

"PVC" NSSK GOVT POLYTECHNIC BILASPUR
PLANNED THEORY SYLLABUS COVERAGE

Department: Mechanical Engg.			Subject: Renewable Energy Technologies. Open Elective (MEOE301)			
Sem. & Branch: 5TH / Elec. Engg.			Duration: 3 Year			
Teacher: Suresh Kumar						
Syllabus coverage		Total periods:-42			Practical : NO	
SR. NO	Period/Hrs	Topic/Unit	Details	Instruction Reference	Additional study	Remarks
1	12	Introduction	World Energy Use; Reserves of Energy Resources; Environmental Aspects of Energy Utilization; Renewable Energy Scenario in India and around the World; Potentials; Achievements/Applications; Economics of renewable energy systems.	1. O.P. Gupta, Energy Technology, Khanna Publishing House, Delhi (ed. 2018)	1. Renewable Energy Sources, Twidell, J.W. & Weir, A., EFN Spon Ltd., UK, 2006 2. Fundamental of Renewable Energy Sources, GN Tiwari and MK Ghoshal, Narosa, New Delhi, 2007 3. Solar Energy, Sukhatme. S.P., Tata McGraw Hill Publishing Company Ltd., New Delhi, 1997 4. Renewable Energy and Environment-A Policy Analysis for India, NH Ravindranath, UK Rao, B Natarajan, P Monga, Tata McGraw Hill.	
2	13	Solar energy	Solar Radiation; Measurements of Solar Radiation; Flat Plate and Concentrating Collectors; Solar direct Thermal Applications; Solar thermal Power Generation; Fundamentals of Solar Photo Voltaic Conversion; Solar Cells; Solar PV Power Generation; Solar PV Applications.			
3	13	Wind Energy	Wind Data and Energy Estimation; Types of Wind Energy Systems; Performance; Site Selection; Details of Wind Turbine Generator; Safety and Environmental Aspects.			
4	13	Bio-Energy	Biomass direct combustion; Biomass gasifiers; Biogas plants; Digesters; Ethanol production; Biodiesel; Cogeneration; Biomass Applications.			
5	13	Other Renewable Energy Sources	Tidal energy; Wave Energy; Open and Closed OTEC Cycles; Small Hydro-Geothermal Energy; Hydrogen and Storage; Fuel Cell Systems; Hybrid Systems.			

Approved	Sign HOD/ IQC
01/08/24	