

**“PVC” NSSK Govt. Polytechnic Bilaspur at Kalol
Lecture Planning (Theory)**

Branch : **Electrical Engg.**

Semester: **5th**

Subject : **Non-Conventional Energy Resources**

Session: **Aug 23 – Dec 23**

Teacher : **Ashwani Kumar**

Class Room : **L5**

Sr. No.	No. of Lectures	Chapter/ Unit Description	Detail of Contents	Reference Resources	Rem
1.	01-04	Introduction	Importance of Non-conventional sources of energy, Present energy scenario, Role of non-conventional or renewable energy sources in present energy scenario.	R1,R2,R3	
2.	05-11	Solar Energy	Principle of conversion of solar radiation into heat, Photo-Voltaic Cell, Electricity generation using Solar Energy, Applications of Solar Energy: Solar water heaters, Solar Furnaces, Solar cookers, Solar lighting, Solar pumping.	-do-	
3.	12-17	Hydro Energy	Main elements of small (Mini and Micro) hydro-electric power generation system, control requirements in small hydro power plants, advantages of small hydro power plants over large hydro power generation systems.	-do-	
4.	18-25	Bio-Energy	Bio-mass Conversion Technologies: Wet and Dry processes. Methods for obtaining energy from biomass. Power generation using biomass gasifier.	-do-	
5	26-33	Wind Energy	Wind Energy Conversion system, Types of wind mills, electricity generation using wind mills, control mechanism in wind energy conversion system, and energy storage systems.	-do-	
6	34-41	Geo-Thermal and Tidal Energy	Geo-thermal sources, Ocean thermal electric conversion, open and closed cycles, hybrid cycles, Tidal power basics and schemes of electricity generation using tidal power.	-do-	
7	42-44	Magneto Hydro Dynamic (MHD) Power Generation	Introduction, working principle and Magneto Hydro Dynamic (MHD) Power Generation system.	-do-	
8	45-50	Chemical Energy	Principle of working of fuel cell, conversion efficiency, work output and emf of fuel cells, applications of fuel cells.	-do-	

9	50-54	Thermo Electric Power	Basic working principle of thermo-electric power, Thermo-electric power generation, thermoelectric materials and their application.	-do-
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08/08/23

Signature of Teacher with Date



Signature of OIC (EE)

Reference Resource:

R1: Energy Management by Dr. Sanjeev Singh & Dr. Umesh Rathore, KATSON Publications New Delhi.

R2: Energy Management by Dr. Umesh Rathore, KATSON Publications New Delhi.

R3: Energy Technology (non-conventional, renewable and conventional) by S Rao and BB Parulekar, Khanna Publishers, New Delhi.