Lesson Plan

Name of faculty : Mr. Surender Chahal

Discipline : Electrical Engineering

Semester : 7th

Subject : NCSEM (ET-407E)

Lesson plan duration : 15 weeks

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| Week | Theory | | Covered Date | | |
|  | Lecture  Day | Topic (Including assignment / Test) | Lesson plan covered | Sign of HOD | Sign. Of DP |
| **Unit-I** | | | | | |
| 1st | 1 | Introduction : Limitations of Conventional Energy sources |  |  |  |
| 2 | Uses & growth of alternate energy sources |
| 3 | Basic schemes & application of direct energy conversion. |
| 4 | Energy Management : Principles of energy conservation, |
| 2nd | 5 | Energy conservation approach/technologies, co-generation |  |  |  |
| 6 | Waste heat utilization and advantages. |
| 7 | Regeneration methods, energy storage |
| 8 | Energy Audit, and its different types. |
| 3rd | 9 | Efficient energy management techniques |  |  |  |
| 10 | Energy management system in India. |
| 11 | Co-generation and its advantages. |
| 12 | Power factor and its improvement. |
| **Unit-II** | | | | | |
| 4th | 13 | MHD Generators : Basic principle |  |  |  |
| 14 | Gaseous conduction & Hall effect |
| 15 | Generator & motor effect, |
| 16 | Different types of MHD generators |
| 5th | 17 | Practical MHD generators, applications & economic aspects |  |  |  |
| 18 | Thermo-Electric Generators: Thermoelectric effects, |
| 19 | Thermoelectric converters, figure of merit |
| 20 | Properties of thermoelectric materials |
| 6th | 21 | Brief description of construction of thermoelectric generators |  |  |  |
| 22 | Applications & economic aspects. |
| 23 | Applications & economic aspects |
| 24 | Problem discuss |
| **7th** | **1st Minor Test** | | | | |
| **Unit-III** | | | | | |
| 8th | 25 | Photo Voltaic Effect & Solar Energy |  |  |  |
| 26 | Photo Voltaic effect |
| 27 | Different types of photoelectric cells |
| 28 | Cell fabrication technique |
| 9th | 29 | Characteristics of photo voltaic cells |  |  |  |
| 30 | Conversion efficiency |
| 31 | Solar batteries, solar radiation analysis |
| 32 | Solar energy in India, |
| 10th | 33 | Solar collector |  |  |  |
| 34 | Solar furnaces & applications |
| 35 | Different advantages of non-conventional energy sources. |
| 36 | Problem Discuss. |
| **Unit-IV** | | | | | |
| 11th | 37 | Miscellaneous Sources : Fuel cells |  |  |  |
| 38 | principle of action, general description of fuel cells |
| 39 | conversion efficiency, operational characteristics & applications |
| 40 | Low level hydro plants |
| 12th | 41 | definition of low head hydropower |  |  |  |
| 42 | Choice of site, choice of turbines. |
| 43 | Wind power, history of windpower |
| 44 | wind machines, theory of wind power |
| 13th | 45 | characteristics of suitable wind power sites |  |  |  |
| 46 | Bio mass energy, conversion processes |
| 47 | Different bio mass energy resources |
| 48 | Problem Discuss |
| **14th** | **2nd Minor test** | | | | |
| 15th | 49 | Different electric equipments |  |  |  |
|  | 50 | precautions, and applications |
|  | 51 | Last semesters question papers discuss |
|  | 52 | Last semesters question papers solved |