

| Dicipline: | EE | Semester: | 6 th | Name of the Teaching Faculty: | Sonitamee Jena. |
|------------|------------------|-------------------------------------------------------------------|-----------------|-------------------------------|---------------------------|
| Subject: | Renewable Energy | No of Days/Week Class Allotted: | 4 | Semester From date: | 13.02.23 To date 23.05.23 |
| | | | | No.of Weeks: | 16 |
| WEEK | Class Day | Theory Topics | | | |
| | 1st | Environmented consequences of fossil fuel use | | | |
| | 2nd | Importance of renewable sources of energy | | | |
| | 3rd | Sustainable design and development | | | |
| | 4th | Types of RE sources Limitations of RE sources | | | |
| | 5th | | | | |
| | 1st | Present Indian and international energy scenarios of conventional | | | |
| | 2nd | Solar Photovoltaic system - operating principle. | | | |
| | 3rd | operating principle. | | | |
| | 4th | Photovoltaic cell concepts | | | |
| | 5th | | | | |
| | 1st | cell, module, array | | | |
| | 2nd | series and parallel connections | | | |
| | 3rd | maximum power point tracking (MPPT). | | | |
| | 4th | classification of energy sources | | | |
| | 5th | | | | |

| WEEK | Class Day | Theory Topics |
|------|-----------|----------------------------------------------------------------|
| | 1st | extra-terrestrial |
| | 2nd | terrestrial radiation |
| | 3rd | Azimuth angle, zenith angle |
| | 4th | Hour angle, irradiance |
| | 5th | |
| | 1st | solar constant |
| | 2nd | solar collector |
| | 3rd | Types and performance characteristics |
| | 4th | Applications: photovoltaic battery charger, domestic lighting, |
| | 5th | |
| | 1st | Introduction to wind energy |
| | 2nd | wind energy conversion |
| | 3rd | Types of wind turbines |
| | 4th | Aerodynamics of wind rotors |
| | 5th | |

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| WEEK | Class Day | Theory Topics | | |
| | 1st | wind turbine control system | | |
| | 2nd | conversion to electrical power | | |
| | 3rd | induction generators | | |
| | 4th | synchronous generators | | |
| | 5th | | | |
| | 1st | grid connected and self excited induction generator operation | | |
| | 2nd | constant voltage and constant frequency generation with power | | |
| | 3rd | single and double output system | | |
| | 4th | characteristics of wind power plant | | |
| | 5th | | | |
| | 1st | Energy from biomass | | |
| | 2nd | Biomass as Renewable Energy source | | |
| | 3rd | types of biomass fuel & solid | | |
| | 4th | Fuels - liquid | | |
| | 5th | | | |

| WEEK | Class Day | Theory Topics |
|------|-----------|-----------------------------|
| | 1st | fuels - gas |
| | 2nd | combustion and fermentation |
| | 3rd | Anaerobic digestion |
| | 4th | types of biogas digester |
| | 5th | |
| | 1st | wood gasifier |
| | 2nd | proteists |
| | 3rd | Applications: Bio gas |
| | 4th | Applications: Bio diesel |
| | 5th | |
| | 1st | Tidal energy! |
| | 2nd | Energy from the tides |
| | 3rd | Barrage and Non Barrage |
| | 4th | Tidal power systems. |
| | 5th | |

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| Subject: | No of Days/Week Class Allotted: _____ | Semester From date: _____ To date _____ | No. of Weeks: | |
| WEEK | Class Day | Theory Topics | | |
| | 1st | Ocean Thermal | | |
| | 2nd | Ocean Thermal Energy Conversion (OTEC) | | |
| | 3rd | Geothermal Energy | | |
| | 4th | HS Classification | | |
| | 5th | | | |
| | 1st | Hybrid Energy Systems | | |
| | 2nd | Hybrid Energy Systems | | |
| | 3rd | Diesel - PV. | | |
| | 4th | Wind - PV | | |
| | 5th | | | |
| | 1st | Microhydro - PV | | |
| | 2nd | Electric Vehicles | | |
| | 3rd | Hybrid Vehicles. | | |
| | 4th | Difference between Electric and Hybrid electric vehicles | | |
| | 5th | | | |




| WEEK | Class Day | Theory Topics |
|------|-----------|-------------------------------------------------------------|
| | 1st | CLASS TEST |
| | 2nd | DISCUSSION OF ASSIGNMENT QUESTION |
| | 3rd | PREVIOUS SEMESTER QUESTION DISCUSSION |
| | 4th | PREVIOUS SEMESTER QUESTION DISCUSSION |
| | 5th | |
| | 1st | OMR TEST |
| | 2nd | CLASS TEST QUESTION DISCUSSION & DISTRIBUTION OF EVALUATED. |
| | 3rd | |
| | 4th | |
| | 5th | |
| | 1st | |
| | 2nd | |
| | 3rd | |
| | 4th | |
| | 5th | |