



Lecture plan for the courses handled related to Green Engineering Systems

S.No	Regulation	Year & Sem	Course Code	Course Name	Page No.
1.	R16	III B.Tech II Sem	R163203D	Green Engineering Systems	2-4
2.	R13	IV B.Tech II Sem	RT42032	Green Engineering Systems	5-7



VIGNAN'S INSTITUTE OF ENGINEERING FOR WOMEN

Approved by AICTE, New Delhi, Affiliated to JNTU Kakinada

KapujaggarajuPeta, VSEZ(Post), Visakhapatnam-530049,AP

DEPARTMENT OF MECHANICAL ENGINEERING

LECTURE PLAN

Course Name: Green Engineering Systems	Course Code: R163203D
Year/ Sem : III B TECH II SEM	Regulation: R16

Lecture No.	Topic name	Source
Lecture 1	UNIT I: SOLAR RADIATION: Sun as source of energy, sun earth relationships	TB:2 Chapter 4 Pg. No: 83
Lecture 2	Extra-terrestrial and Terrestrial Radiations	TB:2 Chapter 4 Pg. No: 85
Lecture 3	Instruments for measuring Solar Radiation	TB:2 Chapter 4 Pg. No: 89
Lecture 4	Solar Radiation Data and numeric Problems	TB:2 Chapter 4 Pg. No: 91
Lecture 5	Problems on Solar Radiations	TB:2 Chapter 4 Pg. No: 91
Lecture 6	Problems on Solar Radiations	TB:2 Chapter 4 Pg. No: 91
Lecture 7	Solar radiation on titled surface	TB:2 Chapter 4 Pg. No: 109
Lecture 8	Types of PV cells	TB:2 Chapter 6 Pg. No: 186
Lecture 9	I-V characteristics	TB:2 Chapter 6 Pg. No: 186
Lecture 10	SOLAR ENERGY COLLECTION: Classification of Concentrating Collectors	TB:2 Chapter 5 Pg. No: 117
Lecture 11	Flat plate and concentrating collectors	TB:2 Chapter 5 Pg. No: 119
Lecture 12	Advanced collectors	TB:2 Chapter 5 Pg. No: 152
Lecture 13	Unit-II: SOLAR ENERGY STORAGE: Energy Storage Methods	T.B: 2 Chapter 3 Pg. No: 63
Lecture 14	Sensible and Latent Heat Storage	T.B: 2 Chapter 3 Pg. No:75
Lecture 15	Solar Dryer and Solar Distillation	T.B: 2 Chapter 5 Pg. No:145
Lecture 16	central power tower concept	T.B: 2 Chapter 5 Pg. No:153
Lecture 17	Solar Ponds	
Lecture 18	Solar Chimney Plant	T.B: 2 Chapter 5 Pg. No: 153
Lecture 19	WIND ENERGY: Sources and potential	T.B: 2 Chapter 7 Pg. No: 196
Lecture 20	Horizontal and Vertical Axis wind Mills	T.B: 2 Chapter 7 Pg. No: 218

Lecture 21	Performance Characteristics	T.B: 2 Chapter 7 Pg. No: 218
Lecture 22	Betz Criteria	T.B: 2 Chapter 7 Pg. No: 211
Lecture 23	Types of Winds	T.B: 2 Chapter 7 Pg. No: 218
Lecture 24	Wind Data Measurement	T.B: 2 Chapter 7 Pg. No: 201
Lecture 25	Unit-III: BIO-MASS: Principles of bio mass conversion	T.B: 2 Chapter 8 Pg. No: 249
Lecture 26	Anaerobic digestion process	T.B: 2 Chapter 8 Pg. No: 263
Lecture 27	Types of Bio – Gas Digesters	T.B: 2 Chapter 8 Pg. No: 265
Lecture 28	Combustion Characteristics of Bio Gas	T.B: 2 Chapter 8 Pg. No: 268
Lecture 29	I.C. engine operation and economic aspects.	T.B: 2 Chapter 8 Pg. No: 272
Lecture 30	GEOTHERMAL ENERGY: Resources	T.B: 2 Chapter 9 Pg. No: 290
Lecture 31	Types of wells	T.B: 2 Chapter 9 Pg. No: 291
Lecture 32	Methods of Harnessing the energy	T.B: 2 Chapter 9 Pg. No: 292
Lecture 33	OCEAN ENERGY: Principles and utilization of OTEC plants	T.B:2 Chapter 10 Pg. No: 331
Lecture 34	Tidal Energy and Wave Energy	T.B:2 Chapter 10 Pg. No: 311
Lecture 35	Conversion Techniques	T.B:2 Chapter 10 Pg. No: 311
Lecture 36	Mini Hydel Power Plants and their economics	T.B:2 Chapter 10 Pg. No: 311
Lecture 37	Unit-IV: ELECTRICAL SYSTEMS: Energy efficient motors, energy efficient lighting and control	R.B:5 Chapter 10 Pg. No: 561
Lecture 38	Selection of Luminaire, variable voltage variable frequency drives	R.B:5 Chapter 10 Pg. No: 561
Lecture 39	Controls of HVAC	R.B:5 Chapter 10 Pg. No: 552
Lecture 40	Demand Site Management	R.B:5 Chapter 10 Pg. No: 551
Lecture 41	MECHANICAL SYSTEMS: Fuel cells working Principle	R.B:5 Chapter 10 Pg. No: 561
Lecture 42	Types of Fuel Cells	R.B:5 Chapter 10 Pg. No: 562
Lecture 43	Energy efficient compressors and pumps.	R.B:5 Chapter 16 Pg. No: 780
Lecture 44	Hydrological cycle – flow measurement –	T.B: 1 Chapter 6 Pg.No: 586
Lecture 45	Unit-V: ENERGY EFFICIENT PROCESSES: Environment friendly materials in manufacturing and its benefits	T.B: 3 Chapter 1 Pg. No: 1

Lecture 46	Benefits of Green Engineering Systems	T.B: 3 Chapter 1 Pg. No:10
Lecture 47	selection of recyclable and environment friendly materials in manufacturing	T.B: 3 Chapter 1 Pg. No: 16
Lecture 48	Environmental friendly machining like Vegetable based Cutting Fluids	T.B: 3 Chapter 2 Pg. No: 23
Lecture 49	Alternate Casting and joining Techniques	T.B: 3 Chapter 3 Pg. No: 49
Lecture 50	Zero Waste Manufacturing	T.B: 3 Chapter 4 Pg. No:73
Lecture 51	Environmental Aspects and Concerns	T.B: 3 Chapter 1,2 Pg. No:11,18,30
Lecture 52	Unit-VI: GREEN BUILDINGS: Sustainable site selection and planning of buildings	T.B: 3 Chapter 4 Pg. No: 73
Lecture 53	Definitions, Features and Benefits	T.B: 3 Chapter 4 Pg. No: 74
Lecture 54	Environmental Friendly Building materials like bamboo, timber, lime	T.B: 3 Chapter 4 Pg. No: 75
Lecture 55	Lime Pozzolona Cement, Agro Materials	T.B: 3 Chapter 4 Pg. No: 75
Lecture 56	Industrial wastes	T.B: 3 Chapter 4 Pg. No: 76
Lecture 57	Ferro cement and Ferro-concrete	T.B: 3 Chapter 4 Pg. No: 78
Lecture 58	Alternate roofing systems	T.B: 3 Chapter 4 Pg. No: 78
Lecture 59	Paints to reduce heat gain of the buildings	T.B: 3 Chapter 4 Pg. No: 79
Lecture 60	Energy management.	T.B: 3 Chapter 4 Pg. No: 80

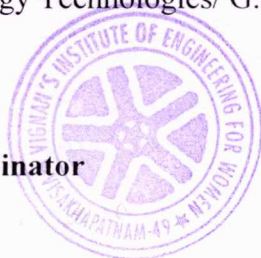
TEXT BOOKS:

1. Sukhatme S.P. and J.K.Nayak, Solar Energy - Principles of Thermal Collection and Storage, TMH.
2. Khan B.H., Non-Conventional Energy Resources, Tata McGraw Hill, New Delhi, 2006.
3. Green Manufacturing Processes and Systems, Edited by J. Paulo Davim, Springer 2013.

REFERENCE BOOKS:

1. Alternative Building Materials and Technologies / K.S Jagadeesh, B.V Venkata Rama Reddy and K.S Nanjunda Ra.
2. Principles of Solar Energy / Frank Krieth & John F Kreider.
3. Non-Conventional Energy / Ashok V Desai /Wiley Eastern.
4. Renewable Energy Technologies /Ramesh & Kumar /Narosa
5. Renewable Energy Technologies/ G.D Roy

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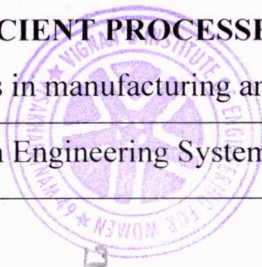
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Year/ Sem : IV B TECH II SEM	Regulation: R13

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