



Lesson Plan & Work-done Diary for AY:2024-25, Even Semester

| Course with Code: Renewable Energy Power Plants- BME654B | | | | Faculty: Dr. Mohanakumara K C | | | Semester & Section: 67 th sem Open Elective | |
|--|----------------------|---|-------------|-------------------------------|----------------------------|----------------|---|--------------------------|
| Class No. | Date planned (DD/MM) | Topics to be covered | TLP Planned | Class No. | Date of Conduction (DD/MM) | Topics Covered | TLP Executed | Remarks if any deviation |
| MODULE-1: Introduction to Renewable Energy | | | | | | | | |
| 1 | 10/02/2025 | Bridge course on Energy and its importance, Classifications of Energy, Energy scenario | PPT | | | | | |
| 2 | 12/02/2025 | Introduction to Renewable Energy: | PPT | | | | | |
| 3 | 14/02/2025 | Overview of global energy demand and the need for renewable energy, | PPT | | | | | |
| 4 | 17/02/2025 | Comparison of renewable and non-renewable energy sources, | PPT | | | | | |
| 5 | 19/02/2025 | Environmental benefits and challenges of renewable energy. | PPT | | | | | |
| 6 | 21/02/2025 | Solar Radiation: Extra Terrestrial radiation, spectral distribution of extra-terrestrial radiation, | PPT | | | | | |
| 7 | 24/02/2025 | Solar constant, solar radiation at the earth's surface, | PPT | | | | | |
| 8 | 28/02/2025 | Beam, diffuse and global radiation | PPT | | | | | |

MODULE-2: Solar Power Plants

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|----|------------|--|----------------------|--|--|--|--|--|
| 9 | 03/03/2025 | Solar Power Plants: Measurement of Solar Radiation: | PPT | | | | | |
| 10 | 05/03/2025 | Pyrometer, shading ring pyrheliometer, sunshine recorder, schematic diagrams and principle of working. | PPT | | | | | |
| 11 | 07/03/2025 | Solar Thermal Conversion: Collection and storage, thermal collection devices. | PPT | | | | | |
| 12 | 10/03/2025 | Fundamentals of solar energy and photovoltaic (PV) technology, Types of solar power plants: gridtied, offgrid, and hybrid systems, | PPT | | | | | |
| 13 | 12/03/2025 | Design considerations for solar power plants: site selection, orientation, and shading analysis, | PPT | | | | | |
| 14 | 14/03/2025 | PV system components and their functionalities, | PPT and field Visist | | | | | |
| 15 | 17/03/2025 | Operation, maintenance, and performance monitoring of solar power plants | PPT | | | | | |

MODULE-3: Wind Power Plants & Geothermal Energy Conversion

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|----|------------|---|-----|--|--|--|--|--|
| 16 | 19/03/2025 | Wind Power Plants: Basics of wind energy and wind turbine technology | PPT | | | | | |
| 17 | 24/03/2025 | Types of wind turbines: horizontal axis and vertical axis; | PPT | | | | | |
| 18 | 26/03/2025 | Wind resource assessment and site selection for wind power plants, Wind farm layout optimization and wake effects | PPT | | | | | |
| 19 | 28/03/2025 | Grid integration and power system considerations for wind power plants | PPT | | | | | |
| 20 | 02/04/2025 | Geothermal Energy Conversion: Principle of working, | PPT | | | | | |
| 21 | 04/04/2025 | Types of geothermal station with schematic diagram | PPT | | | | | |
| 22 | 07/04/2025 | Geothermal plants in the world, problems associated with geothermal conversion, scope of geothermal energy. | PPT | | | | | |

MODULE-4: Tidal Power & Ocean Thermal Energy Conversion

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|----|------------|---|-----|--|--|--|--|--|
| 23 | 09/04/2025 | Tidal Power: Tides and waves as energy suppliers and their mechanics | PPT | | | | | |
| 24 | 11/04/2025 | Fundamental characteristics of tidal power, harnessing tidal energy | PPT | | | | | |
| 25 | 16/04/2025 | Advantages and limitations tidal power | PPT | | | | | |
| 26 | 25/04/2025 | Ocean Thermal Energy Conversion: Principle of working, | PPT | | | | | |
| 27 | 05/05/2025 | OTEC power stations in the world | PPT | | | | | |
| 28 | 07/05/2025 | Problems associated with OTEC | PPT | | | | | |
| 29 | 09/05/2025 | Biomass Power Plants: Biomass as a renewable energy source: types and characteristics | PPT | | | | | |

MODULE-5: Biomass Power Plants & Hydrogen Energy

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|----|------------|---|-----|--|--|--|--|--|
| 30 | 12/05/2025 | Conversion technologies: combustion, gasification, and anaerobic digestion | | | | | | |
| 31 | 14/05/2025 | Biomass feedstock selection and availability, Environmental impacts and sustainability of biomass power plants, | PPT | | | | | |
| 32 | 16/05/2025 | Integration of biomass power plants with other energy systems Hydrogen energy | PPT | | | | | |
| 33 | 19/05/2025 | Properties of Hydrogen with respect to its utilization as a renewable form of energy, sources of hydrogen, | PPT | | | | | |
| 34 | 21/05/2025 | Production of hydrogen, electrolysis of water, | PPT | | | | | |
| 35 | 23/05/2025 | Thermal decomposition of water, thermos | PPT | | | | | |
| 36 | 29/05/2025 | Chemical production biochemical production. | PPT | | | | | |



Summary of the Lesson Plan and Work-Done

| | Activity | Planned | Actual | Remarks |
|---------------------------|--|----------------|---------------------------|----------------|
| 1 | Theory Classes | 36 | | |
| 2 | Demonstrations & Lab Visit/ Experiment conduction | 01 | | |
| 2 | Assignments/ Quizzes/ reports | 03 | | |
| 3 | Tutorials/ Extra classes | - | | |
| 4 | Internal Assessments | 03 | | |
| 5 | ICT based Teaching (% of usage in Curriculum) | 95% | | |
| Planning | | | Execution | |
| Faculty Signature: | | | Faculty Signature: | |
| HoD Signature: | | | HoD Signature: | |