

DISCIPLINE – ELECTRICAL ENGG	SEMESTER 6TH	NAME OF THE TEACHING FACULTY- JYOTIRMAYEE SETHY, LECT(ELECT.)	
SUB-RE	No Of Days Per Week Class Alloted-5	SEMESTER FROM 16.01.2024 TO 14.05.2024 NO OF WEEK – 18 WEEKS	
WEEK	CLASS DAY	THEORY	STATUS
1 <sup>ST</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day 5 <sup>th</sup> day	<b>Introduction to Renewable energy:</b>  1.1. Environmental consequences of fossil fuel use. 1.2. Importance of renewable sources of energy. 1.3. Sustainable Design and development. 1.4. Types of RE sources.	
2 <sup>nd</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day 5 <sup>th</sup> day	1.4. Types of RE sources. 1.5. Limitations of RE sources. 1.6. Present Indian and international energy scenario of conventional and RE sources	
3 <sup>RD</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day 5 <sup>th</sup> day	<b>Solar Energy:</b>  2.1. Solar photovoltaic system-Operating principle.  2.2. Photovoltaic cell concepts  2.2.1. Cell, module, array, Series and parallel connections. Maximum power point tracking (MPPT). 2.3. Classification of energy Sources.	

4 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> da 5 <sup>th</sup> day	<p>2.4. Extra-terrestrial and terrestrial Radiati</p> <p>2.5. Azimuth angle, Zenith angle, Hour angle, Irradiance, Solar constant.</p> <p>2.6. Solar collectors, Types and performance characteristics,</p> <p>2.7. Applications: Photovoltaic - battery charger, domestic lighting, street lighting, water pumping, solar cooker, Solar Pond.</p>	
5 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day 5 <sup>th</sup> day	<p>Wind Energy:</p> <p>3.1. Introduction to Wind energy.</p> <p>3.2. Wind energy conversion.</p> <p>3.3. Types of wind turbines</p> <p>3.4. Aerodynamics of wind rotors.</p> <p>.</p>	
6 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day 5 <sup>th</sup> day	<p>3.5. Wind turbine control systems; conversion to electrical power:</p> <p>3.6. Induction and synchronous generators.</p> <p>3.7. Grid connected and self excited induction generator operation.</p>	
7 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day 5 <sup>th</sup> day	<p>3.8. Constant voltage and constant frequency generation with power electronic control.</p> <p>3.9. Single and double output systems.</p> <p>3.10. Characteristics of wind power plant</p>	

8 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>ND</sup> day 3 <sup>RD</sup> day 4 <sup>TH</sup> day 5 <sup>TH</sup> day	<b>Biomass Power:</b> 4.1. Energy from Biomass. 4.2. Biomass as Renewable Energy Source 4.3. Types of Biomass Fuels - Solid, Liquid and Gas. 4.4. Combustion and fermentation.	
9 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>ND</sup> day 3 <sup>RD</sup> day 4 <sup>TH</sup> day 5 <sup>TH</sup> day	4.5. Anaerobic digestion. 4.6. Types of biogas digester. 4.7. Wood gassifier. 4.8. Pyrolysis,. 4.9. Applications: Bio gas, Bio diesel	
10 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>ND</sup> day 3 <sup>RD</sup> day 4 <sup>TH</sup> day 5 <sup>TH</sup> day	<b>Other Energy Sources</b> 5.1. Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems. 5.2. Ocean Therma 5.3. Geothermal Energy – Classification. Energy Conversion (OTEC).	
11 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>ND</sup> day 3 <sup>RD</sup> day 4 <sup>TH</sup> day 5 <sup>TH</sup> day	5.4. Hybrid Energy Systems. 5.5. Need for Hybrid Systems. 5.6. Diesel-PV, Wind-PV, Microhydel-PV. 5.7. Electric and hybrid electric vehicles	
12 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>ND</sup> day 3 <sup>RD</sup> day 4 <sup>TH</sup> day 5 <sup>TH</sup> day	Class test for chapter 1	
13 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>ND</sup> day 3 <sup>RD</sup> day 4 <sup>TH</sup> day 5 <sup>TH</sup> day	Class test for chapter 2	

14 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>ND</sup> day 3 <sup>RD</sup> day 4 <sup>TH</sup> day 5 <sup>TH</sup> day	Class test of chapter 3&4	
15 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>ND</sup> day 3 <sup>RD</sup> day 4 <sup>TH</sup> day 5 <sup>TH</sup> day	Class test of chapter 5	
16 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>ND</sup> day 3 <sup>RD</sup> day 4 <sup>TH</sup> day 5 <sup>TH</sup> day	Class test of chapter 6	
17 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>ND</sup> day 3 <sup>RD</sup> day 4 <sup>TH</sup> day 5 <sup>TH</sup> day	REVISION FOR EXAM	
18 <sup>TH</sup> WEEK	1 <sup>ST</sup> day 2 <sup>ND</sup> day 3 <sup>RD</sup> day 4 <sup>TH</sup> day 5 <sup>TH</sup> day	REVISION FOR EXAM	