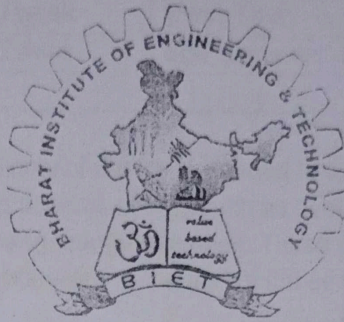


# BHARAT INSTITUTE OF ENGINEERING & TECHNOLOGY

**SIVARAM VIHAR, GHATAKESWAR HILLS  
MOHADA, BERHAMPUR (GM.)**



## STUDENT'S ATTENDANCE REGISTER

Time	9:05 to 9:55		11:35 to 12:25		12:25 to 1:15
Day					
MON			✓		
TUE	✓				
WED					✓
THR	✓		<del>✓</del>		
FRI			✓		

Year/ Session	3 <sup>rd</sup> Year
Semester & Branch	6 <sup>th</sup> Sem. Electrical.
Subject with Code	TH-4 (Renewable Energy Systems)
Name of the Faculty Member	Binayaka Kumar Nayak

# B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
Feb	3 <sup>rd</sup>	03.2.23	1. Introduction to Renewable Energy
		04.2.23	1.1 → Environmental consequences of fossil fuel use.
		16/2/23	1.2 → Importance of Renewable Sources of Energy.
	4 <sup>th</sup>	17/2/23	1.3 → Sustainable Design and Development.
		20.2.23	1.4 → TYPES of RE source.
		21.2.23	1.5 → Limitations of RE sources.
		22.2.23	1.6 → present indian and International Energy Scenario of conventional and RE sources.

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# B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
			2. <u>Solar Energy</u>
		23.2.23	2.1 → Solar photovoltaic system operating principle.
		24.2.23	2.2 → photovoltaic cell concepts → cell. → module, Array → Series & Parallel connections. → maximum Power point Tracking (MPPT)
		27.2.23	2.3 → classification of Energy Sources.
		28.2.23	2.4 → Extra-terrestrial and Terrestrial Radiation
March	1st	1.3.23	2.5 → Azimuth Angle, Zenith Angle, Hour Angle, irradiance, Solar constant.
		2.3.23	2.6 → Solar collectors, types and performance characteristics
		3.3.23	2.7 → Application - photovoltaic battery charger, domestic lighting, Street lighting, water pumping, Solar cookers, Solar pond.

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# B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
			<u>wind Energy</u>
	2 <sup>nd</sup>	6.3.23	3.1 → Introduction to wind energy
		9.3.23	3.2 → wind energy conversion.
		10.3.23	3.3 → Types of wind turbines.
	3 <sup>rd</sup>	13.3.23	3.4 → Aerodynamic of wind rotors.
		14.3.23	3.5 → wind turbine control systems conversion to electrical power
		15.3.23	3.6 → Induction and synchronous generators.
		16.3.23	3.7 → Grid connected and self excited induction generator operation.
		17.3.23	3.8 → Constant voltage and constant frequency generation with power electronic control.
	4 <sup>th</sup>	20.3.23	3.9 → Single and double output systems.
		21.3.23	3.10 → characteristics of wind power plant.

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# B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
			<u>Biomass Power</u>
April	5th	22.3.23	4.1 → Energy from Biomass
		23.3.23	
		24.3.23	4.2 → Biomass as Renewable Energy Source.
		27.3.23	
		28.3.23	4.3 → Types of Biomass fuels - Solid, Liquid and Gas
	6th	29.3.23	
		31.3.23	4.4 → Combustion and Fermentation
	7th	3.4.23	4.5 → Anaerobic digestion
		4.4.23	
		5.4.23	4.6 → Types of biogas digester
		6.4.23	
		10.4.23	4.7 → Wood gasifier
	8th	11.4.23	
		12.4.23	4.8 → Pyrolysis
		13.4.23	
		14.4.23	
		17.4.23	4.9 → Applications:- Bio gas, Bio diesel.
	9th	18.4.23	
		19.4.23	
		20.4.23	
		21.4.23	

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# B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
May	5th	24.4.23	<u>Other Energy sources</u> 5.1 → Tidal Energy : Energy from the tides, Barrage and Non Barrage Tidal Power Systems.
		25.4.23	
		26.4.23	
		27.4.23	
		28.4.23	
	1st	1.5.23	5.2 → Ocean Thermal Energy Conversion (OTEC)
		2.5.23	
		3.5.23	
	2nd	4.5.23	5.3 → Geothermal Energy - Classification.
		8.5.23	
		9.5.23	
	3rd	10.5.23	5.4 → Hybrid Energy Systems
		11.5.23	
		12.5.23	
		15.5.23	
		16.5.23	
4th	17.5.23	5.6 → Diesel - PV, Wind - PV, microhydel - PV	
	18.5.23		
	22.5.23		
	23.5.23		
		24.5.23	5.7 → Electric and hybrid Electric vehicles.

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