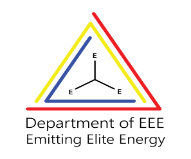
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**Department of Electrical and Electronics Engineering**

**Lesson Plan & Work-done Diary for AY:2023-24, EVEN Semester**

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| **Course with Code: RENEWABLE ENERGY SOURCES\_BETCK205E** | | | | | **Faculty: Maria Sushma S** | | **Semester & Section: II sem** | |
| **Class**  **No.** | Date planned **(DD/MM)** | Topics to be covered | **TLP Planned** | **Date of Conduction**  **(DD/MM)** | | **Topics Covered** | **TLP Executed** | **Remarks if any deviation** |
| **MODULE-1** | | | | | | | | |
|  |  | **Introduction**: Principles of renewable energy | ICT |  | |  |  |  |
|  |  | sustainable development of renewable energy | ICT |  | |  |  |  |
|  |  | Fundamentals and social implications of renewable energy | ICT |  | |  |  |  |
|  |  | Worldwide renewable energy availability and also in India, | ICT |  | |  |  |  |
|  |  | Brief descriptions on solar energy, wind energy, tidal energy | ICT |  | |  |  |  |
|  |  | Brief descriptions on wave energy, ocean thermal energy, biomass energy, geothermal energy | ICT |  | |  |  |  |
|  |  | Introduction to the Internet of energy (IOE) | Chalk and Talk |  | |  |  |  |
|  |  | Summary of Module-1 and Quiz on Module-1 | ICT |  | |  |  |  |

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| **MODULE 2** | | | | | | | | |
|  |  | **Solar Energy:** Fundamentals; Solar Radiation | ICT |  | |  |  |  |
|  |  | Estimation of solar radiation on horizontal and inclined surfaces | ICT |  | |  |  |  |
|  |  | Solar radiation Measurements- Pyrheliometers, Pyrometer, Sunshine Recorder | ICT |  | |  |  |  |
|  |  | Solar Thermal systems: Flat plate collector, | ICT |  | |  |  |  |
|  |  | Solar distillation; Solar Pond electric power plant. | ICT |  | |  |  |  |
|  |  | **Solar electric power generation**- Principle of Solar cell, Photovoltaic system for electric power generation | ICT |  | |  |  |
|  |  | Advantages, Disadvantages and Applications of Solar Power System | Chalk and Talk |  | |  |  |  |
|  |  | Summary of Module-2 and Quiz on Module-2 | ICT |  | |  |  |  |

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| **MODULE 3** | | | | | | | | |
|  |  | **Wind Energy**: Properties of wind, availability of wind energy in India | Chalk and Talk |  | |  |  |  |
|  |  | Wind velocity and power from wind; major problems associated with wind power | ICT |  | |  |  |  |
|  |  | Basic components of wind energy conversion system (WECS) | ICT |  | |  |  |  |
|  |  | Classification of WECS | ICT |  | |  |  |  |
|  |  | **Biomass Energy**: Introduction; Photosynthesis Process; Biofuels | Chalk and Talk |  | |  |  |  |
|  |  | Biomass conversion technologies-Fixed Dome | ICT |  | |  |  |  |
|  |  | Urban waste to energy conversion; Biomass gasification (Downdraft | ICT |  | |  |  |  |
|  |  | Summary of Module-3 and Quiz on Module-3 | ICT |  | |  |  |  |

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| **MODULE 4** | | | | | | | | |
|  |  | **Tidal Power**: Tides and waves as energy suppliers and their mechanics | Chalk and Talk |  | |  |  |  |
|  |  | Fundamental characteristics of tidal power | ICT |  | |  |  |  |
|  |  | Harnessing tidal energy, its merits and limitations | Chalk and Talk |  | |  |  |  |
|  |  | **Ocean Thermal Energy Conversion:** Principle of working | ICT |  | |  |  |  |
|  |  | OTEC power stations in the world | ICT |  | |  |  |  |
|  |  | Problems associated with OTEC | Chalk and Talk |  | |  |  |  |
|  |  | Problems associated with OTEC | Chalk and Talk |  | |  |  |  |
|  |  | Summary of Module-4 and Quiz on Module-4 | ICT |  | |  |  |  |

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| **MODULE 5** | | | | | | | | |
|  |  | **Green Energy**: Introduction, types of Fuel cells | ICT |  | |  |  |  |
|  |  | Classification of fuel cells – H2 | ICT |  | |  |  |  |
|  |  | Operating principles, Zero energy Concepts | ICT |  | |  |  |  |
|  |  | Benefits of hydrogen energy | Chalk and Talk |  | |  |  |  |
|  |  | Hydrogen production technologies | ICT |  | |  |  |  |
|  |  | Hydrogen energy storage and its  applications of hydrogen energy | ICT |  | |  |  |  |
|  |  | Problem associated with hydrogen energy | ICT |  | |  |  |  |
|  |  | Summary of Module-5 and Quiz on Module-5 | ICT |  | |  |  |  |

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|  | **Activity** | **Planned** | **Actual** | **Remarks** |
| **1** | Theory Classes | 40 |  |  |
| **2** | Assignments/Quizzes/ Self study | Assignment-2, Quiz-5 |  |  |
| **3** | Tutorials/ Extra classes |  |  |  |
| **4** | Internal Assessments | 3 |  |  |
| **5** | ICT based Teaching  (% of usage in Curriculum) | 80% |  |  |
| **Planning** | | | **Execution** | |
| **Faculty Signature:** | | | **Faculty Signature:** | |
| **HoD Signature:** | | | **HoD Signature:** | |