

"PVC" NSSK GOVT POLYTECHNIC BILASPUR
PLANNED THEORY SYLLABUS COVERAGE

Department: Mechanical Engg.				Subject: Non Conventional Energy Systems Open Elective (METOE301)		
Sem. & Branch: 5TH / Mech. Engg.				Duration: 3 Year		
Teacher: Suresh Kumar						
Syllabus coverage		Total periods:-56			Practical : NO	
SR. NO	Period/Hrs	Topic/Unit	Details	Instruction Reference	Additional study	Remarks
1	12	Ocean Energy Technologies:	Ocean Energy Technologies: Ocean energy map of India and its implications; Specification, Construction and working of the following ocean energy technologies: • Tidal power technologies • Wave power technologies • Ocean Thermal Energy Conversion (OTEC) technologies	1. O.P. Gupta, Energy Technology, Khanna Publishing House, Delhi (ed. 2018)	1.Fundamentals of Ocean Renewable Energy by Neill, Simon P.; Hashemi, M. Reza: Generating Electricity from the Sea, Academic Press. 2. Renewable Energy Systems by David M. Buchla, Thomas E. Kissell, Thomas L. Floyd, R Pearson Education New Delhi.	
2	13	Solar PV and Concentrated Solar Power Plants	Solar PV and Concentrated Solar Power Plants • Solar Map of India: Solar PV • Concentrated Solar Power (CSP) plants, construction and working of Power Tower, Parabolic Trough, Parabolic Dish, Fresnel Reflectors • Solar Photovoltaic (PV) power plant: components layout, construction, working.			
3	13	Large Wind Power Plants	Wind Map of India: Wind power density in watts per square meter, Lift and drag principle; long path theory, Geared type wind power plants: components, layout and working, Direct drive type wind power plants: components, layout and working.			
4	13	Small Wind Turbines	• Horizontal axis small wind turbine: direct drive type, components and working. • Horizontal axis small wind turbine: geared type, components and working. • Vertical axis small wind turbine: direct drive and geared, components and working. • Types of towers and installation of small wind turbines on roof tops and open fields.			
5	13	Biomass-based Power Plants	• Types of fuel used for Biomass power plants: Solid, Liquid and gaseous fuels • Layout of a Bio-chemical based (e.g. biogas) power plant. • Layout of a Thermo-chemical based (e.g. Municipal waste) power plant. • Layout of a Agro-chemical based (e.g. bio-diesel) power plant.			

Approved	Sign HOD/ IOC
04/08/25	