

MANNAM MEMORIAL NSS COLLEGE, KOTTIYAM

STUDENT ENROLMENT LIST

Name of department : Physics

Name of course : Renewable Energy Resources - Solar as Energy Source of the Future (2022-2023)

Sl No	Name of Student	Signature
1	Abhilekshmi B.G	Abhi
2	Adarsh R.G	Adarsh
3	Adithya A.S Naiz	Adithya
4	Ashish Chandran	Ash
5	Ganesh A N	Ganesh
6	Gopikaishnan A	Gopi
7	Gouri Raj	Gouri
8	Lekshmi S. Kurup	Lekshmi
9	Nandana L	Nane
10	Navaneetha A.S	Navu
11	Prajith P	Prajith
12	Pranav V	Prav
13	Shibin C	Shibin
14	Tharima A	Tharima
15	Thushara L	Thushara
16	Vignesh Ramachandran	Vignesh
17	Yadhu Kaishnan	Yadhu
18	Abhijith G.B	Abhijith
19	Abhiram J Naiz	Abhiram
20	Adarsh M	Adarsh
21	Adithya V Dev	Adithya
22	Ajaylal M	Ajay
23	Akshaya Kaishnan	Akshaya
24	Amina R	Amina
25	Anantha Kaishnan P.S	Anantha
26	Anil Shankar	Anil
27	Azathy R	Azathy
28	Azhar O.S	Azhar
29	Azmal J.C	Azmal
30	Athira A.S	Athira
31	Devika R.S	Devika
32	Devika S	Devika
33	Gayathri R	Gayathri
34	Jisha Chandran S	Jisha

35	Kisan dhasan Y	kisan
36	Kaishnapaiya B	kaish
37	Kaishnendu I	kaish
38	Lekshmi Chandan	leksh
39	Pooja R	Pooja
40	Rashida A	Rash
41	Rifana Hassan S	Rifan
42	Saikaishna L S	Sai
43	Veni Vinod	Veni
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2022 - 2023

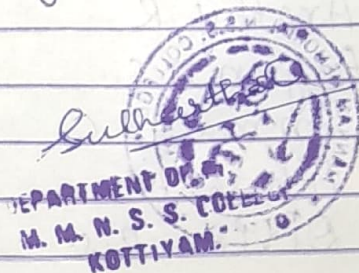
RENEWABLE ENERGY RESOURCES - SOLAR AS ENERGY SOURCE OF THE FUTURE

Curriculum:

Various forms of energy - renewable and conventional energy systems - comparison - coal, oil & natural gas - availability applications - merits & demerits. Solar energy solar radiation measurements - solar energy collector - principle of conversion of solar energy to heat - solar energy storage - solar heaters - space cooling - solar ponds - solar cookers - solar distillation - solar furnaces - solar green houses - merits and demerits of solar energy - patterns of energy consumption in domestic, industrial, transportation and agricultural sectors - energy crisis and possible solutions.

Objectives:

- to understand the relevance of renewable energy
- understand different types of renewable energy
- importance of solar energy & its applications.



Course Schedule

15/6/22 (Wednesday)	3.30 - 4.30 pm (1h)
18/6/22 (Saturday)	9.30 - 12.30 pm (3h)
20/6/22 (Monday)	3.30 - 4.30 pm
22/6/22 (Wednesday)	3.30 - 4.30 pm
24/6/22 (Friday)	3.30 - 4.30 pm
25/6/22 (Saturday)	9.30 - 3.30 pm
2/7/22 (Saturday)	9.30 - 12.30 pm
4/7/22 (Monday)	3.30 - 4.30 pm
5/7/22 (Tuesday)	3.30 - 4.30 pm
6/7/22 (Wednesday)	3.30 - 4.30 pm
16/7/22 (Saturday)	9.30 - 12.30 pm
30/7/22 - Saturday	9.30 - 3.30 pm
3/8/22 Wednesday	3.30 - 4.30 pm
4/8/22 Thursday	3.30 - 4.30 pm
5/8/22 Friday	3.30 - 4.30 pm
8/8/22 Monday	3.30 - 4.30 pm

(30 hours)



Introdⁿ to various forms of energy
 Renewable/Conventional energy / availability
 Merits & demerits of various energy
 Solar energy
 Solar radⁿ measurement / Solar energy collector-conversion
 Solar energy storage - Solar heater
 Space cooling - Solar pond
 Solar cooker
 Solar distillation
 Solar furnace - Solar greenhouses - merits & demerits.
 Patterns of energy consumption
 Energy consumption in domestic sector
 Consumption in industrial / agricultural sector.
 Energy crisis
 Solⁿ to energy crisis.
 Merits & demerits.

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Sutheshtha S. L.
 (Dr. Sutheshtha S. L.)

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Renewable Energy Resources: Solar as an Energy Source Question Paper
Add On-Course 2022-23, PG Department of Physics
MM NSS College, Kottiyam

Total Marks: 50

Duration: 2 Hours

Section A: 1-Mark Questions *Answer all questions. Each question carries 1 mark.*

1. What is the primary component used to convert solar energy into electrical energy?
2. Name one advantage of using solar energy as a renewable resource.
3. What does the term "photovoltaic" refer to in solar energy technology?
4. What is the unit of measurement for solar power output?
5. Which type of solar panel is known for having the highest efficiency among common types?

Section B: 2-Mark Questions *Answer all questions. Each question carries 2 marks.*

6. Briefly explain the difference between photovoltaic (PV) cells and solar thermal collectors.
7. Describe what is meant by "solar irradiance" and its significance in solar energy applications.
8. Explain the concept of a "solar array" and its purpose in solar energy systems.
9. What are the typical factors affecting the efficiency of a solar panel?
10. How does the angle of inclination impact the performance of solar panels?

Section C: 15-Mark Questions *Answer all questions. Each question carries 15 marks.*

11. **Solar Power System Components:** a. Describe the key components of a solar photovoltaic (PV) system, including the roles of each component such as panels, inverters, and batteries.
b. Explain how these components work together to generate and store solar energy.
c. Provide a basic schematic of a solar PV system and label the main components.
12. **Solar Panel Efficiency and Performance:** a. Explain the factors that affect the efficiency of solar panels, including temperature, shading, and dust accumulation.
b. Describe methods used to maximize the performance of solar panels, such as optimal orientation and regular maintenance.
c. Provide examples of how different types of solar panels
13. **Economic and Environmental Impact of Solar Energy:** a. Analyze the economic benefits of installing solar energy systems, including cost savings on electricity and potential government incentives.
b. Discuss the environmental advantages of solar energy, such as reduced greenhouse gas emissions and lower carbon footprint.
c. Consider the initial investment and payback period for a residential solar PV system in a typical region.
14. **Solar Energy in Different Climates:** a. Describe how solar energy systems are adapted for use in different climatic conditions, such as arid, temperate, and tropical regions.
b. Discuss the impact of weather variations, such as cloud cover and seasonal changes, on solar energy generation.
c. Provide examples of solar energy applications suited to various climates and their specific design considerations.

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END COURSE EVALUATION

Name of department : Physics

Name of course : Renewable Energy Resources- Solar as Energy
Source of the Future (2022-23)

Duration of exam : 2 hrs

Total Marks : 50

Sl No	Name of Student	Marks Obtained
1	Abhilekshmi B.G	50
2	Adesh R. G	50
3	Adithya A.S Naiz	48
4	Ashish Chandan	38
5	Ganesh A.N	39
6	Geopikaishran A	41
7	Geusi Raj	36
8	Lekshmi S Kuap	45
9	Nandana L	48
10	Navaneetha A.S	48
11	Prajith P	46
12	Pranav V	43
13	Shibin C	50
14	Thamina A	50
15	Thushara L	50
16	Vignesh Ramachandran	49
17	Abhijith G.B	50
18	Adesh M	35
19	Adithya V Dev	41
20	Ajaylal M	42
21	Akshaya Krishnan	37
22	Amina R	35

23	Anantha krishnan P.S	37
24	Anil Shankar	39
25	Asathy R	38
26	Azjun O.S	39
27	Azomal J. C	35
28	Athira A.S	48
29	Devika R.S	49
30	Devika S	36
31	Gayathri R	36
32	Jisha Chandran S	35
33	Kisanthasan Y	39
34	Krishnapriya B	38
35	Krishnendu I	41
36	Lekshmi Chandran	43
37	Pooja R	35
38	Rashida A	35
39	Rifana Hassan S	38
40	Saikrishna L. S	35
41	Veni Vinod	38
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Number of students enrolled: 43

Number of students completed: 41



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Report

Department of physics offers a certificate course on 'RENEWABLE ENERGY RESOURCES' for the third year degree students of the department. The classes were of 30 hour duration and was conducted after regular class hours and Saturdays. The program aims to provide students about understand about solar renewable energy and provide them an opportunity to understand its applications. Students were much benefitted by the course.

Feedback analysis

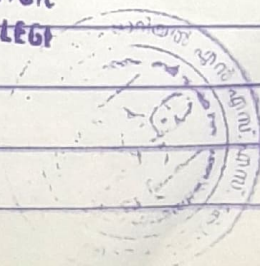
Students showed a positive response for the offered course. Their feedback showed that the course content, method of instruction was very effective.

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Dr. SMITHA S.L.

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Dr. Sathya S. S.

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Principal
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