DPG DEGREE COLLEGE

(Affiliated to MDU Rohtak)

Ref No :- DPG/DC/1360/GGN.

Date:- 29/8/22.

To,

Deputy Manager,

TERI GRAM

Gual Pahri, Gurugram

Subject: Authority letter for visit

Respected Sir,

Myself Dr Deepika Mithal along with Dr Shama Parveen from department of physics are hereby authorized to visit TERI GRAM ,GURUGRAM on 29 August 2022 along with 15 students of MSC Physics.

Thanks and Regards

Dr Deepika Mithal

Registrar

DPG Degree College

Gurugram.

Principal
DPG Degree College
Gurgaon

Near Hero Honda Chowk, Marble Market, Sec-34, Gurgaon-122 004, Haryana
Ph. : +91-97172 17335, 88518 46865, 92123 85277, 92122 19832
website : www.dpgdegreecollege.com / dpgdegreecollege@gmail.com

Gmail

Degree College <dpgdegreecollege@gmail.com>

Fw: Rs. 6750/-

1 message

Suresh Dev <Suresh.Dev@teri.res.in> Sat, Aug 27, 2022 at 3:43 PM
To: Deepali Bhardwaj <deepalihrd@gmail.com>
Cc: "dpgdegreecollege@gmail.com" <dpgdegreecollege@gmail.com>, "shamaparveen20@gmail.com" <shamaparveen20@gmail.com>, Vinay Pathak <vinay.pathak@teri.res.in>

Greetings from TERI !!

Dear Dr Deeplai,

Thank you , the visit of DPG College 15 Students to TERI, TERIGram is confirmed on 29th August 2022

Timing for the visit would be 11.00 AM to 13.00 Hrs

The payment of Rs.6750/- for this visit Received in our Finance Thank you.

Best Regards,

Suresh Kumar Dev (Mr.)
The Energy and Resources Institute (TERI)
RETREAT TERIGram
Gurgaon Faridabad Road,Gual Pahari, Gurgaon
Tel: +91 0124-2579320 (extn. 238), 09953332547,
Email: skdev@teri.res.in
" save the environment "

teri
Creating Innovative Solutions
for a Sustainable Future

The Energy and Resources Institute

Faridabad Road, Gual Pahari, Gurgaon, Haryana

Ph: 91-124-2579320-326

Email: pmc@teri.res.in

Invoice No: 2022AT01/020
Project Code 2022AT01
Date: 26-Aug-2022

State Code 06
GSTIN No: 06AAATT2841E1ZR

Proforma Invoice

DPG Degree College
(Affiliated to MDU Rohtak)
Near HERO HONDA CHOWK,
MARBLE MARKET
SECTOR 34 ,GURGAON 122004, HARYANA

Details	Amount (Rs.)
Towards educational visit to be organized at TERI Gram, Gual Pahari on 29th August, 2022 (15 students @Rs.450/- per students inclusive of GST)	6720
CGST @9%	315
SGST @9%	315
Total	6750

Amount in words :
Rupees Six Thousand Seven Hundred Fifty Only

VINAY PATHAK
Deputy General Manager
(Administrative Services)
The Energy and Resources Institute
Darbari Seth Block, IHC Complex
Lodhi Road, New Delhi-110003

Mode of payment:
Payment may please be remitted through cheque/draft in favour of "The Energy and Resources Institute" payable at New Delhi or throughbank transfer:

Bank details for payment:
Name of the beneficiary: The Energy and Resources Institute
Account No.: 62103103678
Name of the bank: State Bank of India
Branch Name : SCOPE Complex New Delhi - 3
Address: SCOPE Complex, Core - 67
Institutional Area, Pragati Vihar
New Delhi - 110003
Telephone/Fax : 011-24656721
NEFT IFSC Code: SBIN0020511
RTGS IFSC Code: SBIN020511
MICR No.: 110004005

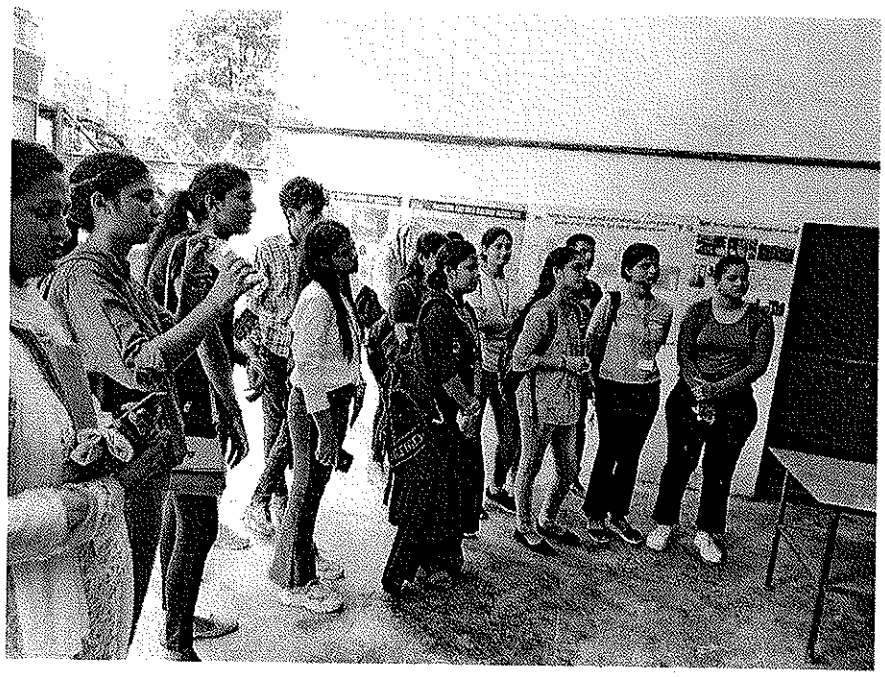
TERI - VISIT

Name of the Studer	Email Id	Program Name	Unique enrolment ID/C	Mobile No.	Year of Joining				
MONIKA YADAV	monuyadav11999@gm	M.SC. (PHYSICS) - CBCS 1	17GU260426	8860162850	2021		10.30		2:50
SHIVANI	shivani0013yadav@gm	M.SC. (PHYSICS) - CBCS 1	1812760017	7011128841	2021		10.30		2:47
NEHA RANA	neharana1924@gmail.c	M.SC. (PHYSICS) - CBCS 1	1812360038	9910713103	2021				
ANJALI Priya	anjaliyadav98179@gma	M.SC. (PHYSICS) - CBCS 1	1812261802	9910713103	2021				
CHELSY	dishantsharma850@gm	M.SC. (PHYSICS) - CBCS 1	1812261587	9354292238	2021		10:30		2:47
KANISHKA SETHI	Kanishkasethi98@gmail	M.SC. (PHYSICS) - CBCS 1	1612250842	9643079514	2021		10:30		2:49
SWATI	swatitanwar0810@gma	M.SC. (PHYSICS) - CBCS 1	1612261671	9899636634	2021		10:30		2:52
PRIYANKA	priyadav573@gmail.cor	M.SC. (PHYSICS) - CBCS 1	2112361890	7023929659	2021		10:30		2:46
JHILMIL SAINI	jhilmilsaini47@gmail.co	M.SC. (PHYSICS) - CBCS 1	1812261800	9306973448	2021		10:30		2:47
RIYA YADAV	riyayadav17b@gmail.cc	M.SC. (PHYSICS) - CBCS 1	2112361894	9873544966	2021		10:30		2:40
NIKITA	nikitayadav031299@g	M.SC. (PHYSICS) - CBCS 1	2112361901	8448632652	2021		10:30		2:45
SAKSHI	sakshirajesh789@gmail	M.SC. (PHYSICS) - CBCS 1	1612261694	9136515024	2021		10:30		2:50
PRITI	pritichauhan5151@gma	M.SC. (PHYSICS) - CBCS 1	2112361866	8168348641	2021		10:30		2:51
RAJKUMAR	rajchauhan9584@gmail	M.SC. (PHYSICS) - CBCS 1	1812360094	8130496399	2021		10:30		2:50
KUMAR SHIVAM	kshivam7992@gmail.co	M.SC. (PHYSICS) - CBCS 1	2112361848	7992495969	2021		10:30		2:45

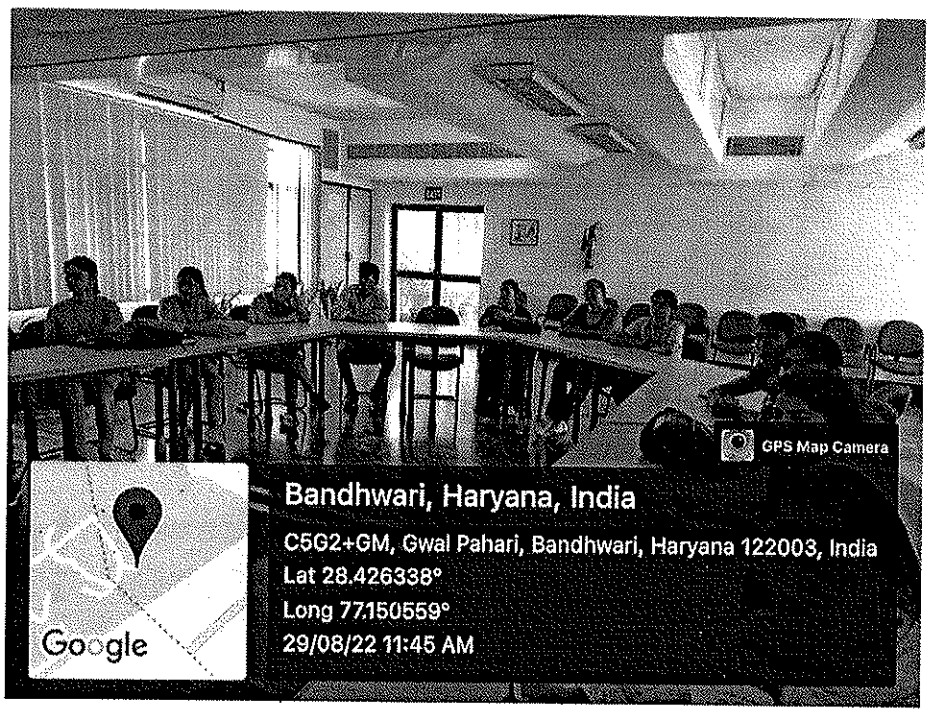
Priya Priyanaveen8053@gmail.com 8199827661 2021 10:30 2:48

Principal
DPG Degree College
Sector-[illegible] Gurgaon

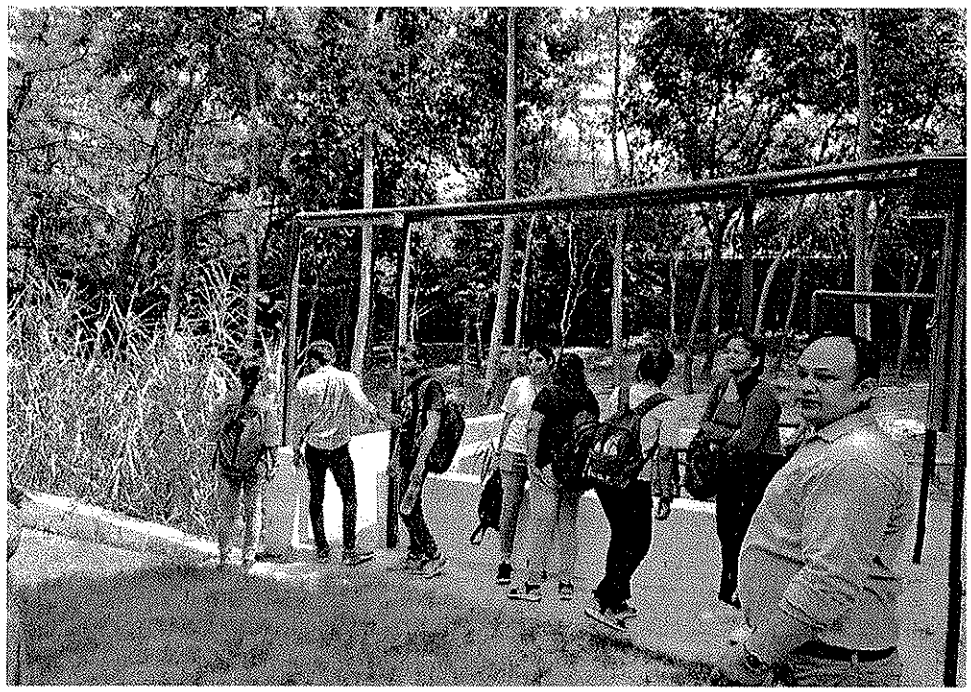
Some Glimpses of TERI GRAM Visit



Lecture by TERI GRAM Scientist on Sustainable Energy

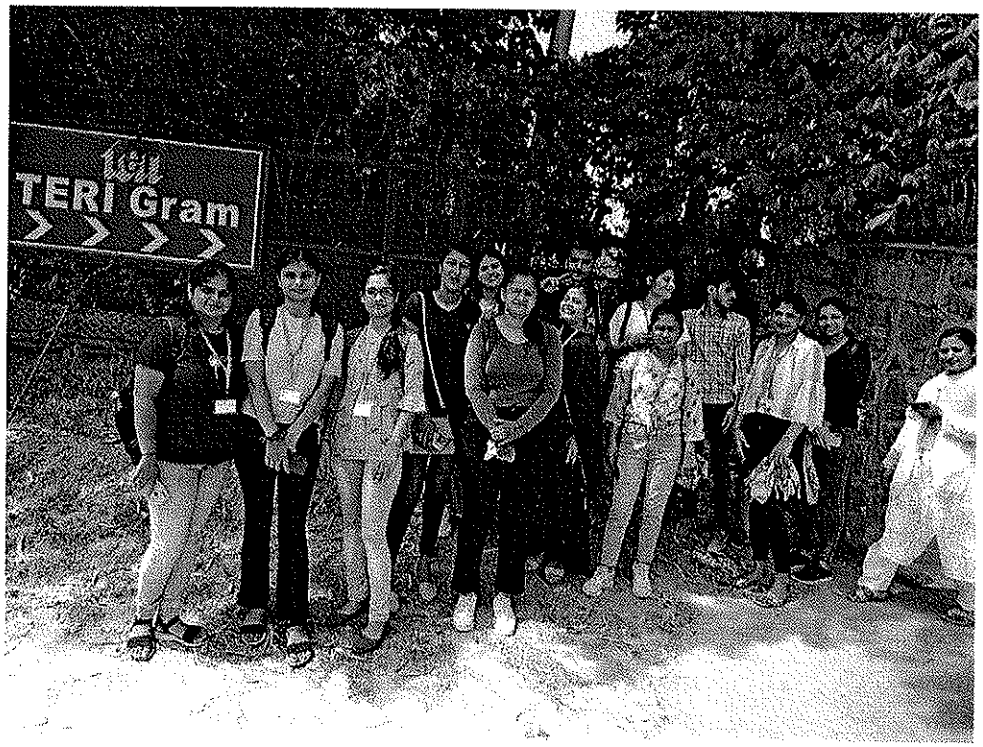


Interaction of students with TERI GRAM Scientist on Energy Resources

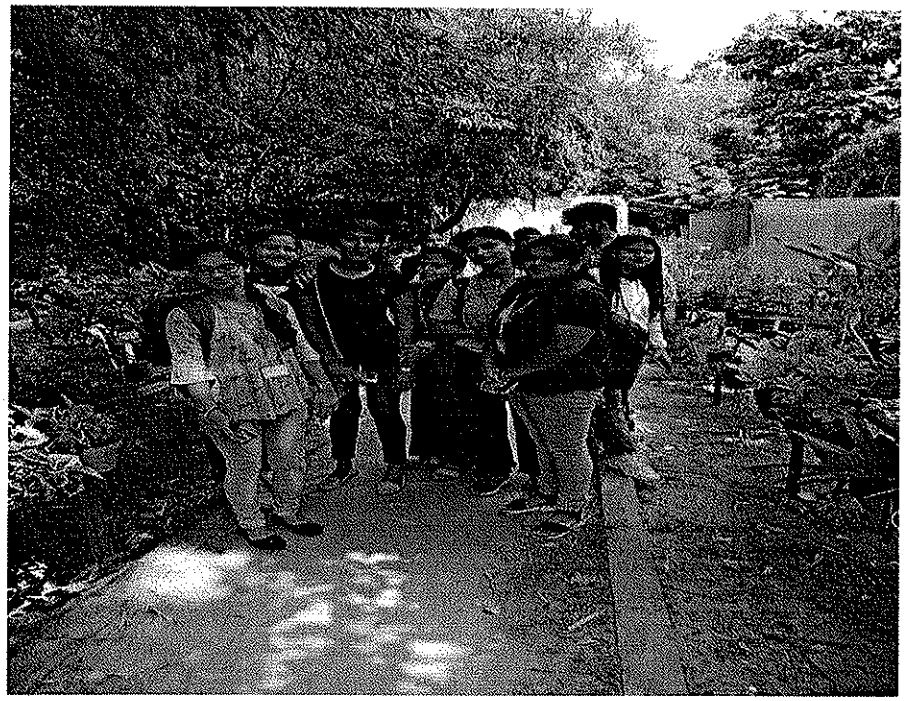


Green building in TERI GRAM

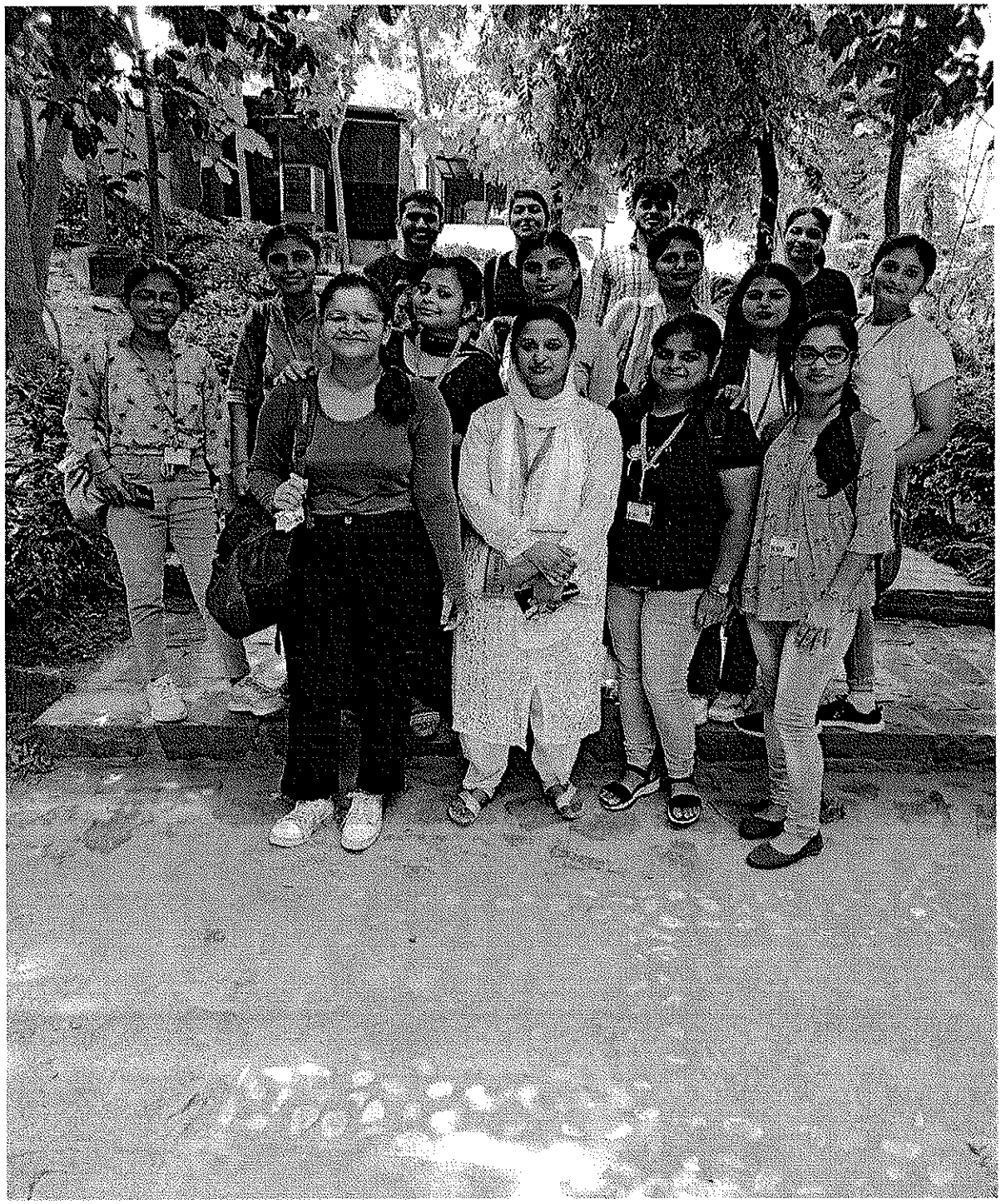
Students Understanding the role of energy sources



STUDENTS in TERI GRAM



Students introduced by Benefits of medicinal Plants



FIELD VISIT in TERI GRAM

By

DEPARTMENT of PHYSICS, DPG DEGREE COLLEGE, GURUGRAM

Assignment

Dear students as we visited TERI Gram, there is a task related to it.

Task 1

1. What will be the requirement of a solar cell in terms of size, Power for a house having 2-3 fans , 4-5 lights, ac , fridge, Tv or any comman applicance.

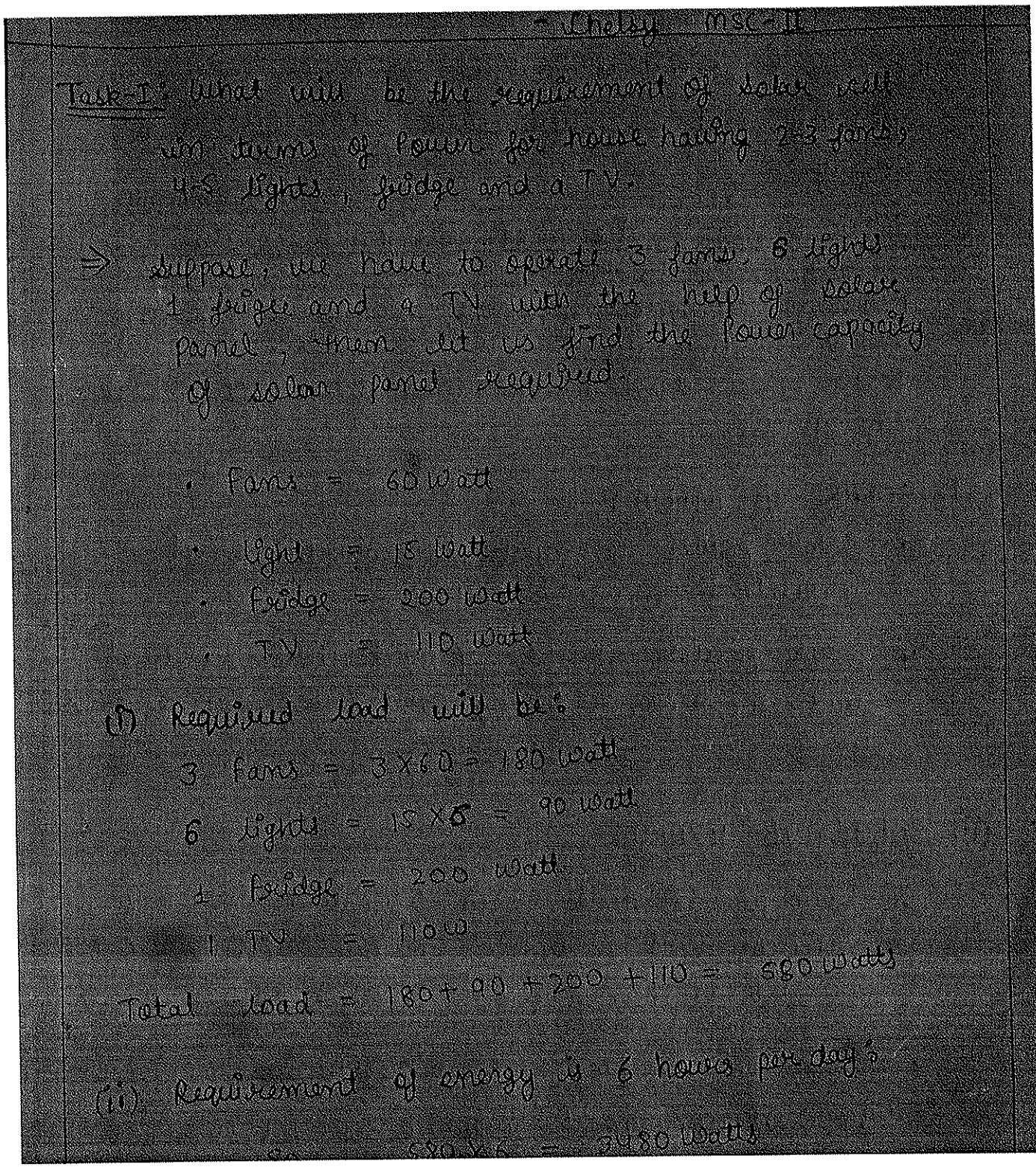
Similarly, requirement for a bio mass setup to provide this consumption of electricity

Task 2

2. Do a statistical analysis for solar power efficiency and its power with other sources of energy.

Outcomes of Visit

Various renewable energy sources were explored which are in current need. Along with it research opportunities were also explored for their career. Students were learnt to do analysis for solar energy needs and its implementations by doing quantitative analysis.



- Chetan msc-II

Task-I: What will be the requirement of solar cell (no. of watts of power) for house having 3 fans, 6 lights, 1 fridge and a TV.

⇒ Suppose, we have to operate 3 fans, 6 lights, 1 fridge and a TV with the help of solar panel, then let us find the power capacity of solar panel required.

- Fans = 60 watt
- Light = 15 watt
- Fridge = 200 watt
- TV = 110 watt

(i) Required load will be:

3 fans = 3 × 60 = 180 watt

6 lights = 15 × 6 = 90 watt

1 fridge = 200 watt

1 TV = 110 w

Total load = 180 + 90 + 200 + 110 = 580 watts

(ii) Requirement of energy in 6 hours per day:

∴ 580 × 6 = 3480 watts

Task 2: Do a statistical analysis for solar power efficiency and its power with other sources of energy.

⇒ Solar energy is the most abundant energy resource on earth.
173,000 terawatts of solar energy strikes the earth continuously.
That's more than 10,000 times the world's total energy use.

(i) SOLAR v/s WIND:
- Solar power is much more effective and usable than wind power.
- Solar power can be deployed close to load centres, thus reducing burden on transmission lines.

(ii) SOLAR v/s HYDRO:
- Solar plants need no modification in the environment and can be built in a less amount as compared to hydro power plants.
- Land or rooftop solar installation can be set up almost anywhere as sunshine in most of India fluctuates less frequently as against water for hydel.

(iii) Solar vs Biomass:

- Photovoltaic cells are supervision compared to biomass as they do not occupy fertile land that could be used for crops.
- Biomass also generates volatile organic compounds such as carbon monoxide and nitrogen oxides

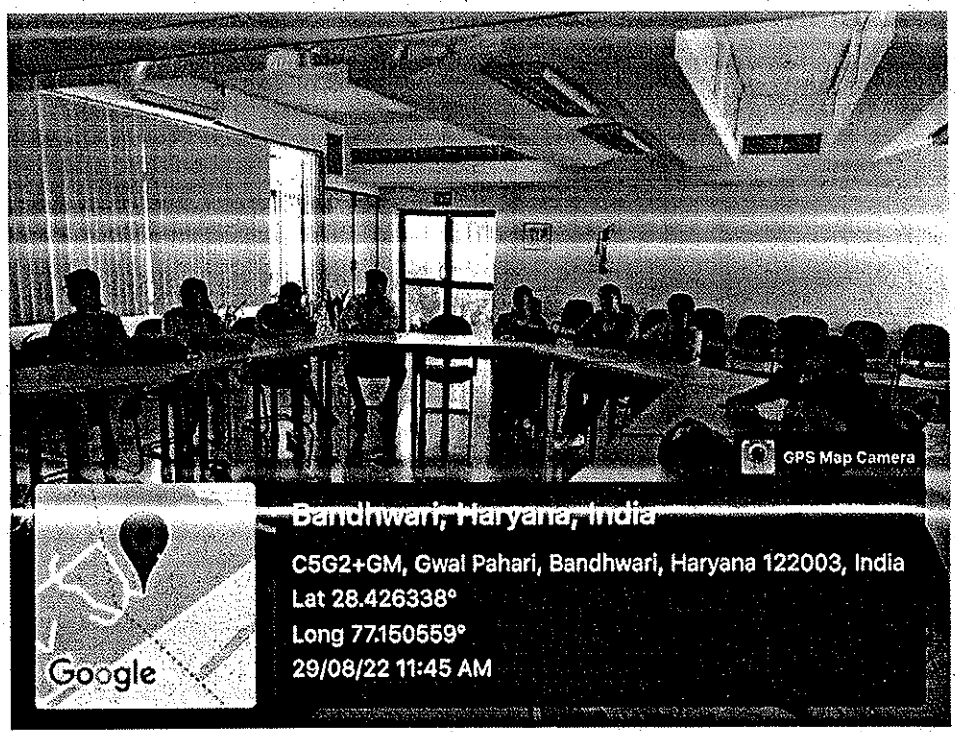
→ Solar:
India was the second largest photovoltaic power plant in the year 2019 with a total of installed power capacity of almost 360 gigawatts and renewable sector amounting to 80 gigawatts of that capacity.

→ Wind:
India currently has the fourth largest wind installed capacity in the world with total installed capacity of 39.25 gigawatts.
Gujrat is the way with nearly 2000 MW of wind capacity and makes upto 23% of cumulative capacity with 9.2 GW of installations

→ Biomass:
India produces about 450-500 million tonnes of biomass per year about 32% of total primary energy use in country is derived from biomass.
More than 70% of population of India

Some Glimpses of TERI GRAM Visit

Lecture by TERI GRAM Scientist on Sustainable Energy



Interaction of students with TERI GRAM Scientist on Energy Resources

Date:
Page No.

SHASHI
[Swati MSC-II]

What will be the requirement of Solar Cell in terms of power for house having 2-3 fans, 4-5 lights, fridge & a T.V

• With the help of Solar panel, we operate 1 fridge, 3 fans, 6 lights.
Find the Power Capacity of Solar panel.

- Light = 15 watt
- Fans = 70 watt
- T.V = 110 watt
- Fridge = 180 watt

i)→ Required load will be :-

6 lights = 15 × 6 = 90 watt
3 fans = 3 × 60 = 180 watt
1 T.V = 110 watt
1 Fridge = 200 watt.

Total load = 180 + 90 + 200 + 110 = 580 watt

ii)→ Requirement of energy in 6 hours per day :-
580 × 6 = 3480 watt.

Date:
Page No.

Biomass also generates volatile organic compounds such as Carbon monoxide & nitrogen Oxides.

→ Biomass —

India produces about 450-500 million tonnes of biomass per year. About 30% of total primary energy use in Country 1% derived from biomass.

→ Solar —

India was the second largest photo-valtaic power plant in the year 2019 with a total of installed power Capacity of almost 360 Gigawatt & renewable sector amounting to 80 gigawatts of that Capacity.

→ Wind —

India Currently has the forth largest wind installed Capacity in the World with total installed Capacity of 39.25 Gigawatt.

Date:
Page No.

- Solar power can be deployed close to load centre; thus reducing burden on transmission lines.

ii) SOLAR / HYDRO :-

- Solar plants need no modification in the environment & can be built in a few months as compared to hydro power plant.

- Land or rooftop solar installation can be set up almost anywhere as sunshine in most of India fluctuates less frequently as against wind or rainfall.

iii) SOLAR / BIOMASS :-

- Photovoltaic cells are superior compared to biomass as they do not occupy fertile land that could be used for crops.

[illegible]

Date:
Page No.

iii> Availibility of Sunlight :-

8 hours per day = Energy required / Sunlight available

$= \frac{3480}{8} = 435$ Watt

Hence, we need 435 Solar Panel.

Do a statistical analysis for Solar power efficiency & its power with other sources of energy.

- Solar energy is the most imp. energy resource on earth.
  169000 terawatts of Solar energy strikes the earth continiously.
  i.e more than 10,000 times the world total energy use.

1> SOLAR / WIND :-

- Solar power is much more effective & usefull than wind power.

[illegible]

DPG DEGREE COLLEGE

(Affiliated to MDU, Rohtak)

Sector-34, Near Marble Market, Gurugram 122001

Objective of Visit At : The Energy and Resources Institute (TERI), Gurugram

To familiarized students, the various research activities going in different areas for renewable energy sources.

Summary of visit

A departmental visit, organized by Department of Physics, DPG Degree College, Gurugram, was scheduled on 29 August 2022 at TERI GRAM, Gurugram. In this visit around 15 students of MSc Physics final were accompanied with faculties Dr Deepika Mithal and Dr Shama Parveen, The main objectives for the visits were to have a insight of current research trends going on in field of energy sources and how can we help to make pollutant free environment. At TERI students were familiarized with various research areas such as sustainable, renewable energy sources. In renewable energy they were familiarized with solar energy based devices such as solar panels, biomass energy etc. they were also introduced with passive cooling technique established there. Students were very much surprised to see the green building concept. In TERI, main campus area has designed on the concept of Zero energy waste and Eco-friendly rooms. Besides this they were also introduced by plants for mediations and formation of vermi compost technique developed there.

Students were also interacted with scientists (TERI) for their career opportunities. They were excited to join that institute as research project employ and JRF.