

Discipline : <b>ELECTRICAL ENGINEERING</b>	Semester : <b>6th</b>	NameoftheTeachingFaculty:- <b>Er.D.Biswal</b>
Subject: <b>RENEWABLE ENERGY SYSTEMS</b>	No. of days/per weekclass allotted: <b>05</b>	SemesterFromdate: <b>16/01/2024</b> ToDate: <b>26/04/2024</b>
<b>Week</b>	<b>Class Day</b>	<b>TheoryTopics</b>
<b>1<sup>ST</sup></b>	<b>1<sup>ST</sup></b>	IntroductiontoRenewableenergyandEnvironmental consequencesoffossilfueluse.
	<b>2<sup>ND</sup></b>	Importanceofrenewablesourcesofenergy.
	<b>3<sup>RD</sup></b>	SustainableDesignanddevelopment.
	<b>4<sup>TH</sup></b>	TypesofREsourcesandLimitationsofREsources.
	<b>5<sup>TH</sup></b>	PresentIndianandinternationalenergyscenarioofconventional andREsources.
<b>2<sup>ND</sup></b>	<b>1<sup>ST</sup></b>	IntroductiontoSolarEnergy
	<b>2<sup>ND</sup></b>	Solarphotovoltaicsystem-Operatingprinciple.
	<b>3<sup>RD</sup></b>	Photovoltaiccellconcepts
	<b>4<sup>TH</sup></b>	Cell,module,array
	<b>5<sup>TH</sup></b>	Seriesandparallelconnections
<b>3<sup>RD</sup></b>	<b>1<sup>ST</sup></b>	Maximumpowerpointtracking(MPPT).
	<b>2<sup>ND</sup></b>	ClassificationofenergySources.
	<b>3<sup>RD</sup></b>	Extra-terrestrialRadiation
	<b>4<sup>TH</sup></b>	TerrestrialRadiation
	<b>5<sup>TH</sup></b>	Azimuthangle,Zenithangle,Hourangle
<b>4<sup>TH</sup></b>	<b>1<sup>ST</sup></b>	Irradiance,Solarconstant
	<b>2<sup>ND</sup></b>	Solarcollectors
	<b>3<sup>RD</sup></b>	Typesandperformancecharacteristics
	<b>4<sup>TH</sup></b>	Applications:Photovoltaic-batterycharger,domesticlighting, streetlighting
	<b>5<sup>TH</sup></b>	Applications:waterpumping,solarcooker,SolarPond.
<b>5<sup>TH</sup></b>	<b>1<sup>ST</sup></b>	IntroductiontoWindenergy.
	<b>2<sup>ND</sup></b>	Windenergyconversion
	<b>3<sup>RD</sup></b>	Typesofwindturbines
	<b>4<sup>TH</sup></b>	Aerodynamicsofwindrotors.
	<b>5<sup>TH</sup></b>	Windturbinecontrolsystems;conversiontoelectricalpower:
<b>6<sup>TH</sup></b>	<b>1<sup>ST</sup></b>	Inductiongenerators
	<b>2<sup>ND</sup></b>	Synchronousgenerators
	<b>3<sup>RD</sup></b>	Gridconnectedandselfexcitedinductiongeneratoroperation
	<b>4<sup>TH</sup></b>	Constantvoltageandconstantfrequencygenerationwithpower electroniccontrol.
	<b>5<sup>TH</sup></b>	Singleoutputsystems
<b>7<sup>TH</sup></b>	<b>1<sup>ST</sup></b>	Doubleoutputsystems
	<b>2<sup>ND</sup></b>	Characteristicsofwindpowerplant
	<b>3<sup>RD</sup></b>	IntroductiontoBiomassPower
	<b>4<sup>TH</sup></b>	EnergyfromBiomass

7 <sup>th</sup>	5 <sup>TH</sup>	BiomassasRenewableEnergySource
8 <sup>TH</sup>	1 <sup>ST</sup>	TypesofBiomassFuels-Solid,LiquidandGas
	2 <sup>ND</sup>	Combustion
	3 <sup>RD</sup>	Fermentation
	4 <sup>TH</sup>	Anaerobicdigestion
	5 <sup>TH</sup>	Typesofbiogasdigester
9 <sup>TH</sup>	1 <sup>ST</sup>	Woodgassifier
	2 <sup>ND</sup>	Pyrolysis
	3 <sup>RD</sup>	Applications:Biogas
	4 <sup>TH</sup>	Applications:Biodiesel
	5 <sup>TH</sup>	OtherEnergySources
10 <sup>TH</sup>	1 <sup>ST</sup>	TidalEnergy
	2 <sup>ND</sup>	Energyfromthetides
	3 <sup>RD</sup>	BarrageTidalpowersystems
	4 <sup>TH</sup>	NonBarrageTidalpowersystems
	5 <sup>TH</sup>	OceanThermalEnergyConversion(OTEC).
11 <sup>TH</sup>	1 <sup>ST</sup>	GeothermalEnergy
	2 <sup>ND</sup>	Classification
	3 <sup>RD</sup>	HybridEnergySystems
	4 <sup>TH</sup>	NeedforHybridSystems
	5 <sup>TH</sup>	Diesel-PV
12 <sup>TH</sup>	1 <sup>ST</sup>	Wind-PV
	2 <sup>ND</sup>	Microhydel-PV
	3 <sup>RD</sup>	Electricvehicles
	4 <sup>TH</sup>	Hybridelectricvehicles
	5 <sup>TH</sup>	Doubtclearing