10th | 1 | Hybrid cycles |
| 2 | Prime movers for geo-thermal energy conversion |
| 3 | Steam Generation |
| 4 | Electricity generation. |
| 11th | 1 | Revision |
| 2 | **6 Magneto Hydro Dynamic (MHD) Power Generation** |
| 3 | Working and construction |
| 4 | Advantages and disadvantages |
| 12th | 1 | Revision |
| 2 | Problem solving/checking |
| 3 | **7 Fuel Cells** |
| 4 | Design and operating principles of a fuel cell |
| 13th | 1 | Conversion efficiency |
| 2 | Work output and e.m.f of fuel cells, |
| 3 | Applications. |
| 4 | Revision |
| 14th | 1 | Problem solving/checking |
| 2 | **8 Introduction to Hydro Energy** |
| 3 | Mini hydro plants |
| 4 | Micro hydro plants |
| 15th | 1 | Revision |
| 2 | HSBTE old paper solution |
| 3 | HSBTE old paper solution |
| 4 | HSBTE old paper solution |