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| C:\Users\gec\Desktop\logo.jpg | **Mechanical Engineering Department**Government Engineering College, Dahod-389151.**SYLLABUS FOR MID SEMESTER EXAMINATION** Subject: **RENEWABLE ENERGY ENGINEERING**Subject Code: **- 2181910**Semester: **VIII**  Division: **A & B**Faculties: 1. Prof. N.S.Mehta(NSM) 2. Prof. Y.B.Chauhan(YBC) 3. Prof. M. K. Chudasama (MKC) 2. Prof. P.M.Gautam(PMG) |
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| **Sr. No.** | **Content** | **Topic Covered** |  |  |  |  |
| 1 | Scenario of Renewable Energy (RE) Sources: | Needs of renewable energy, advantages and limitations of RE, present energy scenario of conventional and RE sources |  |  |  |  |
| 2 | Solar Energy: | Energy available from the sun, spectral distribution, solar radiation outside the earth’s atmosphere and at the earth’s surface, solar radiation geometry, Instruments for solar radiation measurements, empirical equations for prediction of availability of solar radiation, radiation on tilted surface solar energy conversion into heat, types of solar collectors,  |  |  |  |  |
| 3 | Wind Energy: | Energy available from wind, basics of lift and drag, basics of wind energy conversion system, effect of density, angle of attack and wind speed, windmill rotors, horizontal and vertical axes rotors, drag, lift, torque and power coefficients, tip speed ratio,  |  |  |  |  |
| 4 | Ocean Energy: | OTEC principle, open, closed and hybrid cycle OTEC system, Energy from tides, estimation of tidal power, tidal power plants, single and double basin plants, site requirements, advantages and limitations,  |  |  |  |  |
| 5 | Economic Analysis: | Initial and annual cost, basic definitions, present worth calculations, repayment of loan in equal annual installments, annual savings, cumulative saving and life cycle cost, economic analysis of add on solar system, payback period, clean development mechanism |  |  |  |  |
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