SMU SIKKIM MANIPAL UNIVERSITY

Established under Govt. of Sikkim, Act 9 of 1995, recognised under 2(f) of the UGC Act, 1956

A+ NAAC

SDG 7

Goal 7:

Ensure access to affordable, reliable, sustainable and modern energy for all.

SDG 7 Affordable & Clean Energy

The University campuses are eco-friendly, landscaped and plastic-free. A clean source of energy is being utilized at the campus through solar water heaters and electrical systems. The University has implemented LED/sensor-based lighting systems and other power-efficient equipment as energy conservation measures

The University uses rainwater harvesting and wastewater recycling systems as water conservation measures to promote the sustainable use of water resources. SMU puts efforts towards Carbon Neutrality by the restricting entry of automobiles as per policy, ban on the use of plastic, promoting battery-powered vehicles and landscaping the campus with trees and plants. The University has carried out an environmental audit of its campuses. SMU has received the "Swachha Bharat Internship:2019-20" award for 1st place in the state of

Sikkim

Solar Plant at Academic block at Engineering Campus

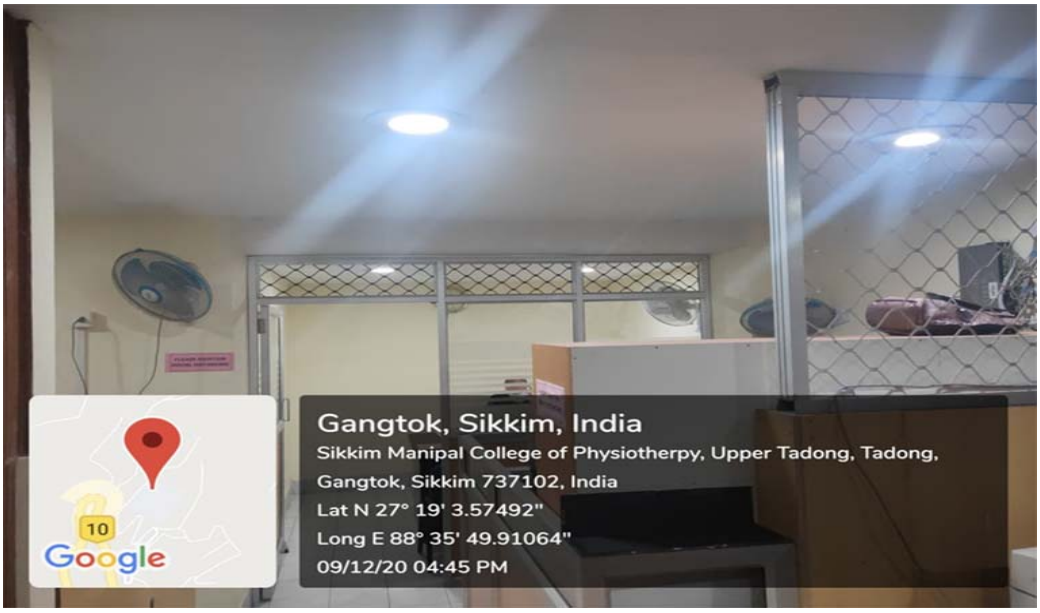
Solar Heater at Hostel

Sensor-based street light system at engineering campus

Sensor (Timer) based street light

Automatic Doors in sensor-based escalators

Power-efficient LED light at VC secretariat



Power-efficient LED light at the office

Webinar on Electric Vehicles 2023

In view of upcoming requirement of Electric vehicles, a webinar on Electric vehicles was conducted by Mechanical Engineering Department on 3rd April 2023.

This event was attended by many faculty and students of SMIT. On top of that some student/ faculty were also attend the same from outside SMIT. Moreover this was purely technical and full of critically informative. Some of the attendee highly motivated from this session.


VOLVO
WEBINAR
ON
ELECTRIC VEHICLES
ORGANIZED BY:
DEPARTMENT OF MECHANICAL ENGINEERING
SPEAKER :
DR. GOUTAM MANDAL
IISc BANGALORE, IIMB
(AGM VOLVO, INDIA)
DATE : 3RD APRIL 2023
TIME : 11 AM
PLATFORM : MS TEAMS
FOR MORE DETAILS CONTACT :
DR. SUJOY KUMAR DEY(8910211162)
FOR REGISTRATION
PLEASE SCAN THE
QR CODE

Lecture given by Dr Goutam Mondal and his team

Unveiling of EEE Annual Wall Magazine “Dishari 2023”: "The Future Grid: SMART GRID"

The EEE annual wall magazine was unveiled by HOD EEE, Mr. Mohammed Nasir Ansari at Sikkim Manipal Institute of Technology on 5th April 2023. This year the theme for the wall magazine was "The Future Grid: SMART GRID". The wall magazine was designed and prepared by the 3rd-year students (batch 2020-2024) of the Electrical and Electronics Engineering Department. Further, a few students of 3rd year EEE (Ms. AHUZA RAI (202113502), Mr. KANISHK KUMAR JHA (202000157), and Mr. ANEESH PRADHAN (202113506)) gave a presentation on the theme of “Dishari 2023”. They discussed “What makes the grid “smart”? Application of smart grid, its architecture, and operation. The event was attended by the B.Tech, and M.Tech students, and faculty members of EEE, SMIT.


SMART GRID
GPS Map Camera
Majitar, Sikkim, India
E Block, E Quad Portico, Majitar, Sikkim 737136, India
Lat 27.183183°
Long 88.502511°
05/04/23 03:58 PM GMT +05:30
Google


SMART GRID
GPS Map Camera
Majitar, Sikkim, India
E Block, E Quad Portico, Majitar, Sikkim 737136, India
Lat 27.183181°
Long 88.502525°
05/04/23 03:59 PM GMT +05:30
Google

A. List of student participants

Sl No.	Regd No.	Student Name
1	202000014	PRIYANKA SUBBA
2	202000043	NIKHIL SUBBA
3	202000053	SUSHANTA BHAGAWATI
4	202000157	KANISHK KUMAR JHA
5	202000322	ANISH PRADHAN
6	202000388	SUSHANT TAMANG
7	202000420	KANISHKA SINHA
8	202113502	AHUZA RAI
9	202113504	MADHAW KUMAR GUPTA
10	202113505	ABISHEK PRADHAN
11	202113506	ANEESH PRADHAN
12	202113507	NIKASH PRADHAN
13	202113508	DEEPAK CHETTRI
14	202113509	HEM KUMAR CHETTRI

15	202113510	KUNJAN GAJMER
16	202113511	RADHA DHUNGEL
17	202113512	SANGAY TASHI SHERPA
18	202113513	GYAN BAHADUR CHHETR
19	202125004	DIVYA RAI
20	202125005	ROJIKA DARNAL
21	202125006	ABHISHEK GIRI

B. Faculty members of EEE department.

Seminar on "Latest Trends in Industrial Practice (Industry 4.0) and Super Racing Cars" 2023

Department of Mechanical Engineering, SMIT has conducted one day Seminar on "Latest Trends in Industrial Practice (Industry 4.0) and Super Racing Cars" on 06th April 2023 at SMIT, Sikkim for students of Centre for Computers and Communication Technology (CCCT), Chisopani, Sikkim. The seminar emphasize on key points focusing the latest trends and needs of today's industry. The esteemed speakers further highlighted the concept of Industry 4.0 and super racing cars together with the role of an engineer towards its advancement.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AIC-SMUTBI F Block, SMIT, Majitar, Sikkim 737136, India
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Long 88.501969°
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Google


GPS Map Camera
Majitar, Sikkim, India
SMIT Campus, Majitar AIC F block 5th floor, Gangtok - Rangpo Rd, Majitar, Sikkim 737136, India
Lat 27.183922°
Long 88.502015°
06/04/23 11:34 AM GMT +05:30
Google


GPS Map Camera
Majitar, Sikkim, India
SMIT Campus, Majitar AIC F block 5th floor, Gangtok - Rangpo Rd, Majitar, Sikkim 737136, India
Lat 27.183899°
Long 88.50203°
06/04/23 11:03 AM GMT +05:30
Google


GPS Map Camera
Majitar, Sikkim, India
SMIT Campus, Majitar AIC F block 5th floor, Gangtok - Rangpo Rd, Majitar, Sikkim 737136, India
Lat 27.183917°
Long 88.502016°
06/04/23 12:38 PM GMT +05:30
Google

Cleanliness Drive 2022

Two massive cleanliness drives were conducted at Tadong Campus and Majhitar Campus under NSS, Sikkim Manipal University on 19th October 2022 keeping in pace with the Nationwide observance of Swachh Bharat 2022. The objective of the drives was the collection and proper disposal of plastic trashes. More than 120 NSS volunteers from the Department of Humanities and Social Sciences, Sikkim Manipal Institute of Medical Sciences, Sikkim Manipal College of Nursing, Sikkim Manipal College of Physiotherapy and Department of Hospital Administration participated in the event at Tadong Campus whereas NSS Volunteers of SMIT took part in the event at Majhitar Campus. The drives were conducted in the institutional areas as well as in the adjacent places.

The following faculties also participated in the event at various capacities:

- Dr Madan Chhetri, Programme Coordinator, NSS, SMU
- Mr. Uttam Kumar Upadhyaya, Programme Officer, NSS, SMU
- Dr. Binod Kumar Tamang, Programme Officer, NSS, SMU
- Dr. Ajoy Daniel Rai, Nodal Officer, NSS, SMCPT
- Mrs. Sandhya Gurung, Nodal Officer, NSS, SMCON
- Ms. Priya Gurung, Faculty, SMCON
- Ms. Rajani Sharma, Faculty, SMCON

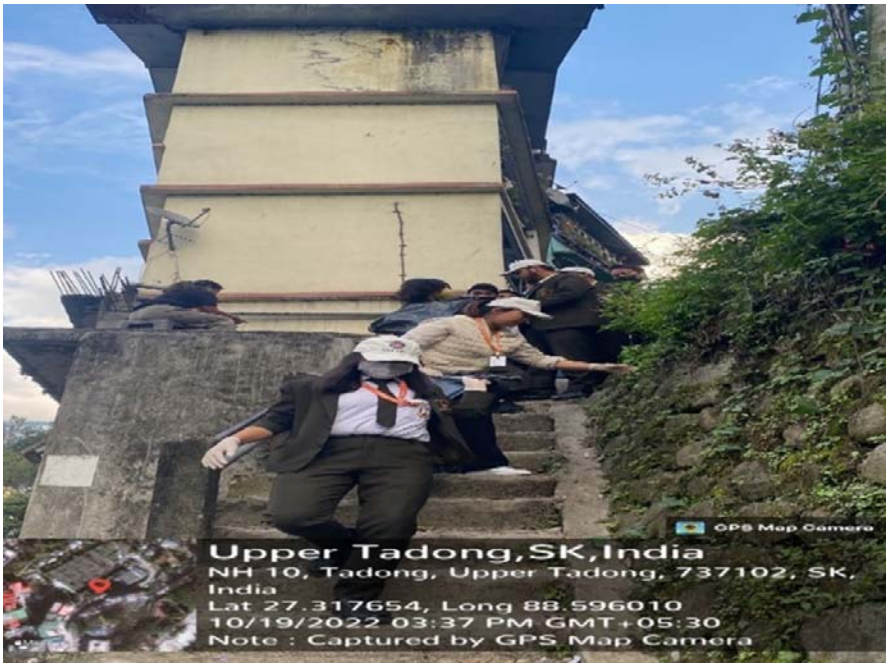
- Ms. Alisha Gurung, Faculty, SMCON

Besides, Mrs. Jhuma Sunuwar, Nodal Officer and Faculty Coordinator for NSS at SMIT coordinated the event at Majhitar campus.

Some Glimpses of the Event:


SIKKIM MANIPAL UNIVERSITY
NATIONAL SERVICE SCHEME (NSS)
REGULAR
TIVITIES
GPS Map Camera
Gangtok, Sikkim, India
Manipal, near Canara Bank, Upper Tadong,
Tadong, Gangtok, Sikkim 737102, India
Lat 27.317151°
Long 88.596577°
19/10/22 04:01 PM GMT +05:30
Google


Pakyong,SK,भारत
NH 10, Rangpo, Pakyong, 737132, SK, भारत
Lat 27.185693, Long 88.503528
10/19/2022 02:44 PM GMT+05:30
Note : Captured by GPS Map Camera


GPS Map Camera
Upper Tadong,SK,India
NH 10, Tadong, Upper Tadong, 737102, SK,
India
Lat 27.317654, Long 88.596010
10/19/2022 03:37 PM GMT+05:30
Note : Captured by GPS Map Camera

EVENT REPORT

1	**TITLE/NAME OF EVENT:**	World Environment Day 2023
2	**ORGANIZED BY (DEPT/(CLUB/BODY ETC):**	National Service Scheme SMIT Unit
3	**UNDER THE BANNER OF(DEPT./OFFICE/CELL ETC):**	NSS
4	**COLLABORATION WITH:**	NA
5	**STUDENT EVENT: YES / NO**	YES
6	**EXTERNALLY FUNDED: YES / NO**	NO
7	**IF EXTERNALLY FUNDED, THEN NAME OF FUNDING AGENCY**	NA
8	**NATURE: INTERNAL PARTICIPANTS / EXTERNAL PARTICIPANTS / BOTH**	INTERNAL
9	**NO. OF PARTICIPANTS:**	27
9A	**INTERNAL:**	27
9B	**EXTERNAL**	NA
10	**MODE: ONLINE / OFFLINE**	OFFLINE
10A	**IF ONLINE PROVIDE LINK**	NA
11A	**DATE FROM**	05/06/2023
11B	**DATE TO:**	05/06/2023
12	**Place of Event**	STP Area SMIT
13	**COORDINATOR:**	Mrs.Jhuma Sunuwar
14	**ATTACH LIST OF PARTICIPANTS with initials by coordinators (Attach annexure)**	1. Sujal Adhakari 2. Mamta Pradhan NSS Volunteers and 26 Faculty and staff of SMIT

BRIEF DESCRIPTION/REPORT WITH GEO-TAGGED PHOTOGRAPH OR SCREEN SHOTS (virtual events):

National Service Scheme, Sikkim Manipal Institute of Technology planted 50 Stone Apple (Bael) sapling at SMIT campus on 5/06/2023-4:30 PM onwards to celebrate World Environment Day along with digital circulation of "No Single Use Plastic" and "No Food waste- Small Portion Size" to spread awareness.

Plantation was done by Air Vice Marshal **(Dr.) Dilip Chandra Agarwal,** VSM (Retd),**Vice Chancellor (Designate), Sikkim Manipal University, Prof..(Dr.) Gurdaman Lal Sharma ,Director,SMIT, Dr.Anand Prakash Tiwary, Associate Director(SA), Dr.Kalpana Sharma, Associate Director(R&D),** Faculty members, Staff and Students.

Mrs. Jhuma Sunuwar, Nodal Officer, NSS SMIT, organised the event along with Mr.Shivam Mukherjee, HOO MIS with the help form Staff of MIS and Engineering Department. The event was

Posters made by NSS Volunteers for Circulation

Some photos of the event:

Photo Session after completion of Plantation Drive

Planted By: Air Vice Marshal(Dr.) Dilip Chandra Agarwal,VSM(Retd),Vice Chancellor (Designate)
Sikkim Manipal University

policy in place for ensuring all renovations / new builds are following energy efficiency standards as mandated by Government of Sikkim

GOVERNMENT OF SIKKIM
URBAN DEVELOPMENT AND HOUSING DEPARTMENT
GANGTOK

Notification No. 29(202)UD&HD/90/295 Dated: 19th March 1991.

THE SIKKIM BUILDING CONSTRUCTION REGULATIONS, 1991

(As amended by the Sikkim Building Construction (Amendment) Regulations, 2000)

In exercise of the powers conferred by sub-section *(2)* of Section 7 of the Sikkim Allotment of House Sites and Construction of Building (Regulation and Control) Act, l995 Act No. 11 of 1985, the State Government hereby makes the following regulations regulating construction, alteration and repairs of buildings within Sikkim, as follows, namely:

1. ***Short title extent and commencement:***

(1) These Regulations may be called the Sikkim Building Construction Regulations, 1991.

(2) They shall extend to all the notified areas in Sikkim.

(3) They shall come into force at once.

2. ***Application:***
These regulations shall also apply to construction or alteration or repair of buildings undertaken by the State or the Central Government or private parties, Semi-Government Department except the Defense Department.

3. ***(1) Definitions:***
In these regulations, unless the context otherwise requires:

(a) "Act" means the Sikkim Allotment of House Sites and Construction of building (Regulation and Control) Act, 1985.

(b) 'Master Plan" means the master plan approved and notified by the State Government under Section 3 of the Act.

(c) "Site Plan' means the plan defined in regulation 5.

(d) "Blue Print Plan"' means the plan defined in regulation 6.

(e) "Permissible covered area" means the actual construction area within the allotted / private building site.

(f) *"demarcation of site " means* fixing *of the boundaries of the Government allotted sites or private land / the approved Blue Print Plan as it stood before any excavation is undertaken inclusive of any additional area allotted as the case may be;*

(g) *"Construction Order", means the permission to start the excavation for the purpose of site leveling for construction of the building after approval of Blue Print Plan and demarcation.*

(h) "Unauthorized Construction" means any structure constructed for the purpose of house, outhouse, stable, cowshed, pig sty, privy, urinal or any other type of shed or side wall and include a protective wall, fence of any type etc. in any Government or private land within the notified area or road reserve without permission from the Urban Development and Housing Department;

(2) Any other expression not defined in these regulations but defined in the Act shall have the meaning as defined in the Act.

Part - I

Construction of building and execution of works

4. Application for construction or reconstruction etc.

(1) Every person, who intends to construct building or execute any of the works in connection therewith, including an alteration of addition or repair other than repairs mentioned in regulation 24 to an existing building, shall apply in writing to the Secretary, Urban Development & Housing Department, Government of Sikkim, in Form I and II appended to these regulations and such application shall be accompanied by *building blue print plan* and *site plan* in *six copies*, Khatiyan/Land Registration papers/Attested copies thereof in quadruplicate drawn or prepared according to the provision of these regulations. Site plan may be ordinary print on Ferro paper or azolite or amonia.

(2) The application shall be signed by the owner/owners. In case, the ownership is found to be defective any stage or time the approval accorded under regulation 9 shall stand automatically revoked and the structure/work/building constructed shall be considered as without proper approval and shall be dealt with accordingly.

5. Site Plan:

The site plan referred to in regulation 3 shall be drawn to a scale of not less than $1/16^{th}$ of an inch to the foot (1"=16') for site upto 1800 sq. feet in area, to scale of not less than $1/32^{nd}$ of an inch to the foot(1" = 32') for sites over 1800 sq. feet but not exceeding 2 acres in area and to a scale of not less than $1/64^{th}$ of an inch to the foot (1"= 64') for sites over 22 acres in area and shall show:

(a) Boundaries of the site as per ownership documents.

(b) the direction of geographic North relative to the plan of the buildings.

(c) all existing buildings or structures on or around or under the sites of projecting beyond it upto 100ft.from the boundary.

(d) the name of the street in which the building is proposed to be situated if any and from which it shall have main access.

(e) the width of the street (if any) in front and of the street (if any) on any side or rear of the building.

(f) position of sewer line, water main pipe line, electricity line both overhead and underground telephone line, if any.

6. Blue Print Plan

The plans, elevations and sections of the building accompanying the application shall be accurately drawn to a scale of $1/8^{th}$ of an inch to a foot (1"=8') for sites upto 2700 sq.feet in area and to a scale of $1/16^{th}$ of an inch to a foot (1"=16') for sites over 2700 sq.feet in area.

(i) 2. The plans shall include;

a) Floor plans of all floors together with the details of covered area, accessory buildings, and basement plan indicating clearly the sizes of rooms, external dimensions, schedule of doors and windows etc.

b) exact location of essential services e.g. water, closet, kitchen, bath, overhead tank and the like;

c) Sectional drawings showing clearly the size of footing, thickness of basement walls, roof slabs and all floor and slabs, wall construction,

heights and parapet heights with their materials and including the drainage including connection to main outlet and the slopes of the roof taking at least one section through the staircase, basic structural details showing typical reinforcement layouts and sizes of main structural members including retaining walls etc;

d) indication of the geographic north;

e) sanitary/plumbing layout W.R.T. disposal systems for waste/soil, water supply/storage of drinking water, drainage system, plan and sections of water supply service connection and sewerage disposal system/septic tank and soak pit. Only one external water supply connection shall be permitted for one building.

f) two basic elevations (front and side) showing the placement of windows and doors, chajjas and any elevational features that will be incorporated into the construction,

g) *clearance of all or any of the Defense, Border Roads, Public works, Forest, Public Health Engineering, Power Departments or Organizations or private parties etc. if the allotted site falls in the proximity of their establishment or has any Departmental utilities or conveniences or infrastructure, etc. within below or above the ground or an the periphery of the site which has the possibility of being affected while undertaking the construction.*

3. Further:

a) for public buildings, parking spaces for light vehicles as the rate of 1 parking space for every 15 persons working/utilizing/living in the building premises.

b) all electrification work shall be of standard specification and on completion shall be inspected by the Engineers of the Power Department prior to connecting supply from the main Line. Proper earthing, lightening arrestors and conductors shall be provided as per the standard specification.

c) All windows shall be provided with proper protection against rains in form of chajja.

d) Building/houses in the location where there is an inter-section of roads or curve shall maintain a distance of not less than half the width of the road from the edge of the road.

e) All necessary insulation/precaution against fire out-break should be provided.

f) minimum of 25 per cent of the roof shall be constructed in sloped gabled of traditional roofing in G.C. I., P.G.I., or R.C.C. with rain water gutter along the caves. The caves projection shall not overhang any public spaces or encroach into adjoining plots.

7. **BLUE PRINT PLAN TO BE PREPARED BY QUALIFIED ARCHITECTS OR CIVIL ENGINEERS:**

No building plan shall be prepared by any Architect or Civil Engineer of the Urban Development and Housing Department. All such plans shall be prepared and signed by recognized, qualified and licensed private Architects or Civil Engineers empanelled with the Urban Development and Housing Department, Government of Sikkim, whose addresses also should he given

invariably in the Blue Print Plan. No Blue Print Plan prepared by the Engineer or Architect of the Urban Development and Housing Department, shall be accepted for approval.

8. **Colouring of the Plan:**
The colours permissible to be used hi the plans shall be as indicated in the following table:

Item	**Site Plan**	**Building Plan**
Proposed Work.	Yellow	Yellow.
Drainage and sewerage work.	Yellow dotted	Yellow dotted.
Water Supply	Black dotted	Black dotted.
Work proposed to he dismantled.	Yellow hatched.	Yellow hatched.
Open spaces	No colour.	-
Plot line.	Thick black	-
Building Lines	Black	-
Existing street	Dark Blue	-
Future street; if any.	Blue dotted	-
Work to he regularised or deviation made	Blue hatched.	Blue line.

9. Order on the application:

(i) *The decision of the UD& H. Department on the application referred to in regulation 4 shall be communicated to the applicant in writing in Form III or IV appended to these regulations, as the case may be, within **120 days** of the receipt of application and two set of drawings and specifications duly endorsed shall be returned to the applicant provided all information required to deal with the building plans has been fully and properly furnished by the applicant. In the absence of any such information the application shall not be considered as complete and legally valid and the applicant will be called upon within the period mentioned above to furnish the required information. The decision of the UD & H. Department will be communicated to the applicant, thereafter.*

(ii) Notwithstanding anything contained in this regulation, no proposal of construction of building work shall be entertained/approved if the same is in contravention of the Master Plan, or any other proposal project, law, rule, Act or scheme of the State Government.

10. Notice of commencement of building or alteration or repair work obtaining approval

Every applicant who has obtained the necessary approval for construction of building or alteration or repair work shall before commencement of the said construction or repair, inform the Urban Development and Housing Department as in Form V appended to these regulations.

11. *NO CONSTRUCTION TO START BEFORE APPROVAL OF L4YOUT BY THE DEPARTMENT*

(1) No construct! on whatsoever, like raising of columns, laying or foundation etc. shall he undertaken without the inspection and clearance by the concerned office of the Urban Development and Housing Department. The officer who has inspected and approved the layout for any construction as indicated above shall make record of such inspection and layout and sign it in the approved Blue Print Plan of the owner of the building or in a site inspection book as per Appendix - I to be issued to the person constructing the house by the Department on such cost as may be notified by the State Government which is however, to be retained by the Urban Development and Housing Department. On such inspections the Engineer or Town Planner of the Urban Development and Housing Department shall ascertain that the building is located in accordance with the site plan and the covered area and set hack maintained in accordance with these regulations.

At the foundation stage the officer concerned in the Department shall personally demarcate the area of the building construction.

(2) *Where it is subsequently noticed that there are private or public facilities or utilities like underground pipes, conduits, cables etc. lying above or below the site, the construction should stop forthwith and allowed to resume only after such allottee or owner credits necessary amount for the realigning or removal of such facilities or utilities the allotment of the plot does not imply that the Government will bear such expenses or provide alternative place for their shifting or otherwise.*

12. Construction not according to the plan

If the Department determines at any stage that the construction or reconstruction or alteration of the building is not proceeding according to the sanctioned plan or is in gross violation of any of the provisions of these regulations, the Department shall notify the permission holder of the same and all further construction or building work thereafter shall be stopped until correction has been effected and approved by the Secretary, Urban Development and Housing Department. If the permission holder fails to comply with the requirements at any stage of the construction the Department shall have the authority to cancel the construction permission issued under regulation 9 after serving notice of 15 days to show cause as to why the construction should not be cancelled.

13 Occupation completion Certificate:

(i) After the construction or alteration or repair of building/work has been completed the notice of completion shall be given to the Secretary, Urban Development and Housing Department in Form VI appended to these regulations. In case of new construction, the occupancy certificate shall he issued in Form VII appended to these regulations, if the structure has been completed strictly as per the approved Blue Print Plan.

(ii) Clearance for Water Supply connection and power supply connection to the building shall be issued after the building has been checked and occupancy certificate issued by an Engineer/Town Planner of the Urban Development and Housing Department.

(iii) No occupation certificate shall be issued if the sewerage connection is not fitted with the public sewer where feasible and if the drain has not been provided to main outlet/jhora or if the septic tank/soak pit has not been properly built/connected/ventilated.

(iv) Prior clearance of Fire Department shall be required before issue of occupation Certificate.

14. ISSUE OF FORMS

(i) Forms I, II, V and VI shall be obtained from the office of the Urban Development and Housing Department on production of Bank receipt of such amount as may be fixed from time to time by notification on this behalf by the Government.

(ii) The applicant shall enclose the Receipt of such amount as may be fixed by notification on this behalf by the Government from time to time alongwith the applications.

Health, Sanitation and other Requirements

15. Minimum ceiling height of rooms:

The minimum height of all rooms likely to be used for habitation shall be as follows

Altitude	Minimum ceiling height
a) above 4.500 feet..	9’ (9 feet)
b) below 4500 feet.	10’ (10 feet)

16. Minimum size of habitable room:

No habitable room shall have a floor area of less than 90 sqft, except in case a hostel or hotel meant for the residence of single person where the minimum area may be 80 sqft. The width shall in no case be less than 8 ft.

17. Maximum height of building:

(i) *The maximum height of the buildings constructed in allotted sites or private holdings within a notified area shall be in accordance with the suitability and profile of the location based on the stability map of the area as prepared by the Mines and Geology Department from time to time which shall be as follows:-*

Category	Admissible No. of floors.
1.	3 storey or 30 fret
2.	
3.	2 storey or 20 feet below.
4.	
5.	1 storey or 10 feet.
6.	No construction is allowed.

(ii) The maximum height of the building in other bazaars shall be accordingly restricted as per stability of the area as identified by the Mines and Geology Department and the land profile.

Provided that the structural design and specifications of the foundation and the super structure given in the approved Blue Print Plans are strictly followed during the execution of construction.

(iii) Notwithstanding the provision contained in sub-regulation (i) above, a building proposed to be constructed on the valley side of a road shall have a maximum of one storey only above the road level depending upon the stability of the location and structural foundation of the building but the total number of floors of the building shall not exceed 4 (four) storeys or 40 feet.

(iv) In case of a building coming up around a Defense Cantonment, the height shall be as recommended by the Defense Authorities only irrespective of approval given if any, to the Blue Print Plan.

(v) All buildings constructed on the road side shall compulsorily have a garage for parking of vehicles at the road level or below.

18. Permissible covered area and set back:

The permissible covered area and set back shall be applicable only for area above 2700 sqft. as given under:

1. (a) i) Above 2700 sqft but not exceeding 5400 sqft. — 70% - of the area of the plot.

ii) Above 5400 sqft. but not exceeding 10,000 sqft. — 50% - of the area of the plot.

iii) Above 10,000 sqft — 40% - of the area of the plot.

(b) In case of attached plots/sites where two plots/sites are joined on one side minimum gully of **6’** on the opposite free site of these plots/sites shall be

provided. In case of detached single plots/sites a minimum gully of **6'** each shall be provided between the plots/sites.

2. (i) *All sites/plot/areas below 2700 sqft shall maintain set back as given under:*

Minimum 27 feet away from the centre of the road to be measured vertically whether such road reserve has been acquired or not by the Government or any other authority unless a broader road reserve has been acquired specifically, or as indicated in the approved Master plan of the area.

(ii) All new buildings with plot areas exceeding 2700 sqft shall maintain set backs as follows:

Minimum set back from road's outer edge.	**Minimum open area to be left** on the side and rear.
10 feet (or as indicated in approved Master Plan of the area)	5 feet.

19. Lighting and ventilation of rooms:

Every habitable room shall have for the admission of light and air, one or more aperture such as windows, french windows, clear storey windows, sky lights etc. opening directly to the external air or into an open veranda and this aggregate area inclusive of frames shall not be less than 20 per cent of the floor area of the rooms. The areas of doors shall not be included for this purpose. The minimum 5 per cent of floor area of the room shall be for the purpose of ventilators alone. All windows shall have a section of the area for ventilators to afford cross ventilation. Kitchen shall have a chimney and to a minimum of 2' above the ridge level of the highest point of the building.

20. Regular line of streets:

No portion of any building shall project beyond the regular line of any street, road, and gully.

Other Conditions for Construction of Buildings.

21 No rain water/waste water from a budding to be allowed to fall on any road/footpath:

Every building or part of building from which there is a danger of rain/water falling on to any public street or footpath shall be provided with a gutter drain and a down pipe made of suitable materials of such design and capacity that the water will neither spill out of them nor leak through them, and shall be constructed to the storm water plinth protection drain of the building.

22. Responsibility for quality/workmanship/safety/stability:

Every person who undertakes construction work in connection with a building shall ensure that the building materials used are of sound or good quality. The responsibility for the structural stability of building shall be that of the owner. Stacking/dumping of building materials without permission and spoils on Public Street, road, drains, gullies and jhoras shall be strictly prohibited. Any person(s) contravening this regulation shall be penalized and the materials shall be seized and auctioned without notice. Person(s) found dumping loose soils/spoils as mentioned in this regulation shall pay a fine of Rs.500/-(minimum).

23. Demolition of Houses/buildings found unsafe for human habitation:

All houses/buildings found in a dilapidated condition and found unsafe for human habitation shall be demolished by the Government in pursuance of section 9 of the Act.

24. No permission/approval for minor repairs:

No permission approval is required for carrying out minor repairs to existing building/structures. **"MINOR REPAIRS"** means and include

a) Plastering and patch repairs on walls and floor.
b) Renewing widows, ventilation or doors of opening the properties of others and openings without door leaves on the round floor towards public land.

25. Sewers and septic tank/drains/staircases

(i) The domestic sewerage shall he treated in septic tanks built within the site of the allottees or owner's private holding and affusions discharged without causing any odor, discomfort or unhygienic conditions.

(ii) In case where a public sewer is available it will be incumbent upon the owner to connect the affluent to such sewers. Permission to dig up access to the sewer line shall be applied for in writing to the concerned authority and a written approval received prior to starting connecting work.

(iii) Buildings which have been completed but have not incorporated the requirements as provided under sub-clause (i) (ii) of this regulation shall incorporate them on direction issued on this behalf by the competent authority.

(iv) Drains: Pucca storm water/plinth protection drain shall he provided leading to the road side drain or to adjoining permanent drains or jhora to drain off the surface water.

(v) Septic tanks shall be constructed (minimum distance of 4'0" from the outer wail of the building) and situated as instructed by the authority. All septic tank shall have a ventilating pipe of minimum of 1" diameter rising to a height of minimum of four feet from the top of the septic tank. Soak pit shall he constructed as per standard specification.

26. Penalties:

Any construction, building, work, development carried out in contravention of these regulations and or without obtaining prior approval will be considered as without valid approval and be liable to be demolished at the cost of the person concerned in pursuance of section 8 and 9 of the Act alter issuing notice of 15 days.

Explanation: For the purpose of regularization of any construction undertaken in contravention of:-

(a) If the construction of building either in private or allotted sites has commenced without the approval of Blue Print Plan, the regularization shall be made on payment of such amount as may be fixed in every five years by notification on this behalf by Government per sqft. of the constructed area.

(b) *If the construction has taken place beyond the approved Blue Print Plan but within the person's own private holding, the same shall be regularized on payment of such amount as may he fixed in even five years by notification on this behalf by Government per sqft. for every floor of structure whether completed or not.*

(c) *If the construction is beyond the approved height the unauthorized structure shall be demolished at the cost of the defaulter.*

27. Feasibility report on land stability and size.

Before any Blue Print Plan is prepared by the Civil Engineer or Architect and submitted by the owner to the department for any type or of construction whether in Government or private land, the proposed site should be invariably inspected by a qualified and experienced Civil Engineer or Architect and a site plan should he submitted to the Town Planner of Urban Development and Housing Department. The Town Planner then shall examine and see whether the site in question is stable and can accommodate all basic utility requirements like steps, staircase, septic tank,, soak-pit drain and setbacks besides bed rooms, dining, kitchen, toilet etc. and if the site plan is satisfactory then the authority will give necessary approval for preparation of Blue Print Plan of the house/building.

28. Garbage Chute.

Every building or house which has more than 1 (one) storey shall have a garbage chute for disposal of garbage and solid waste to the ground floor. The chute shall be preferably on the back side of the building/house and they shall have separate garbage bins for bio-degradable and non-biodegradable garbage/waste.

29 Painting / colouring of House

All houses within a Notified area shall be painted in such colour as may he notified by the Government from time to time.

30. Prohibition of erection of compound wall.

(i) No building/house, shop or structure constructed along the National Highway or any other road or bazaar yard shall erect any compound wall or barricade or keep a garden so that the free movement of pedestrians from one shop/building to another through the front yard or the building/house, shop is not obstructed.

(ii) *No part of' the set back maintained between the buildings shall he utilised on the ground or above the ground by any person for any purpose. The set back shall be maintained vertically.*

31. Hood (Chhaja) to be within allotted site.

No Chhaja or hood should extend beyond the allotted or private site over any public thoroughfare, drain or setback etc.

32. Salami for space utilized for purpose other than building.

Where it has been necessary to construct a private foot path to connect the building/house to the Government footpath/road etc. or where land is required for construction of the footpath on the site allotted by the Government or otherwise, the allottee shall pay such rate of site salami as may be notified by the state Government from time to time for such an area. No structure whatsoever, on such areas shall, however, be permitted.

33. Regulation of construction in private holdings within the notified area.

Sizes of sites in case of sales transaction of land in private holdings and Construction in such sites within the notified area shall be in accordance with the Master Plan/Area Plan of the location concerned.

34. Utility connections not permitted in unauthorized building/house.

No buildings, house or structure shall be permitted to have any electricity or sewerage connection or water connection or trade license etc. unless the buildings or houses are constructed or area regularized in all respects as per the approved Blue Print Plan and a no objection certificate issued by the Urban Development and Housing Department allowing such service connection or issue of such trade license.

35. Construction in sinking/landslide prone areas.

No allotments shall be made or illegal occupation regularized in any sinking area, landslide prone or in areas having scars of old landslides or in slope exceeding or around 70 (Seventy) degree.

36. Compound wall.

In case of attached sites no common wall shall be allowed. Each allottee shall have his own wall even where the boundary is common.

37. Additional Site and Cantilever

Where any vacant space is available on the periphery of the site proposed for allotment and if such an area can be added to the aesthetics of the building and convenience of the allottee the allottee can apply for such space before the Blue Print Plan is approved but under no circumstances any additional space and cantilever shall, be granted after the approval of the Blue Print Plan and commencement of the construction.

38. Summarily demolition of unauthorized structure.

Any construction beyond the approved Blue Print Plan shall summarily be demolished as and when detected.

Form III clause 15:

15. *The person whose Blue Print Plan is approved shall have to deposit a sum of Rs.5000/- as security deposit in the form of TDR (refundable) in favour of the Town Planner to meet the expenses for lifting of building materials/spoils etc. clumped at road side including drain or any other public premises if the person or his representative does not lift the building materials/spoils etc. immediately after dumping and also effect repair to damages to the road including drainage system etc. The security deposit shall be automatically forfeited without any notice of the defaulter."*

FORM VII APPENDIX – I

Appendix – I
(See Regulation 11)

SITE INSPECTION BOOK

a. Date of Approval of Blue Print Plan:-
b. Date of Issue of Construction Order:-
c. Date of Approval of B.P. Plan:-
d. Date of Issue of Revised Construction Order:-

Remarks of the inspecting staff or Assistant Town Planner or other higher officers.

By Order

Secretary
Urban Development & Housing Department
Government of Sikkim

GOVERNMENT OF S1KIK1M
URBAN DEVELOPMENT AND HOUSING DEPARTMENT
GANGTOK

No.GOS/UD&HD/6 (294)2001 Dated:16/10/2001

NOTIFICATION

In exercise of the powers conferred by Sub-section (2) of section 7 and section 17 of the Sikkim Allotment of House Sites and Construction of Building (Regulation and Control) Act, 1985 (11 of 1985), the State Government hereby makes the following regulations further to amend the Sikkim Building Construction Regulations, 1991, namely:-

(1) (1)These Regulations may be called the Sikkim Building Construction (Amendment) Regulations, 2001.

(2) They shall extend to all the notified areas in Sikkim.

(3) They shall come into force at once.

(4) They shall apply to both Government allotted sites and private sites.

(2) In the Sikkim Building Construction Regulation, 1991, (hereinafter referred o as the said regulations), in regulation 17, -

(a) for sub-re9ulation (I), the following shall be substituted, namely:-

"(i) The maximum height of buildings constructed in allotted sites or private holdings within a notified area shall be in accordance with the suitability and profile of the locations based on the stability map o the area as prepared by the Mines and Geology Department from time to time which shall be as follows: -

Stability zone	Admissible number of floors
1.	5 ½ storeys
2.	1 ½ storeys
3.	3 ½ storeys
4.	2 ½ storeys
5.	1 ½ storeys
6.	No construction is allowed.

Provided that the height of buildings shall be regulated in accordance with the size of the plot allotted or possessed and structural design of the foundation of the proposed building;
(b) after sub-regulation (V) the following sub regulation shall be added, namely: -

"(vi) Any structure beyond the permissible number of floors or allotted area or approved Blue print Plan completed or under construction on or before the date of notification of these regulations, shall be regularized after payment of regularization fee to be prescribed by Notification by the Government.

3. In the said regulation, after regulation 38, the following regulation shall be inserted, namely:-

39 Power to relax — In case of genuine difficulties arising out of the implementation of any of the regulations in regard to buildings or structures proposed to be constructed by the Government of Sikkim or Government of India or any registered organization the State Government reserves the right to relax from application of any o the provisions which it considers justifiable on the merit of each case."

Commissioner –cum- Secretary
Urban Development & Housing Department.

SIKKIM

GOVERNMENT GAZETTE

EXTRAORDINARY
PUBLISHED BY AUTHORITY

Gangtok | **Wednesday 05th April, 2023** | **No. 153**

GOVERNMENT OF SIKKIM
URBAN DEVELOPMENT DEPARTMENT
GANGTOK

No.08/UDD/2023 **DATED: 27/03/2023**

NOTIFICATION

In exercise of the powers conferred by sub section (2) of Section 7 of the Sikkim Allotment of House Sites and Construction of Building (Regulation and Control) Act, 1985 (Act No: 11 of 1985), the State Government hereby makes the following regulations further to amend the Sikkim Building Construction Regulation, 1991, namely:-

Short title, extent and Commencement

1. (1) These regulations may be called the Sikkim Building Construction (Amendment) Regulation, 2022.

(2) They shall extend to the whole of Sikkim.

(3) They shall come into force on the date of their publication in the Official Gazette.

Amendment of regulation 17.

2. In the Sikkim Building Construction Regulation,1991, (herein after referred to as the said regulations), in regulation 17, after sub-regulation (v), the following shall be inserted namely:-

"(vi) In case of building coming up in the periphery and proximity of the important Government establishments, the height shall be as recommended by the concerned authority or department in consultation with the agency or department dealing with security matters irrespective of the approval given if any, to the Blue Print Plan".

Insertion of Regulation 35 (A)

3. In the said regulation, after regulation 35, the following shall be inserted namely:

"35 (A) No construction of any structure shall be permitted in any sinking area, landslide prone area or any areas having scars of old landslide or any slope of 70 degree or above or in any land which may not be suitable for carrying out any type of building construction:

Provided that the Government may allow such construction as and when it is satisfied that the land has regained its stability and is fit for carrying out building construction, based on the recommendation of Mines and Geology Department or any other technical agency notified by the Government."

Secretary
Urban Development Department
(File No. T(2093) UDD/TP/E/2022)

S.G.P.G. - 153/ Com. 2/Gazette /100 Nos./ Dt:- 05.04.2023

SIKKIM

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S.G.P.G. - 153/ Com. 2/Gazette /100 Nos./ Dt:- 05.04.2023

POLICY ON GREEN CAMPUS

SMU SIKKIM MANIPAL UNIVERSITY

INSPIRED BY LIFE

Sikkim Manipal University

5th Mile, Tadong, East Sikkim

Sikkim 737136

SIKKIM MANIPAL UNIVERSITY 5th Mile Tadong-Gangtok

SIKKIM MANIPAL UNIVERSITY

POLICY ON GREEN CAMPUS

A green campus is a place where environment friendly practices and education combine to promote sustainable and eco-friendly practices in the campus. The green campus concept offers an institution the opportunity to take the lead in redefining its environmental culture and developing new paradigms by creating sustainable solution to environment, social and economic needs of the mankind

Sikkim Manipal University always had sustainable initiatives at the core of all activities. Sikkim Manipal University has two campuses, Engineering college (SMIT) campus and Medical college (SMIMS) campus. SMIT campus is spread over 34.34 acres where as SMIMS campus has 21.48 acres. Both the campuses have significant greenery covering all parts of campus, something that is appreciated by all visitors on campus

Policies:

- **To increase use of renewable energy (Solar Energy)**
- **To proper waste water management and recycling of waste water for re use**
- **To replace all conventional/normal lights with LED lights in phased manner.**
- **To use energy saving electrical and electronic alliances and energy saving tips in all our activities.**
- **To educate all employees on energy saving and water saving through lecture, dramas and painting competitions.**
- **To undertake tree plantation drive**
- **To count and control CO_2 emission generated by means of transportation, DG Sets and Incinerator and increase carbon neutrality.**
- **To ensure Ban on Single Use of Plastic inside the campus.**
- **To ensure NO Smoking inside the campus.**
- **To provide information and training opportunities on energy saving measures.**
- **To increase use of Digital library/E- Learning Centre.**
- **To promote and increase use of e-mail, video conferencing and minimum use of paper in official works.**
- **To ensure proper E-Waste management.**
- **To engage in dialogue with local government agencies, municipal corporation and local organizations and actively work in the areas of environment protection, energy efficiency and sustainable development.**
- **To encourage use of advance technology to minimize energy consumption.**
- **To ensure availability of necessary resources to achieve our objectives.**

Initiatives taken by university/Institute to make campus green and eco-friendly

Solar Power Station: One 100 KW solar power station has been installed at SMIT and connected with main line. Its efficiency is about 60%.

SOLAR POWER STATION AT SMIT

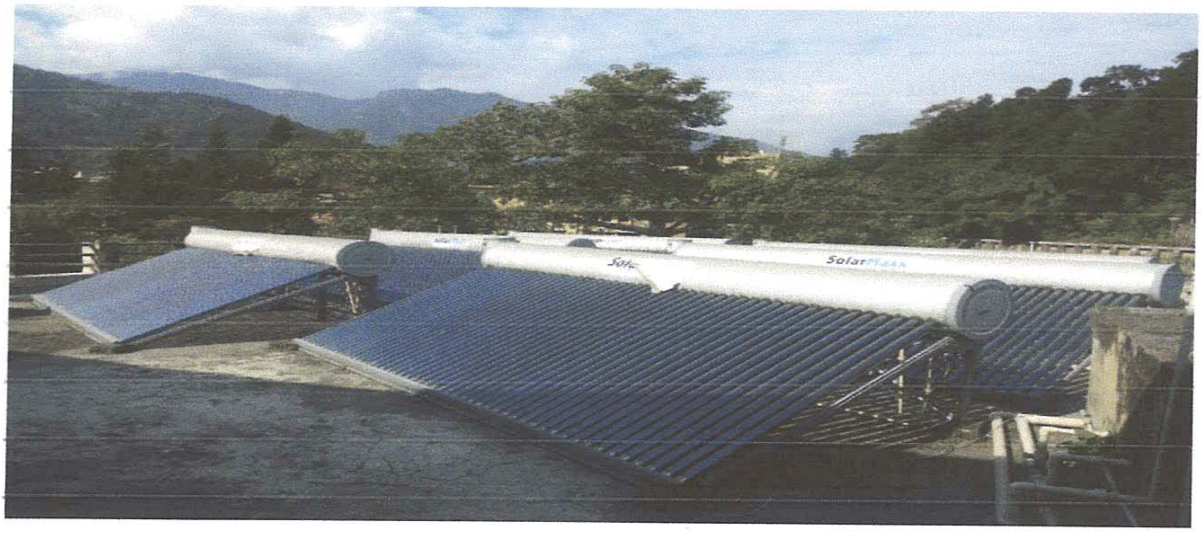
Solar Water Heaters: Both campuses use renewable energy and have installed solar water heater in their campuses.

At SMIT campus, hot water supply is done through solar water heaters installed on the terraces of hostels. The details are shown below:

(a) Hostel No 1	-	30,000 LPD	
(b) Hostel No 2	-	30,000 LPD	
(c) Hostel No 3	-	10,000 LPD	
(d) Hostel No 4	-	16,000 LPD	
(e) Boys Mess	-	4,000 LPD	for washing of
(f) Girls Mess	-	2,000 LPD	utensils.

At SMIMS campus we have 5000 LPD Solar Water Heater for the supply of hot water to CRH laundry for washing clothes.

SIKKIM MANIPAL UNIVERSITY
5th Mile Tadong-Gangtok



SOLAR WATER HEATERS AT SMIT CAMPUS

Waste water Management and Recycling of treated water

SMIT Campus - One 480 KLD STP is there for treatment of sewage generated from the campus. Arrangement have been made to recycle a portion of the treated water to be used for gardening purposes.

SIKKIM MANIPAL UNIVERSITY
5th Mile Tadong-Gangtok

Glimpse of 480 KLD STP at SMIT

SMIMS Campus- One 15 KLD ETP is there for treatment of bio medical waste generated from CRH. Arrangement have been made to recycle the treated water to be used for gardening purposes.

Glimpse of 15 KLD ETP at CRH (SMIMS Campus)

Policy Guidelines and Measures taken for Conservation of Electricity

- Phased manner changing of normal/conventional lights to energy efficient LED lights. In SMIMS campus approximately 75% of conventional lights have been replaced with LED lights. In SMIT campus approximately 65% lights have been replaced with LED Lights. All new lights procured will be LED Lights only.
- Timely switching off and switching on of security lights and street lights.
- Hostel staff advised to ensure minimum essential use of lights. Put off light when not required.

SIKKIM MANIPAL UNIVERSITY
5th Mile Tadong-Gamtok

- Security staff to switch off unnecessary light in office area and Library.
- Few of the Halogen lamps have been disconnected, however minimum illumination of light has been insured.
- Optimum use of HAVC and air conditioners. Switch on as and when required basis.
- Minimum use of Blowers and Heaters.
- Turn off unnecessary lights and use day light instead.
- Keep lights off in conference rooms, class rooms, lecture halls when they are not in use.
- Phased manner replacement of Electrical appliances like ACs, Fridge, Washing Machine etc with Energy efficient (Higher Star rating) appliances.
- Activate power management features on your computer and monitor, so that it will go into a low power "sleep" mode when you are not working on it.

Policy Guidelines and Measures taken for Conservation of Water

- Maximum use Surface water tapped from River/ Khola/ stream.
- Minimum use of ground water by reduced hours of pumping.
- Regular checking of leakage in water pipe line and Tap /cistern at common places
- Quarterly conduct of house survey for checking of Dripping / leakage from Taps and Cistern.
- Save water and save electricity stickers Placed at prominent places and bathrooms etc.
- Any New Building constructed should have the provisions of rain water harvesting.
- Adherence/implementation of the guidelines on "Jal Shakti Campus" a water conservation action and implementation plan issued by Department of Higher Education, Ministry of HRD, Govt of India.
- Conduct of awareness campaign on "Save Water, Save life" through lectures/ demonstrations/ Poster competitions.
- Tree plantation drive in the campuses.

Ban on use of plastic

Use of single use plastic and polythenes are banned in the campus. Suitable posters and banners in this regards have been placed.

Digital Library/ E- Learning Centre

Efforts have been made to provide more read out materials in soft form. Reduce hard readout material. Use more of e-mail for official communication. Information needed are provided on line.

(a) Digital/E- Library Facility at SMIMS Campus

(i)E-Books - 256

(ii)E- Journals-194

(iii) CD -1010 (Free with Books)

(iv) DVD- 111

(b) Digital/E-Library facility at SMIT Campus

Digital Library in SMIT started in Year 2008. Digital Library has 10 computers including Laptops with the seating capacity of 26 users at a time. At present, SMIT Library is accessible 24*7 through the Knimbus e-library portal from any place. The following E-Resources can be accessed through Digital Library: -

(i)Elsevier Science Direct (Engineering & computer Science)

No. of Titles:275

(ii)IEEE (All Society Periodicals Package)

No. of Titles:169

(iii) Springer Link (Engg, Computer Sc, Math & Statistic)

No. of Titles:452, e-books:534

(iv)ASCE (American Society of Civil Engineers)

No. of Titles:34

(v) IGI Global Journals (Marketing Package)

No. of Titles:78

(vi) ASME (American Society of Mechanical Engg.)

No. of Titles:26

(vii) Videeya E- Book (Multiple Publishers)

No. of Titles: 47 (Text Books)

(viii) DELNET (Developing Library Network)

(ix) Sage (Management)

No. of Titles:23

(x) Knimbus e- library

Remote Access Platform

(xi) Dspace –Institutional Digital Repository

(xii) Easylib Software Web Version

(xiii) Pearson E- Books

No. of Titles:15

(xiv) CD/DVD:1297

There is plan to add following e- resources in Digital Library:-

(i)Ph.D. Theses

(ii)Faculties Publications

(iii) Content Management

E-Waste Management

Electronic waste, commonly known as e-scrap or e-waste is the trash generated from surplus, broken and obsolete electronic devices such as computers, laptops, printers and other accessories. Electronic devices/appliances contain various hazardous chemicals and materials that are released into the environment, if not dispose them off properly.

It will be ensured by IT Dept of SMU that all E-Waste are properly disposed off as per E-Waste management policy of SMU

Carbon Neutrality

All efforts are made to minimise the release of CO2 through use of solar water heaters in major establishments of institute. Smoking is banned in academic zone of the institute
A continuous drive is on through plantations and horticulture activities to keep the campus green. Smoke test of Vehicles and DG sets are carried out at required intervals.
Restricted entry to automobiles inside the campus for a pollution free environment.

Plantation

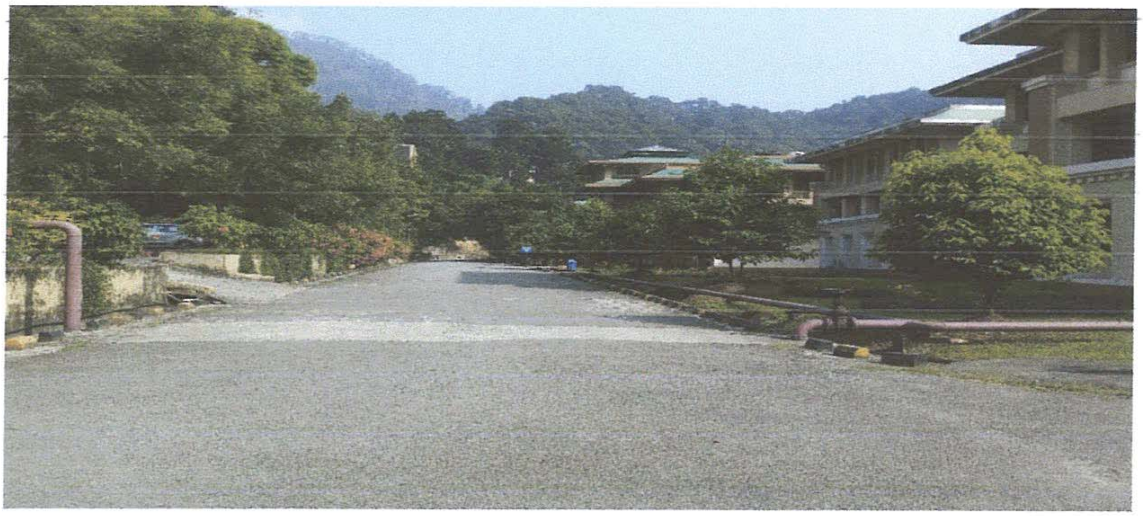
(a) SMIT Campus

i) Different clubs and student forums within institute periodically organized plantation drive to make the campus greener and carbon neutralized.
ii) Fruit trees like mango, jackfruit, guava and litchi are planted all over the campus. Decorative plants like algeria, Chinese palm, bottle palm, bottle brush etc. are planted in the

campus for beautification. Trees like Ashoka, Neem, Peepal, Simal etc. are planted on the sides of the road.

iii) Buildings and sidewalks inside the campus are well hedged with bamboos. Various decorative and flowering plants grown in lawns and sidewalks.

iv) Teak plantations was done in 2006 near hostel number 3 (Girls Hostel). At present nearly 200 full grown trees are surviving.



SIKKIM MANIPAL UNIVERSITY
5th Mile Tadong-Gangtok

Glimpse of Plantation at SMIT Campus

(b) SMIMS Campus

(i)The plantation has been started since April 1997.

(ii) Trees are Pine, Chinese teak, Silver oak, Wild chery, Rudraks, Gulmohar, Bottle brush, Jakranta, Auricheria, Chukrasia, Siris, Malata, Chilaunay Pani saaj which are approximately 600 in numbers.

(iii)Decorative bush plants like Azalea planted below staff housing.

Glimpse of Plantation at SMIMS Campus

Environment/Green Committee

Committee will ensure the implementation of Green Campus policies.

Composition of the committee at SMIT is as under: -

(a) Chair Person- Prof (Dr.) Sangeeta Jha, Associate Director (A) –In-charge

(b) Faculty Representatives/Members

(i) Mrs Tshering Yanki Ladakhi, Asst Prof Member Dept of ME
(ii) Mr. Sanjay Ghatak, Asst Prof (SG) , Member ,Dept of CSE
(iii) Dr. Santanu Gupta, Asst Prof (SG) ,Member,Deptt of Chemistry
(iv) Miss Naiwrita Borah, Asst Prof , Member, Deptt of IT
(v) Col Manoj Kumar (Retd), Head Engg , Member Deptt of S&M
(vi) Mr. Sisir Pradhan, Dy Manager (T), Member ,Deptt of S&M

(c) Students Representative/Members
(i) Amrit Sukla , Regd No. 201900041,Deptt of CSE
(ii) Shruti Raj, Regd No 201900392,Deptt of CSE
(iii) Devanshi Pandey, Regd No. 201900406, Deptt of CSE
(iv) Mokshada Tiwary, Regd No. 201900148, Deptt of IT
(v) Shreya Shree, Regd No. 201900278, Deptt of IT
(vi) Yalamanchili Adi Venkata Sandeep, Regd No. 201900366,Deptt of ME
(vii) Iadhi Surya Kiran, Regd No. 201900429, Deptt of ME.

Composition of the committee at SMIMS is as under: -

(a) Chair Person: Dr. Jyotsna Kapil, Prof ,Deptt of Microbiology

(b) Faculty Representatives/Members

(i) Dr. Ena Pradhan, Tutor, Deptt of Pharmacology
(ii) Dr. T Paras Singh,Lecturer, Deptt of Biochemistry
(iii) Dr. Deepanjali Rai PT, Asst. Prof, SMCPT
(iv) Mrs Nazung Lepcha, Asst Lecturer,SMCON
(v) Mr. Sanjay Gupta, Sr. Manager, Infra &Facilities
(vi) Mr. I.D Gurung, Sr. Section Officer

(c) Student Representatives/Members:
(i) Shivam Bansal, MBBS2017 batch
(ii) Harsh Jyoti Datta, MBBS 2018 batch
(iii) Arundhati Dutta, MBBS 2019 batch
(iv) Simran Sherpa BPT 2020 batch
(v) Serina Gurung BPT 2020batch

SMU SIKKIM MANIPAL UNIVERSITY

Established under Govt. of Sikkim, Act 9 of 1995, recognised under 2(f) of the UGC Act, 1956

Sikkim Manipal University

ENVIRONMENT AND ENERGY USAGE POLICY

Sikkim Manipal University, 5th Mile, Tadong, Gangtok, East Sikkim-737102 (INDIA)
Ph.: Ph.: + 91 3592 270702, 232041, 231138, 270294 | Fax: +91 3592 231147 | www.smu.edu.in

CONTENTS

Vision, Mission and Core Values

VISION

Global Leadership in Human Development, Excellence in Education and Healthcare.

MISSION

Develop professionals of excellent technical calibre in the field of Health Sciences, Engineering, Management and Social Sciences with a humane approach capable of shouldering the responsibility of building the nation and be globally competent.

CORE VALUES

- **Integrity and Honesty**

We conduct ourselves ethically and legally in all situations upholding stakeholder trust.

- **Committed to Teams, Accountable for Results and Passion to Win**

We are passionate about winning and hold ourselves accountable to organisational goals. We believe in teamwork and foster a performance driven culture across the organisation.

- **Achieving Social Impact**

We fulfil our responsibility to society, continuously contributing to build a better world.

- **Respect and Fairness**

We trust every individual and treat them with dignity, respect and fairness. We practice open and honest communication at all times.

- **Excellence through Quality, Innovation and Leadership**

We are committed to delivering superior programs and academic services through continuous innovation and leadership at all levels.

Statement of the Policy

The Environmental and Energy Policy is binding for Sikkim Manipal University, which includes both the medical & engineering campus and all of the academic, curricular and extra-curricular activities and operations.

Environment and Energy both are essential for survival and sustainable development of human beings. At the core of any sustainable energy strategy is a vision for improving the provision and use of energy efficiently so that it contributes to sustainable development

Preamble

The **Environment and Energy Usage Policy** at Sikkim Manipal University is to manage energy usage in a systematic way so as to minimize its impact on the environment. This Environment and Energy Policy is binding for all the components of the institution and applies to all its stakeholders and to the various activities undertaken by the institution. It will help us to embed efficiency and environment into our everyday activities, thus helping us to realize our responsibilities and commitment to conservation of natural resources and to limit its usage.

Efforts have been made to keep the campus green, use renewable energy, control the carbon emission and use energy efficient appliances.

Sikkim Manipal University always had sustainable initiatives at the core of all activities. Sikkim Manipal University has two campuses, Engineering college (SMIT) campus and Medical college (SMIMS) campus. SMIT campus is spread over 34.34 acres whereas SMIMS campus has 21.48 acres. Both the campuses have significant greenery covering all parts of campus, something that is appreciated by all visitors on campus.

Environmental and Energy Usage Policy for Sikkim Manipal University

Sikkim Manipal University pledges to fulfil its commitment to the environment through the following levels of actions by:

- Increasing use of renewable energy (Solar Energy)
- Developing more rain water harvesting units.
- Ensuring proper waste water management and recycling of waste water for re use
- Replacing all conventional/normal lights with LED lights in phased manner.
- Using more energy saving electrical alliances and energy saving tips in all our activities.
- Educating all employees on energy saving and water saving through lecture, dramas and painting competitions.
- undertaking tree plantation drive
- Counting and controlling CO_2 emission generated by our means of transportation, DG Sets and Incinerator and increase carbon neutrality.
- Ensuring Ban on Single use Plastic inside the campus.
- Conducting training opportunities on energy saving measures.
- Increasing use of Digital library/E- Learning center.
- Promoting & increasing use of e-mail, video conferencing and minimum use of paper.
- Ensuring proper E-Waste & solid waste management.
- Engaging in dialogue with local government agencies, municipal corporation and local organizations and actively work in the areas of environment protection, energy efficiency and sustainable development.
- Encouraging use of advance technology to minimize energy consumption.
- Ensuring availability of necessary resources to achieve our objectives.

Policy Guidelines and Measures taken for Conservation of Electricity

- Phased manner changing of normal/conventional lights to energy efficient LED lights. In SMIMS campus approximately 75% of conventional lights have been replaced with LED lights. In SMIT campus 600 Conventional Tube lights in Hostels changed to LED Lights. 15 street lights also changed to LED Lights. All new lights procured will be LED Lights only.

- Timely switching off and switching on of security lights and street lights.

- Hostel staff advised to ensure minimum essential use of lights. Put off light when not required.

- Security staff to switch off unnecessary light in office area and Library.
- Few of the Halogen lamps have been disconnected, however minimum illumination of light has been insured.
- Optimum use of HAVC and air conditioners. Switch on as and when required basis.
- Minimum use of Blowers and Heaters.
- Turn off unnecessary lights and use day light instead.
- Keep lights off in conference rooms, class rooms, lecture halls when they are not in use.
- Phased manner replacement of Electrical appliances like ACs, Fridge, Washing Machine etc with Energy efficient (Higher Star rating) appliances.
- Activate power management features on your computer and monitor, so that it will go into a low power "sleep" mode when you are not working on it.

Policy Guidelines and Measures taken for Conservation of Water

- Maximum use Surface water tapped from River/ Khola/ stream.
- Minimum use of ground water by reduced hours of pumping.
- Regular checking of leakage in water pipe line and Tap /cistern at common places
- Quarterly conduct of house survey for checking of Dripping / leakage from Taps and Cistern.
- Save water and save electricity stickers Placed at prominent places and bathrooms etc.
- Any New Building constructed should have the provisions of rain water harvesting.
- Adherence/implementation of the guidelines on "Jal Shakti Campus" a water conservation action and implementation plan issued by Department of Higher Education, Ministry of HRD, Govt of India.
- Conduct of awareness campaign on "Save Water, Save life" through lectures/ demonstrations/ Poster competitions.
- Tree plantation in the campuses.

Composition of the committee at SMIT is as under: -

(a) Chair Person- Prof (Dr.) Sangeeta Jha, Associate Director (A) –In-charge

(b) Faculty Representatives/Members

(i) Mrs Tshering Yanki Ladakhi, Asst Prof Member Dept of ME
(ii) Mr. Sanjay Ghatak, Asst Prof (SG) , Member ,Dept of CSE
(iii) Dr. Santanu Gupta, Asst Prof (SG) ,Member,Deptt of Chemistry
(iv) Miss Naiwrita Borah, Asst Prof , Member, Deptt of IT
(v) Col Manoj Kumar (Retd), Head Engg , Member Deptt of S&M
(vi) Mr. Sisir Pradhan, Dy Manager (T), Member ,Deptt of S&M

(c) Students Representative/Members

(i) Amrit Sukla , Regd No. 201900041,Deptt of CSE
(ii) Shruti Raj, Regd No 201900392,Deptt of CSE
(iii) Devanshi Pandey, Regd No. 201900406, Deptt of CSE
(iv) Mokshada Tiwary, Regd No. 201900148, Deptt of IT
(v) Shreya Shree, Regd No. 201900278, Deptt of IT
(vi) Yalamanchili Adi Venkata Sandeep, Regd No. 201900366,Deptt of ME
(vii) Iadhi Surya Kiran, Regd No. 201900429, Deptt of ME.

Composition of the committee at SMIMS is as under: -

(a) Chair Person: Dr. Jyotsna Kapil, Prof ,Deptt of Microbiology

(b) Faculty Representatives/Members

(i) Dr. Ena Pradhan, Tutor, Deptt of Pharmacology
(ii) Dr. T Paras Singh,Lecturer, Deptt of Biochemistry
(iii) Dr. Deepanjali Rai PT, Asst. Prof, SMCPT
(iv) Mrs Nazung Lepcha, Asst Lecturer,SMCON
(v) Mr. Sanjay Gupta, Sr. Manager, Infra &Facilities
(vi) Mr. I.D Gurung, Sr. Section Officer

(c) Student Representatives/Members:

(i) Shivam Bansal, MBBS2017 batch
(ii) Harsh Jyoti Datta, MBBS 2018 batch
(iii) Arundhati Dutta, MBBS 2019 batch
(iv) Simran Sherpa BPT 2020 batch
(v) Serina Gurung BPT 2020batch

Policy Communication and Review

This policy will be communicated to the administrators, students, teaching and non-teaching staff via e-mailing. It will be made available to the public through the university website (https://smu.edu.in/smu.html)

Conclusion

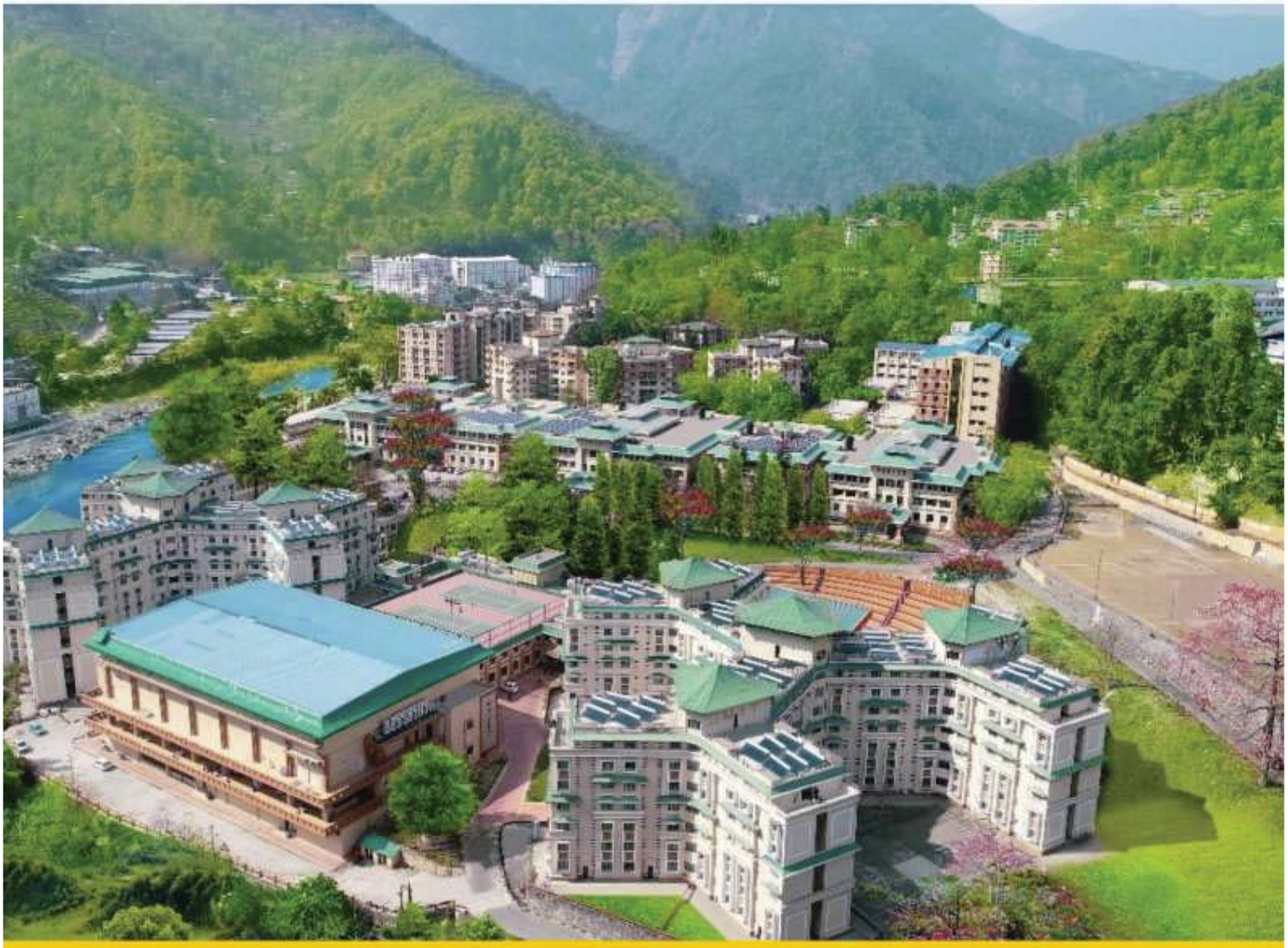
All out efforts will be made by the management, all the employees and stakeholders that laid down policies are implemented in right spirit. All faculties, students and residents of the campuses to conserve electricity and water in all their activities. Continuous drive will be maintained for tree plantation, use of renewable energy, rain water harvesting, proper solid waste management, reduction of CO2 emission and recycling of used water.

Prof.(Dr.) Karma Sonam Sherpa
Registrar, Sikkim Manipal University

REGISTRAR
SIKKIM MANIPAL UNIVERSITY
5TH MILE, TADONG
SIKKIM 737102

SMU SIKKIM MANIPAL UNIVERSITY

Accredited by NAAC



ENERGY AUDIT REPORT

PREPARED BY

EHS ALLIANCE SERVICES

CONTENTS

CERTIFICATE

EHS alliance

CERTIFICATE

PRESENTED TO

SIKKIM MANIPAL UNIVERSITY (SMU)

Sikkim Manipal University, 5th Mile, Tadong, Gangtok, 737102

Has been assessed by EHS Alliance Services for the comprehensive study of Energy Audit on institutional working framework to fulfill the requirement of

ENERGY AUDIT

The energy-saving initiatives carried out by the College have been verified in the report submitted and were found to be satisfactory.

The efforts taken by management and faculty towards all types of energy used in the College and sustainability are highly appreciated and noteworthy.

SIGNATURE

EHS ALLIANCE SERVICES GURGAON

03.08.2022
DATE OF AUDIT

EHS ALLIANCE SERVICES, PLOT A-72, SURYA VIHAR, GURUGRAM, 122001
WWW.EHSALL.IN | BUSINESS@EHSALL.IN | EHSALLIANCE@GMAIL.COM

ACKNOWLEDGEMENT

EHS Alliance Services would like to thank the management of Sikkim Manipal University (SMU), Gangtok for assigning this important work of Energy Audit. We appreciate the co-operation to the teams for completion of assessment.

We would like to specially thank ***Lt Gen (Dr) Rajan S Grewal - Vice Chancellor, SMU*** for giving us an opportunity to evaluate the environmental performance of the campus

We would also like to thank ***Col Manoj Kumar(Retd) - Head Engineering - Infrastructure and Facilities, SMU,*** for his continuous support and guidance, without which the completion of the project would not have been possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

We are also thankful to

Prof. (Dr) KS Sherpa - *Registrar, SMU*

Dr Murlidhar V Pai - *Dean, SMIMS*

Prof. (Dr) G L Sharma - *Director SMIT*

Col V S Yadav (Rtd.) - *Head General Services, SMU*

Col D B Chhetri (Rtd.) - *Head Administration, SMIT*

Mr. Sebom Mukherjee - *Dy. Manager (Housekeeping), SMIT*

DISCLAIMER

EHS Alliance Services Energy Audit Team has prepared this Energy Audit Report for SMU based on input data submitted by the representatives of University complemented with the best judgment capacity of the expert team.

While all reasonable care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

It is further informed that the conclusions are arrived following best estimates and no representation, warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

If you wish to distribute copies of this report external to your organization, then all pages must be included.

EHS Alliance, its staff and agents shall keep confidential all information relating to your organization and shall not disclose any such information to any third party, except that in the public domain or required by law or relevant accreditation bodies. EHS Alliance staff, agents and accreditation bodies have signed individual confidentiality undertakings and will only receive confidential information on a 'need to know' basis.

Vijay Singh
Lead Auditor EMS & Energy

Dr. Uday Pratap
Co-Auditor EMS & Energy

ABBREVIATION

A	**Amps**
AC	**Air Conditioner**
AC	**Alternating Current**
AMET	**Academy of Maritime Education and Training**
CFL	**Compact fluorescent lamp**
CIP	**Comprehensive Inspection Programme**
DC	**Direct Current**
HSD	**High Speed Diesel**
Hz	**Hertz**
kg	**Kilogram**
kVA	**kilo-volt-ampere**
kW	**kilo Watts**
kWh	**kilowatt hour**
kWp	**Kilowatt peak**
LED	**Light Emitting Diode**
LPG	**Liquefied Petroleum Gas**
MMS	**Module mounting structure**
MPPT	**Maximum Power Point Tracker**
NAAC	**The National Assessment and Accreditation Council**
SEC	**Specific Energy Consumption**
SPV	**Solar Photovoltaic**
STC	**Standard Test Condition**
TV	**Television**
V	**Volts**
W	**Watts**
W/m2	**watt per square meter**

INTRODUCTION OF UNIVERSITY

Sikkim Manipal University (SMU) formerly known as Sikkim Manipal University of Health, Medical and Technological Sciences came into existence on November 15, 1992 as a result of the agreement signed between the Government of Sikkim and the Manipal Pai Foundation, with the aim of imparting exemplary education and health care services in the state of Sikkim and country wide.

It is the first ever Public Private Partnership in the country for higher Education and Health Care Services. The University has two campuses: Medical campus and the Technology campus. Government of Sikkim provides a grant of Rs. 2.25 Crores per annum for the hospital against which CRH provides free treatment to BPL families and concessional treatment to other residents of the State.

The University was established in 1995 vide Sikkim Manipal University of Health, Medical and Technological Sciences Act (Act No. 9 of 1995). SMU is recognized by the University Grants Commission under Section 2(f) of the UGC Act, 1956 vide letter No F. 9-7/96(CPP-I) dated 9th Dec 1998 and approved by the Government of India. All courses run by the university are approved by the regulatory bodies like Medical Council of India (MCI), Nursing Council of India, Indian Association of Physiotherapy, All India Council for Technical Education (AICTE) and the Distance Education Council.

The Sikkim Manipal University of Health Medical and Technological Sciences (Amendment) Act No. 13 of 2009 was passed by the Sikkim Legislative Assembly on 12 Dec, 2009 and received the assent of The Governor of Sikkim on the 22nd of January 2010. Vide Notification No. 13/LD/P/2010, Dated: 08/04/2010 of Sikkim Government, Sikkim Manipal University of Health Medical and Technological Sciences was changed to Sikkim Manipal

MISSION | VISION | OBJECTIVES | CORE VALUES

VISION

Global Leadership in Human Development, Excellence in Education and Healthcare.

MISSION

Develop professionals of excellent technical calibre in the field of Health Sciences, Engineering, Management and Social Sciences with a humane approach capable of shouldering the responsibility of building the nation and be globally competent.

OBJECTIVES

- To support, promote and undertake the advancement of academics
- To promote use of ICT and modern education technologies
- To encourage research, creation and dissemination of knowledge
- To facilitate extension and community service
- To empower people of Sikkim and contribute to human development in Northeast
- To create environmental and social responsibilities among students and employees
- To ensure steady growth of the University

CORE VALUES

Integrity and Honesty
We conduct ourselves ethically and legally in all situations upholding stakeholder trust.

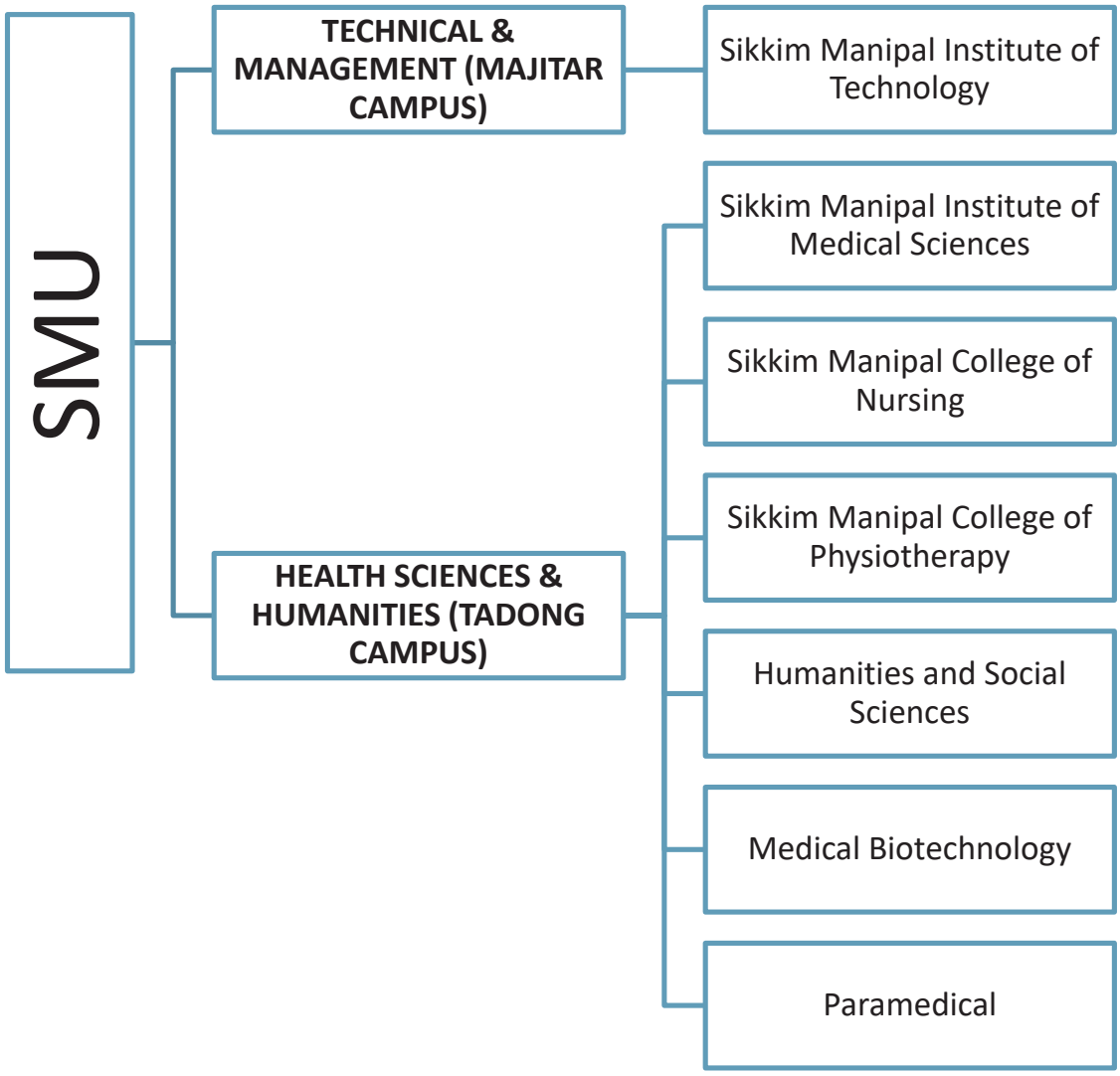
Committed to Teams, Accountable for Results and Passion to Win
We are passionate about winning and hold ourselves accountable to organizational goals. We believe in teamwork and foster a performance driven culture across the organization.

Achieving Social Impact
We fulfil our responsibility to society, continuously contributing to build a better world.

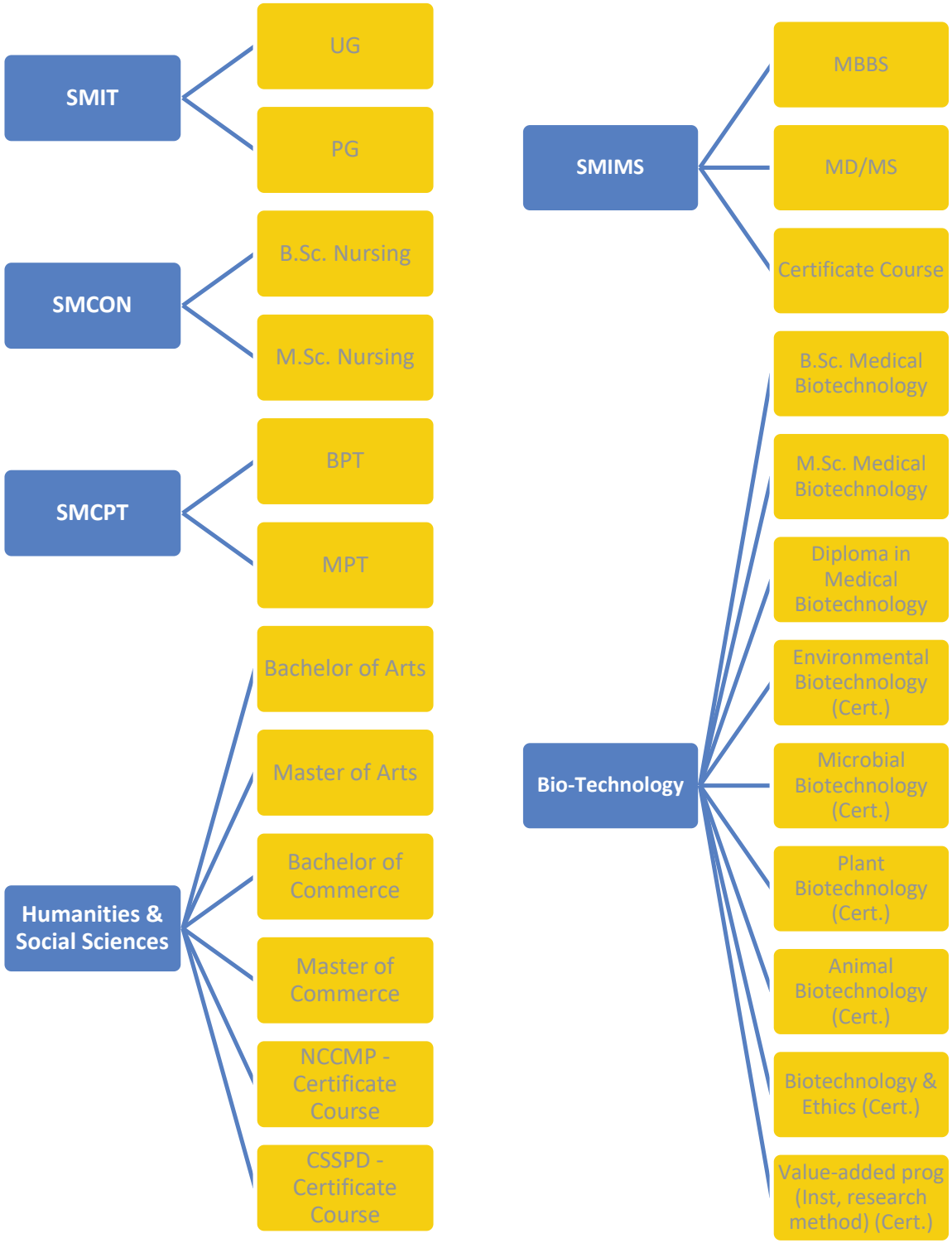
Respect and Fairness
We trust every individual and treat them with dignity, respect and fairness. We practice open and honest communication at all times.

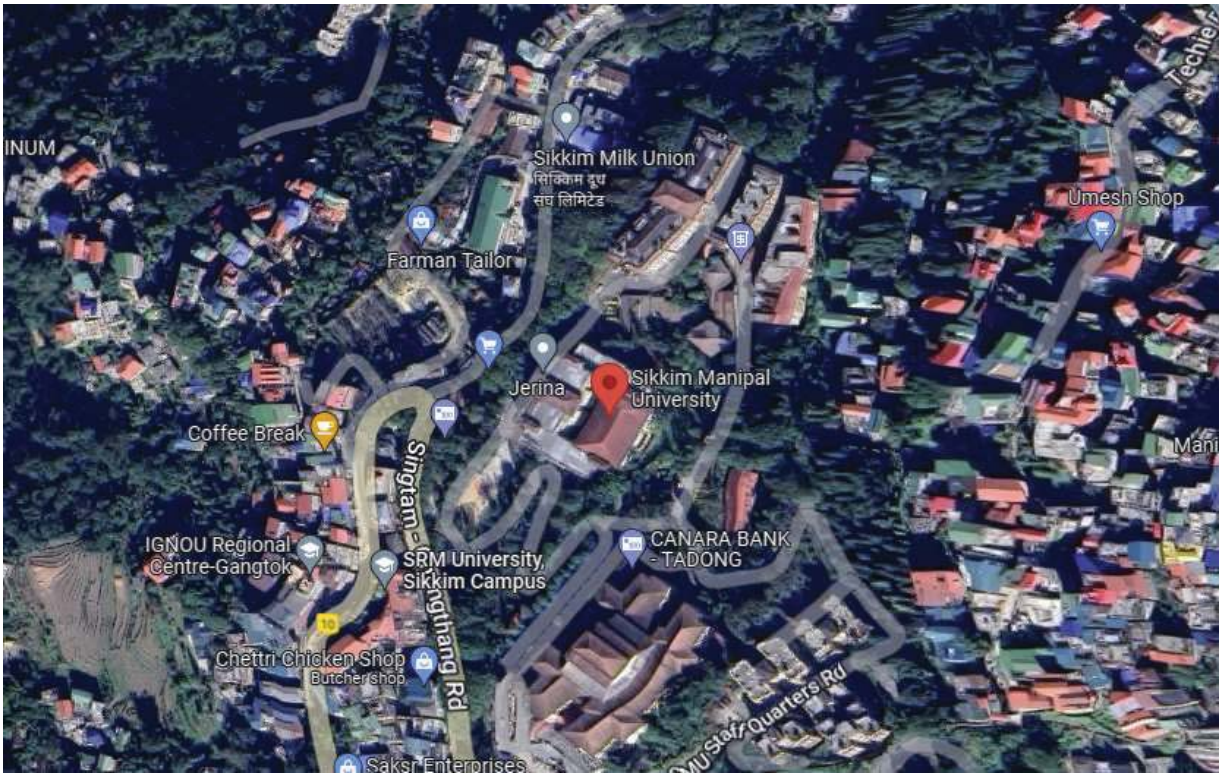
Excellence through Quality, Innovation and Leadership
We are committed to delivering superior programs and academic services through

continuous innovation and leadership at all levels. Below are the details of institutions:



Presently, SMU offers various courses featuring a wide selection of undergraduate, postgraduate and PhD courses. Below are the details of SMU faculties namely:


SMIT
UG
PG
SMCON
B.Sc. Nursing
M.Sc. Nursing
SMCPT
BPT
MPT
Humanities & Social Sciences
Bachelor of Arts
Master of Arts
Bachelor of Commerce
Master of Commerce
NCCMP - Certificate Course
CSSPD - Certificate Course
SMIMS
MBBS
MD/MS
Certificate Course
Bio-Technology
B.Sc. Medical Biotechnology
M.Sc. Medical Biotechnology
Diploma in Medical Biotechnology
Environmental Biotechnology (Cert.)
Microbial Biotechnology (Cert.)
Plant Biotechnology (Cert.)
Animal Biotechnology (Cert.)
Biotechnology & Ethics (Cert.)
Value-added prog (Inst, research method) (Cert.)



Geo Location Geo Coordinates from Google maps: 27.3177334, 88.5960472

Audit Participants

On behalf of University

Name	Designation
Lt Gen (Dr) Rajan S Grewal	*Vice Chancellor, SMU*
Prof. (Dr) KS Sherpa	*Registrar, SMU*
Dr Murlidhar V Pai	*Dean, SMIMS*
Prof. (Dr) G L Sharma	*Director SMIT*
Col V S Yadav (Rtd.)	*Head General Services, SMU*
Col Manoj Kumar(Retd)	*Head Engineering - Infrastructure and Facilities, SMU*
Col D B Chhetri (Rtd.)	*Head Administration, SMIT*
Mr. Sebom Mukherjee	*Dy. Manager (Housekeeping), SMIT*

On behalf of EHS Alliance Services

Name	Position	Qualifications
Mr. VIjay Singh	*Lead-Auditor*	*M.Sc. M. Tech (Environment Science & Engineering), Energy Auditor, Post Diploma in Industrial Safety Management*
Dr. Uday Pratap	*Co-Auditor*	*Ph.D. , PDIS, QCI – WASH, Lead Auditor ISO 14001:2015*

EXECUTUVE SUMMARY

The purpose of this Energy Audit was to seek opportunities to improve the energy efficiency of the SMU. Reducing the energy consumption despite improving the human comfort, health and safety were of primary concern.

Beyond just identifying the energy consumption pattern, this audit sought to detect and categorize the most energy efficient appliances. Additionally, some daily practices relating common appliances have been shared which may help reducing the energy consumption. Data collection for energy audit of the University was carried out by the EHS Alliance Team. The Energy Audit Report accounts for the energy consumption patterns of the University on actual survey and detailed analysis during the audit.

The work comprehends the area wise consumption traced using suitable equipment. The analysis was carried out by our team with the support of the staff members from SMU. The report provides a list of possible actions to preserve and efficiently access the available source, resources and their saving potential was also identified. We look forward towards optimization that the authorities, students and staff members would follow the recommendations in the best possible way. The report is based on certain generalizations including the approximations wherever necessary. The views conveyed may not reveal the general opinion. They merely represent the opinion of the team guided by the interviews of clients. We are happy to submit this Energy audit report to the SMU.

ENERGY AUDIT ANALYSIS

1. ENERGY CONSUMPTION

To understand the Energy Consumption trends and for analyzing the average monthly consumption we have collected electricity energy bills from Jan 2022 to Dec 2022

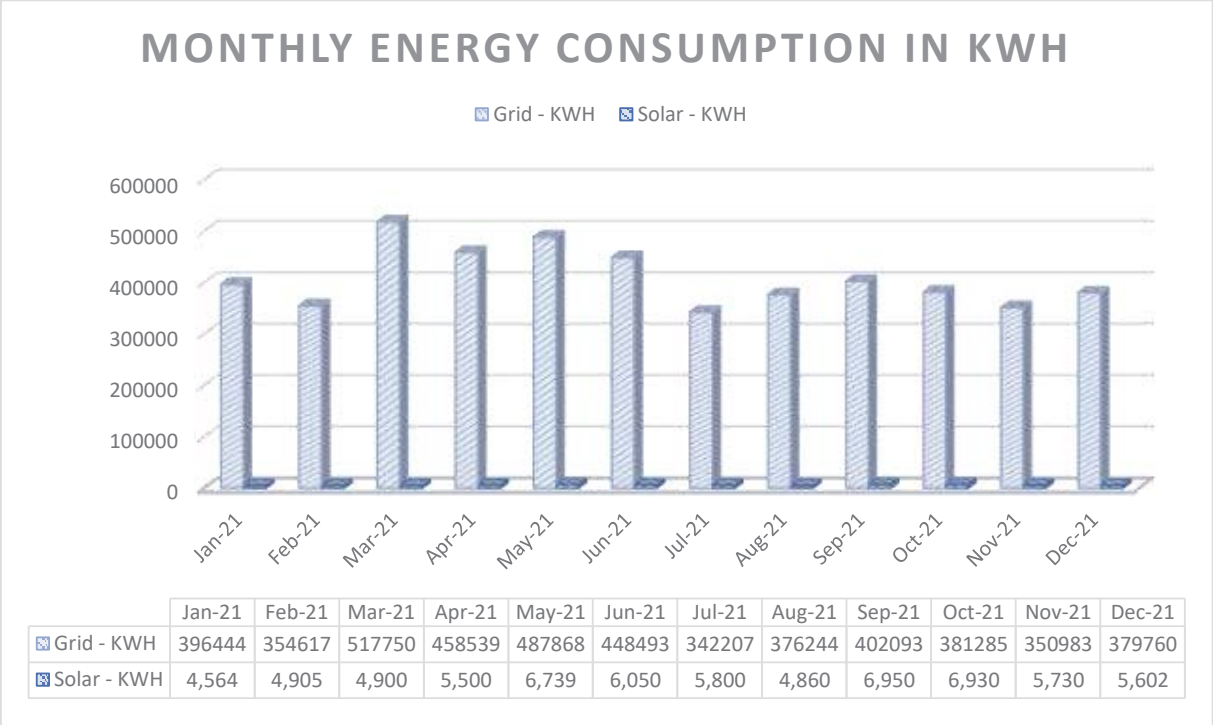
The details of **"Meter Connection"** at **"SMU"** are as follows-

Name	-	Sikkim Manipal University
CA No.	-	121005A00DT30001
Name	-	Sikkim Manipal Institute of Technology
CA No.	-	000000038999

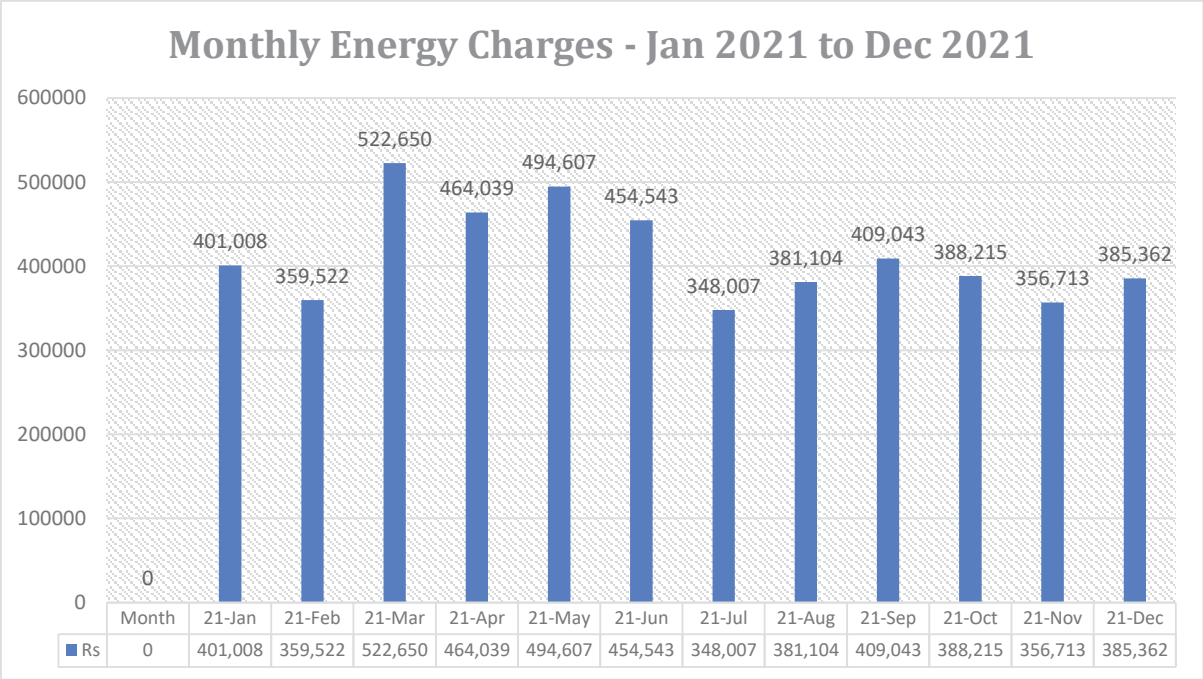
1.1 Summary of Monthly Electricity Consumption and Total Bill Amount

To understand the Energy consumption trend and for developing the baseline parameter we have collected monthly energy bill for the 12 months i.e. from Jan 2021 to Dec 2021

Month	Grid Power	Solar	Total
Jan-21	396444	4,564	401,008
Feb-21	354617	4,905	359,522
Mar-21	517750	4,900	522,650
Apr-21	458539	5,500	464,039
May-21	487868	6,739	494,607
Jun-21	448493	6,050	454,543
Jul-21	342207	5,800	348,007
Aug-21	376244	4,860	381,104
Sep-21	402093	6,950	409,043
Oct-21	381285	6,930	388,215
Nov-21	350983	5,730	356,713
Dec-21	379760	5,602	385,362
SUM	**4,896,283**	**68,530**	**4,964,813**

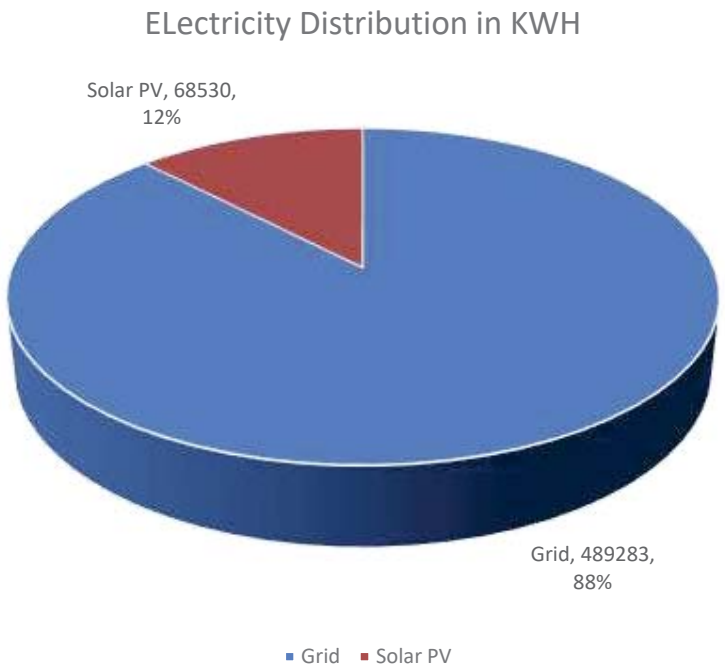


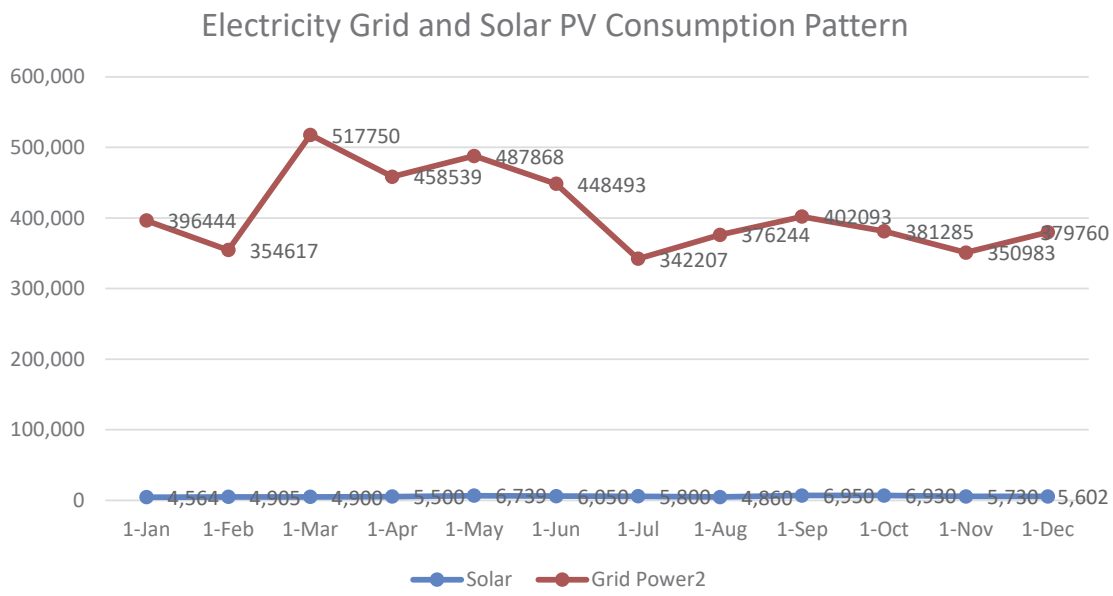
	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Grid - KWH	396444	354617	517750	458539	487868	448493	342207	376244	402093	381285	350983	379760
Solar - KWH	4,564	4,905	4,900	5,500	6,739	6,050	5,800	4,860	6,950	6,930	5,730	5,602



Electricity generation from Solar PV

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4,564	4,905	4,900	5,500	6,739	6,050	5,800	4,860	6,950	6,930	5,730	5,602

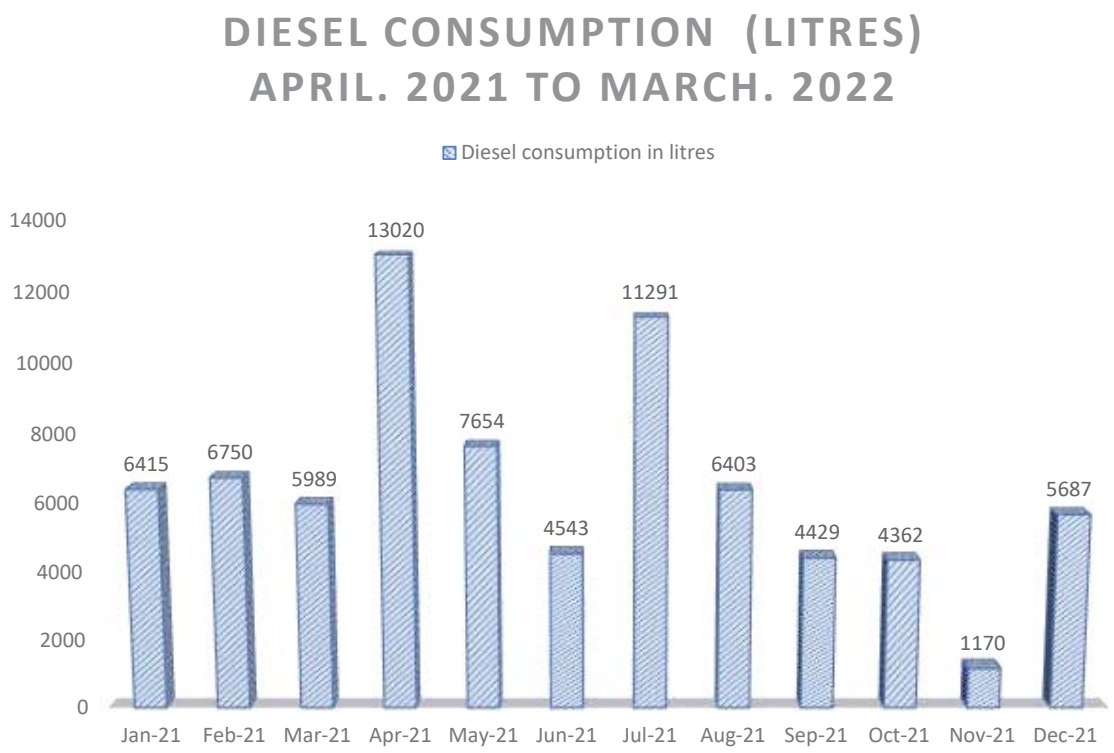




2. DIESEL CONSUMPTION

Below is the diesel consumption details in litres from Jan 2021 to Dec 2021

Period	Diesel consumption (in litres)
Jan-21	6415
Feb-21	6750
Mar-21	5989
Apr-21	13020
May-21	7654
Jun-21	4543
Jul-21	11291
Aug-21	6403
Sep-21	4429
Oct-21	4362
Nov-21	1170
Dec-21	5687
Total	77713



3. ANALYSIS OF DG SETS

In the University, there are 9 Diesel Generator (DG) sets for its electrical power needs in case of Grid power failure. Total installed DG sets capacity is 4475 kVA.

Description	Unit	DG Station -1	DG Station -2	DG Station -3	DG Station -4	DG Station -5	DG Station -6	DG Station -7	DG Station -8	DG Station -9
Design details:KG1-12SWS212KVA										
Rated capacity	KVA	**625**	**600**	**500**	**500**	**250**	**500**	**500**	**500**	**500**
Hz	HZ	**50**	**50**	**50**	**50**	**50**	50	50	50	50
Sl No.		5AG01227	JHB00690	H5G00491	SKM00598	3T8652CW	FTJ00746	FTJ00752	SKM00486	SKM01052
Make		Caterpillar								
Volts	Volts	415	415	415	415	415	415	415	415	415
PF		0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Phase		3	3	3	3	3	3	3	3	3

RPM		1500	1500	1500	1500	1500	1500	1500	1500	1500
Amps	Amps	870	835	696	696	348	688	688	688	688
Mfg.		2000	2011	2016	2019	2000	2013	2013	2019	2021

DG Set Operation details		
Operating hours during testing	Hours	0.50
% Loading	%	64.28
Energy Generation	kWh	37.92
Load	KVA	94.45
Fuel consumption during testing	Litre	10
Specific energy generation	kWh/litre	3.47

Observation and Suggestions:- As per the trial taken during the energy audit the percentage loading of DG set is 64.28% which is ok and specific energy consumption of DG Sets 3.47 KWH/Litre which is satisfactory because as per manufacturer recommendation, best practices for SEC in DG sets range from 3.0 to 3.5 kWh/litre and above.

4. AC SYSTEM

Energy Efficiency Ratio (EER): Performance of smaller chillers and rooftop units is frequently measured in EER rather than kW/ton. EER is calculated by dividing a chiller's cooling

Capacity (in Btu/h) by its power input (in watts) at full-load conditions. The higher the EER, the More efficient the unit. The cooling effect produced is quantified as tons of refrigeration (TR). The above TR is also called as air-conditioning tonnage.




There are Split ACs installed in SMU in various areas of various capacity which detail is given below:

Sl No.	Location/Identification	Type(Window/Split)	1 TR (Qty.)	1.5 TR(Qty.)	2 TR (Qty.)	3 TR (Qty.)	4 TR (Qty.)	5.5 TR (Qty.)	7.5 TR (Qty.)	8.5 TR (Qty.)	11 TR (Qty.)	4 TR COLD ROOM (Qty.)

1	Academic Building	Split	8	17	73	5						
2	Academic Building	Ductable						2	6	1	2	
3	Academic Building F-Block	AHU						13		12		
4	MSC Building	Split			8							
5	Hostel-1	Split		1								
6	Hostel-2	Split		10								
7	Hostel-3	Split		5								
9	Staff Housing New R	Split		3								
13	Guest House	Split		15								
14	Boys Mess	AHU						4	12			
16	Sport Complex	AHU						3	40			
22	MBBS College	SPLIT/CASSEETE/DUCTABLE	11	9	8		9		1		2	2
27	CENTRAL REFERAL HOSPITAL	SPLIT/CASSEETE/DUCTABLE	23	20	21	2	6	2	14			2
	TOTAL		42	80	110	7	15	24	73	13	4	4
1	Academic Building	Split	8	17	73	5						
2	Academic Building	Ductable						2	6	1	2	
3	Academic Building F-Block	AHU						13		12		
4	MSC Building	Split			8							
5	Hostel-1	Split		1								
6	Hostel-2	Split		10								
7	Hostel-3	Split		5								
9	Staff Housing New R	Split		3								
13	Guest House	Split		15								
14	Boys Mess	AHU						4	12			
16	Sport Complex	AHU						3	40			
22	MBBS College	Split/ casseete/ ductable	11	9	8		9		1		2	2
27	CENTRAL REFERAL HOSPITAL	Split/ casseete/ ductable	23	20	21	2	6	2	14			2
	TOTAL		42	80	110	7	15	24	73	13	4	4

Remarks: - We have checked Energy Efficiency Ratio of AC's and EER of AC's is fairly OK. But in future you should purchase 5-Star rated invertor based split AC's because power consumption of Inverter based BEE 5-Star rated AC's is less than non-star rated AC's.

5. FAN ANALYSIS

In the SMU, 5270 Ceiling Fans, 40 pedestal fans and 305 bracket fans are installed. The observation and suggestion are given below.

Sl No.	Location/Identification	Ceiling Fan-60W	Pedestal Fan	Bracket Fan
1	Staff Housing -A	64		
2	Staff Housing -B	72		
3	Staff Housing -C	40		
4	Staff Housing -D	88		
5	Staff Housing -E	48		
6	MBBS College	316	8	43
7	SMCPT	3		1
8	PG HOSTEL	316	8	43
9	NURSING HOSTEL	19		1
10	MBBS HOSTEL	275		
11	BIOTECHNOLOGY			1
12	CENTRAL REFERAL HOSPITAL	408	2	201
13	ANIMAL HOUSE			2
14	Academic Building	900	10	10
15	Academic Building F-Block	700	10	3
16	MSC Building	30		
17	Hostel-1	492		
18	Hostel-2	490		
19	Hostel-3	135		
20	Hostel-4	260		
21	Staff Housing New R	144		
22	Staff Housing New L	60		
23	Staff Housing Old R	144		
24	Staff Housing Old L	60		
25	Guest House	34	2	
26	Boys Mess	80		
27	Girls Mess	40		
28	Sport Complex	52		
	TOTAL	**5270**	**40**	**305**

Observation and Suggestions:-

In the University, majority of ceiling fans are of 60 W but BEE 5 Star Rated 30W Ceiling Fans are present in the market. Considering the electricity charges in Sikkim, we would not recommend to replace the existing 60W fans with 30W fans immediately, but as and when fans get old and damaged, the university should opt for purchasing BEE 5 star

rated ceiling fans

ECRM-1-Energy saving by replacing 60 W fans with energy efficient 30W ceiling fans

Total no of Ceiling Fans (60 W)	**=**	**5270**	**Nos.**
Total no of pedestal Fans (90 W)	=	40	Nos.
Total no of bracket fans (45 W)		305	
Total wattage of BEE 5 Star rated Fans (30W)	=	333525	Watt
Total saving in Wattage after replacement	=	168450	Watt
Operating hours per day	=	8	Hours
Operating days per annum	=	253	Days
Energy charges per unit in Rs.	=	27002184	INR
Saving in Rs./annum	=	2971642	INR
Investment INR	=	1684500	INR
Payback period:-	=	9.08	Years

Note:- Energy saving will increase or decrease if operating hours of machine /equipment will be increase or decrease and payback period will also increase or decrease if cost of investment(Cost of machine/equipment/accessories of machine) will increase or decrease because cost of investment is taken on tentative basis.

6. ANALYSIS OF LIGHTING SYSTEM

6.1 Brief description of existing system

For assessing energy efficiency of lighting system, Inventory of the Lighting System has been noted / collected, with the aid of a lux meter, measurement and documentation of the lux levels at various locations at working level has been done.

6.2 Inventory of Lighting

Location/Identification	200W-LED High Mast	190W-LED High Mast	60W LED	60W LED Outdoor	10W LED	18W LED Tube Light	25 W LED	45W-Park Light	12 W LED Round	36W LED	72W LED	32W LED	39W LED	150W LED	18W LED Flood	36W LED Flood

Academic Building						200		20	150	60						
Academic Building F-Block									150	120						
MSC Building									30							
Hostel-1						410										
Hostel-2						400										
Hostel-3						120										
Hostel-4						250										
Staff Housing New R						80										
Staff Housing New L																
Staff Housing Old R																
Staff Housing Old L																
Guest House					20	24			80							
Boys Mess					33	118				35						
Girls Mess																
Sport Complex					70				30	90						
Street Light																
Street Light	2	17	14	24	21		21									
Staff Housing -A						122					122					
Staff Housing -B						100					100					
Staff Housing -C						130					110					
Staff Housing -D						164					164					
Staff Housing -E						122					106					
MBBS College						549					12	389	40	28	65	23
SMCPT						17					30	48		1	1	
PG HOSTEL						743					265	35				
NURSING HOSTEL						415					92	25				
MBBS HOSTEL						371					603	49				
BIOTECHNOLOGY						13										
CENTRAL REFERAL HOSPITAL						2306					42	315	155	274	234	93
INCINARATOR						10					4					
ANIMAL HOUSE						2						3	13		3	
TOTAL	**2**	**16**	**14**	**24**	**144**	**6666**	**21**	**20**	**440**	**305**	**1650**	**864**	**208**	**303**	**303**	**116**

Location/Identification	17W LED	20W LED	100W-RGP Light	160W-RGP 4 Feet Light	20W LED-FOB Aly Side	36WX2 Normal Tube	36W Normal Tube	28X2 CFL Tube	28W CFL Tube	9W Bulb LED	2X11W PL	11W PL	18W PL	75W Street light
Academic Building						600	50		90	50				
Academic Building F-Block						154		500		100				
MSC Building						40								
Hostel-1							700			1000				
Hostel-2							680			980				
Hostel-3							270			270				
Hostel-4									520			520	520	
Staff Housing New R						9			360					
Staff Housing New L							120			120	10			
Staff Housing Old R						10	360							
Staff Housing Old L						8	120			120				
Guest House														
Boys Mess														
Girls Mess						30								
Sport Complex									80					
Street Light														35
Street Light					80			12						
Staff Housing -A					72									
Staff Housing -B					40									
Staff Housing -C					110									
Staff Housing -D														
Staff Housing -E														
MBBS College	10	81	34											
SMCPT														
PG HOSTEL														
NURSING HOSTEL														
MBBS HOSTEL				603										
BIOTECHNOLOGY														
CENTRAL REFERAL HOSPITAL	26	10	9		44									
INCINARATOR														

ANIMAL HOUSE														
TOTAL	36	91	43	603	346	851	2300	512	1050	2640	10	520	520	35

Location/Identification	90W LED Light	125W LED HIGHBAY LIGHT	150 W Sodium Vapar	250 W MH Lamp	400W MH Lamp
Academic Building				18	8
Academic Building F-Block					
MSC Building					
Hostel-1					16
Hostel-2					16
Hostel-3					4
Hostel-4					4
Staff Housing New R					3
Staff Housing New L					2
Staff Housing Old R					2
Staff Housing Old L					2
Guest House					
Boys Mess					
Girls Mess			6		
Sport Complex					60
Street Light			30		
Street Light	12	6			5
Staff Housing -A					
Staff Housing -B					
Staff Housing -C					
Staff Housing -D					
Staff Housing -E					
MBBS College					
SMCPT					
PG HOSTEL					
NURSING HOSTEL					
MBBS HOSTEL					
BIOTECHNOLOGY					
CENTRAL REFERAL HOSPITAL					
INCINARATOR					
ANIMAL HOUSE					
TOTAL	12	6	36	18	122

6.3 Lux Measurement

Description	Lux	Remark
Class Rooms	120 to 235	Acceptable
Offices	130 to 240	Acceptable
Corridors	35 to 90	Acceptable
Washrooms	45 to 76	Acceptable
Outdoor	36 to 95	Acceptable
Computer Lab	150 to 289	Acceptable
Parking area	45 to 94	Acceptable
Canteen	69 to 185	Acceptable

Observation

SMU has implemented LED based lighting solution in the campus. LEDs save energy, the life span is much greater and emit virtually no heat. The University has installed solar lights for street lights in the campus. SMU is doing their bit for the energy conservation.

Table below shows the performance characteristics comparison of all luminaries.

Table - Luminous Performance Characteristics of Commonly Used Luminaries					
Type of Lamp	**Lumens/Watt**		**Colour Rendering Index**	**Typical Application**	**Typical Life**
	Range	**Avg.**			
Incandescent	8-18	14	Excellent (100)	Homes, restaurants, general lighting emergency lighting	1000
Fluorescent lamps	46-60	50	Good w.r.t coating (67-77)	Offices, shops, hospitals, homes	5000
Compact fluorescent Lamps (CFL)	40-70	60	Very Good (85)	Hotels, shops, homes, offices	8000-10000
High pressure mercury (HPMV)	44-57	50	Fair (45)	General lighting in factories, garages,	5000

				car parking. flood lighting	
Halogen lamps	18-24	22	Excellent (100)	Display, flood lightening, stadium exhibition grounds, construction areas	2000 - 4000
High pressure sodium (HPSV) SON	67-121	90	Fair (22)	General lighting in ware houses, factories, street lighting	6000 - 12000
Low pressure sodium (LPSV) SOX	101-175	150	Poor (10)	Roadways, tunnels, canals, street lighting	6000 - 12000
Metal halide lamps	75-125	100	Good (70)	Industrial bays, spot lighting, flood lighting, retail stores	8000
LED Lamps	30-50	40	Good (70)	Reading lights, desk lamps, night lights, spotlights, security lights, signage lights, etc.	40000 - 100000

7. OTHER POWER CONSUMPTION

Sl No.	Location/Identification	50W Exhaust Fan	60W Exhaust Fan	22W Exhaust Fan	35W Exhaust Fan	82W Exhaust Fan	160W Exhaust fan	Water Cooler-200W	180W-Desert Cooler	180W-Circulating Fan	180W-Circulating Fan	2KW Geyser	2.2 KW EX-System	2.2 KW EX-System	7.5 KW EX-System	1.5 KW EX-System	18KW STERLIZER
1	Academic Building		36				12	6									
2	Academic Building F-Block		6						4	16							
3	MSC Building		2	6			4	2									
4	Hostel-1					8		7				2					
5	Hostel-2							8				4					
6	Hostel-3							6									
7	Hostel-4							8				4					
8	Staff Housing New R			36								36					
9	Staff Housing New L			30								30					

10	Staff Housing Old R			36								36					
11	Staff Housing Old L			30								30					
12	Guest House			12													
13	Boys Mess			4			6	4				4	4	2	4	4	
14	Girls Mess			4				2									
15	Sport Complex							2		12				6			
16	Staff Housing -A		16									32					
17	Staff Housing -B		16									36					
18	Staff Housing -C		20									40					
19	Staff Housing -D		20									44					
20	Staff Housing -E		22									32					
21	MBBS College											4					2
22	SMCPT		35														
23	PG HOSTEL		145									145					
24	NURSING HOSTEL		0									92					
25	MBBS HOSTEL		0									201					
26	BIOTECHNOLOGY																
27	CENTRAL REFERAL HOSPITAL	69	116									116					
28	INCINARATOR		2				1										
29	ANIMAL HOUSE		4									1					
	TOTAL	**69**	**440**	**158**	**0**	**8**	**23**	**45**	**4**	**28**	**0**	**889**	**4**	**8**	**4**	**4**	**2**

Observation

There should be regular maintenance schedule of equipment like geyser, water coolers, pumps, etc. in order to increase the efficiency of the appliances.

8. CAPACITOR DETAILS

Sl. No.	Campus	Location/ Identification	Capacity in KVAR
1	SMU	SUBSTATION	125
2	SMIT	Main LT Panel1 Room	100
3	SMIT	Main LT Panel2 Room	100
4	SMIT	Main LT Panel2 Room	200

****** END OF THE REPORT ******

SMU SIKKIM MANIPAL UNIVERSITY

Accredited by NAAC

GREEN AUDIT REPORT

PREPARED BY

EHS ALLIANCE SERVICES

CONTENT

CERTIFICATE

EHS alliance

CERTIFICATE

PRESENTED TO

SIKKIM MANIPAL UNIVERSITY (SMU)

Sikkim Manipal University, 5th Mile, Tadong, Gangtok, 737102

Has been assessed by EHS Alliance Services for the comprehensive study of environmental impacts on institutional working framework to fulfill the requirement of

GREEN AUDIT

The green initiatives carried out by the institution have been verified on the report submitted and was found to be satisfactory.

The efforts taken by the management and the faculty towards environment and sustainability are appreciated and noteworthy.

SIGNATURE

EHS ALLIANCE SERVICES GURGAON

03.08.2022
DATE OF AUDIT

EHS ALLIANCE SERVICES, PLOT A-72, SURYA VIHAR, GURUGRAM, 122001
WWW.EHSALL.IN | BUSINESS@EHSALL.IN | EHSALLIANCE@GMAIL.COM

ACKNOWLEDGEMENT

EHS Alliance Services would like to thank the management of Sikkim Manipal University (SMU), Gangtok for assigning this important work of Green Audit. We appreciate the co-operation to the teams for completion of assessment.

We would like to specially thank ***Lt Gen (Dr) Rajan S Grewal - Vice Chancellor, SMU*** for giving us an opportunity to evaluate the environmental performance of the campus.

We would also like to thank ***Col Manoj Kumar (Retd) - Head Engineering - Infrastructure and Facilities, SMU*** for his continuous support and guidance, without which the completion of the project would not have been possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

We are also thankful to

Prof. (Dr) KS Sherpa - Registrar, SMU

Dr Murlidhar V Pai - Dean, SMIMS

Prof. (Dr) G L Sharma - Director SMIT

Col V S Yadav (Rtd.) - Head General Services, SMU

Col D B Chhetri (Rtd.) - Head Administration, SMIT

Mr. Sebom Mukherjee - Dy. Manager (Housekeeping), SMIT

DISCLAIMER

EHS Alliance Services Audit Team has prepared this report for Sikkim Manipal University (SMU), Gangtok based on input data submitted by the representatives of SMU complemented with the best judgment capacity of the expert team.

While all sensible care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

It is further informed that the conclusions are arrived following best estimates and no representation, warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

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EHS Alliance staff, agents and accreditation bodies have signed individual confidentiality undertakings and will only receive confidential information on a 'need to know' basis.

Signature

LEAD AUDITOR

CONCEPT AND CONTEXT

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory from the academic year 2019–20 onwards that all Higher Educational Institutions should submit an annual Green, Environment and Energy Audit Report. Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India that declares the institutions as Grade A, Grade B or Grade C according to the scores assigned at the time of accreditation. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

In view of the NAAC circular regarding Green auditing, the university management decided to conduct an external environment assessment study by a competent external professional auditor. The green audit aims to examine environmental practices within and outside the SMU campus, which impact directly or indirectly on the atmosphere. Green audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of university/college environment. It was initiated with the intention of reviewing the efforts within the institutions whose exercises can cause risk to the health of inhabitants and the environment.

Through the green audit, a direction as how to improve the structure of environment and inclusion of several factors that can protect the environment can be commenced. This audit focuses on the Green Campus, Waste Management, Water Management, Air Pollution, Energy Management & Carbon Footprint etc. being implemented by the institution. The concepts, structure, objectives, methodology, tools of analysis, objectives of the audit are discussed below.

INTRODUCTION

Now days, the educational institutions are becoming more thoughtful towards the environmental aspects and as a result new and innovative concepts are being introduced to make them sustainable and eco-friendly. To preserve the environment within the institution, a number of viewpoints are applied by the several educational institutes to solve their environmental problems such as promotion of the saving the energy, waste recycle, water consumption reduction, water harvesting and many more...

The activities carried out by the institution can also create adverse environmental impacts. Green audit is defined as an official inspection of the effects a university has on the environment. Green Audit is conducted to evaluate the actual scenario at the institution campus. Green audit can be a useful tool for a college/university to determine how and where they are using the most of the energy or water or resources; the college can then decide how to implement changes and make savings. It can also be used to determine the nature and volume of waste, which can be used for a recycling project or to improve waste minimization plan.

Green auditing and the application of mitigation measures is a win-win situation for all the institutions, the learners and the mother earth. It can also result in health awareness and can promote the environmental awareness, values and beliefs. It provides a better understanding to staff and students about the Green impact on institution. Green auditing also upholds financial savings through reduction of resource usage. It gives an opportunity to the students and teachers for the development of ownership of the personal and social responsibility. The audit process involves primary data collection, site walk through with the team of College/University including the assessment of policies, activities, documents and records.

OVERVIEW OF THE UNIVERSITY

Sikkim Manipal University (SMU) formerly known as Sikkim Manipal University of Health, Medical and Technological Sciences came into existence on November 15, 1992 as a result of the agreement signed between the Government of Sikkim and the Manipal Pai Foundation, with the aim of imparting exemplary education and health care services in the state of Sikkim and country wide.

It is the first ever Public Private Partnership in the country for higher Education and Health Care Services. The University has two campuses: Medical campus and the Technology campus. Government of Sikkim provides a grant of Rs. 2.25 Crores per annum for the hospital against which CRH provides free treatment to BPL families and concessional treatment to other residents of the State.

The University was established in 1995 vide Sikkim Manipal University of Health, Medical and Technological Sciences Act (Act No. 9 of 1995). SMU is recognized by the University Grants Commission under Section 2(f) of the UGC Act, 1956 vide letter No F. 9-7/96(CPP-I) dated 9th Dec 1998 and approved by the Government of India. All courses run by the university are approved by the regulatory bodies like Medical Council of India (MCI), Nursing Council of India, Indian Association of Physiotherapy, All India Council for Technical Education (AICTE) and the Distance Education Council.

The Sikkim Manipal University of Health Medical and Technological Sciences (Amendment) Act No. 13 of 2009 was passed by the Sikkim Legislative Assembly on 12 Dec, 2009 and received the assent of The Governor of Sikkim on the 22nd of January 2010. Vide Notification No. 13/LD/P/2010, Dated: 08/04/2010 of Sikkim Government, Sikkim Manipal University of Health Medical and Technological Sciences was changed to Sikkim Manipal

MISSION | VISION | OBJECTIVES | CORE VALUES

VISION

Global Leadership in Human Development, Excellence in Education and Healthcare.

MISSION

Develop professionals of excellent technical calibre in the field of Health Sciences, Engineering, Management and Social Sciences with a humane approach capable of shouldering the responsibility of building the nation and be globally competent.

OBJECTIVES

- To support, promote and undertake the advancement of academics
- To promote use of ICT and modern education technologies
- To encourage research, creation and dissemination of knowledge
- To facilitate extension and community service
- To empower people of Sikkim and contribute to human development in Northeast
- To create environmental and social responsibilities among students and employees
- To ensure steady growth of the University

CORE VALUES

Integrity and Honesty
We conduct ourselves ethically and legally in all situations upholding stakeholder trust.

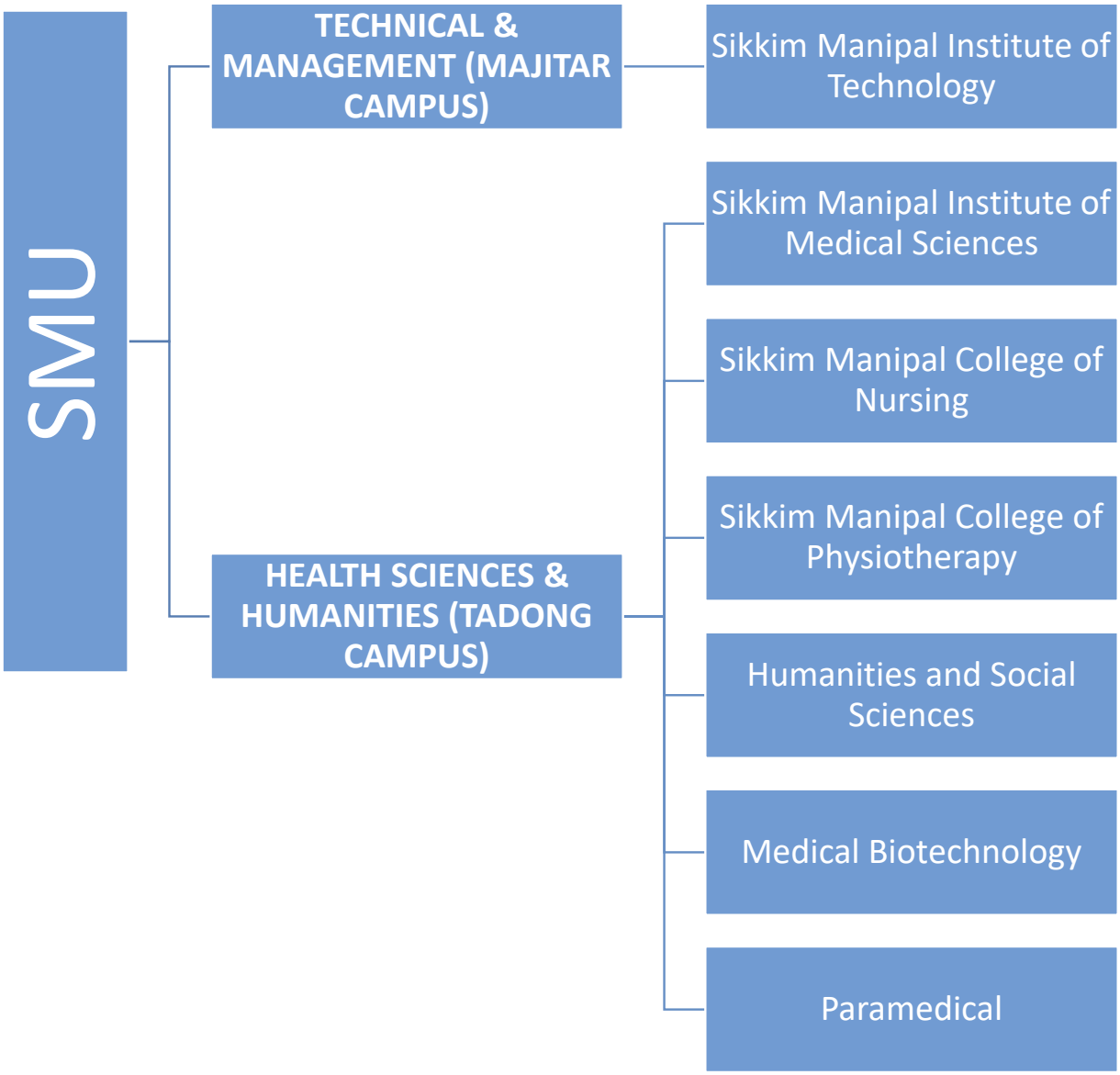
Committed to Teams, Accountable for Results and Passion to Win
We are passionate about winning and hold ourselves accountable to organisational goals. We believe in teamwork and foster a performance driven culture across the organisation.

Achieving Social Impact
We fulfil our responsibility to society, continuously contributing to build a better world.

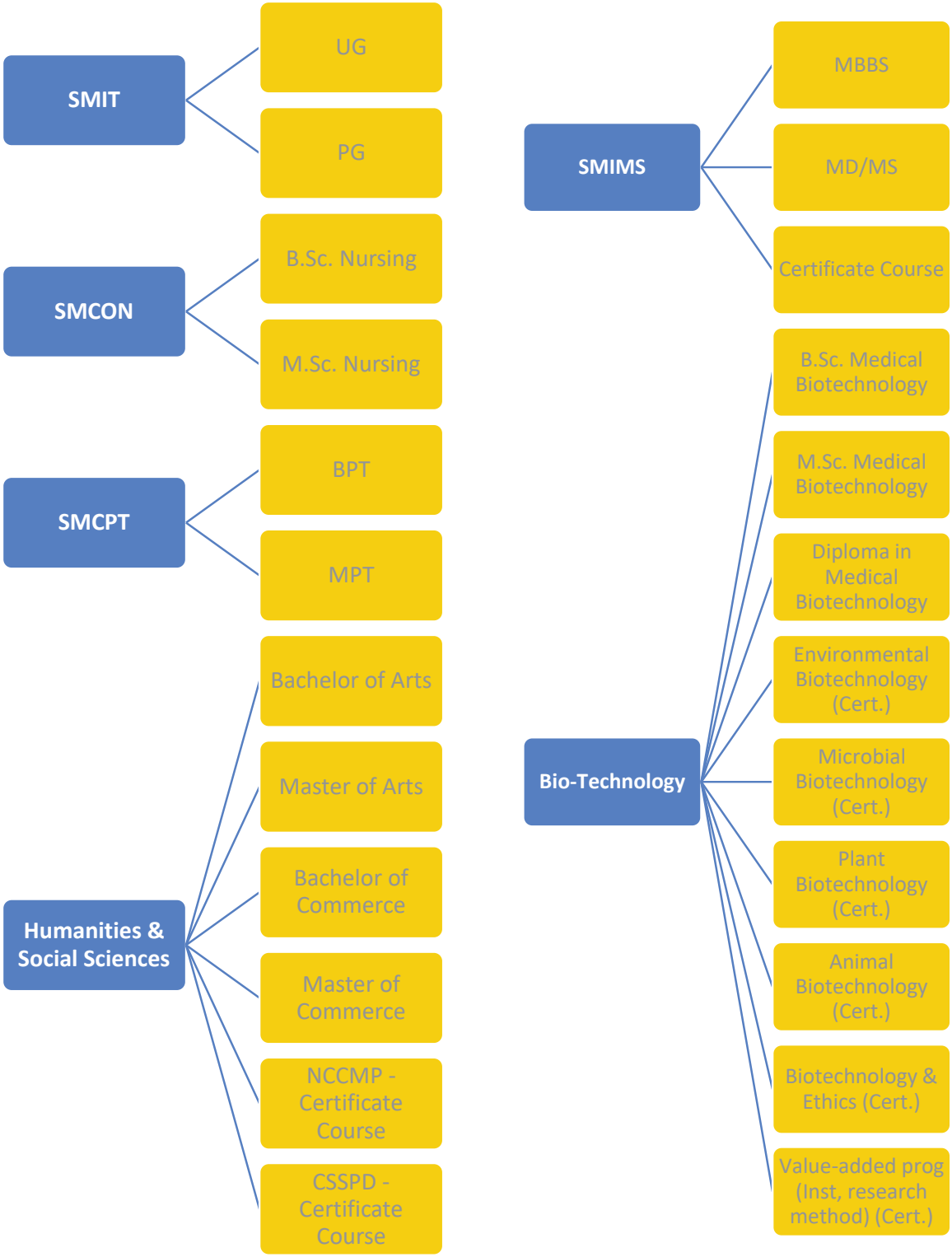
Respect and Fairness
We trust every individual and treat them with dignity, respect and fairness. We practice open and honest communication at all times.

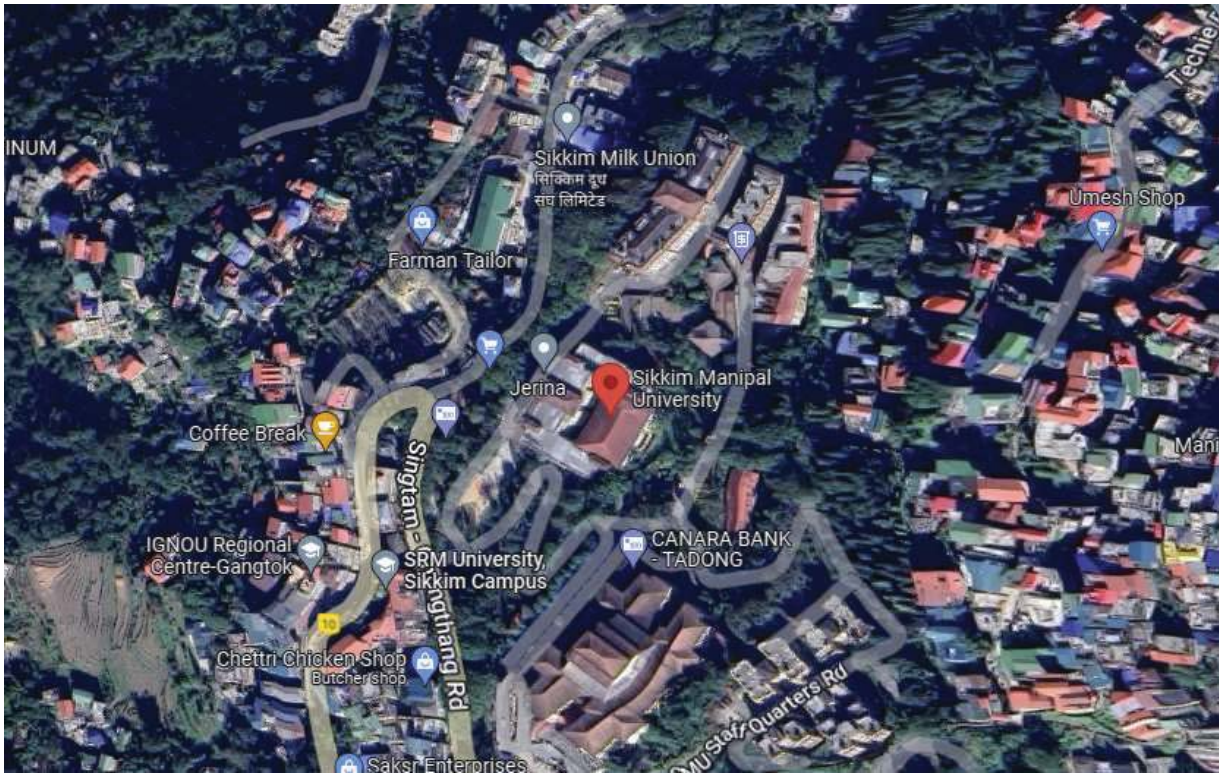
Excellence through Quality, Innovation and Leadership
We are committed to delivering superior programs and academic services through continuous innovation and leadership at all levels.

Below are the details of institutions of SMU


SMU
TECHNICAL & MANAGEMENT (MAJITAR CAMPUS)
Sikkim Manipal Institute of Technology
HEALTH SCIENCES & HUMANITIES (TADONG CAMPUS)
Sikkim Manipal Institute of Medical Sciences
Sikkim Manipal College of Nursing
Sikkim Manipal College of Physiotherapy
Humanities and Social Sciences
Medical Biotechnology
Paramedical

Presently, SMU offers various courses featuring a wide selection of undergraduate, postgraduate and PhD courses. Below are the details of SMU faculties namely:





Geo Location Geo Coordinates from Google maps: 27.3177334, 88.5960472,250

AUDIT PARTICIPANTS

On behalf of SMU

Name	Designation
Lt Gen (Dr) Rajan S Grewal	*Vice Chancellor, SMU*
Prof. (Dr) K S Sherpa	*Registrar, SMU*
Dr Murlidhar V Pai	*Dean, SMIMS*
Prof. (Dr) G L Sharma	*Director SMIT*
Col V S Yadav (Rtd.)	*Head General Services, SMU*
Col Manoj Kumar(Retd)	*Head Engineering - Infrastructure and Facilities, SMU*
Col D B Chhetri (Rtd.)	*Head Administration, SMIT*
Mr. Sebom Mukherjee	*Dy. Manager (Housekeeping), SMIT*

On behalf of EHS Alliance Services

Name	Position	Qualifications
Dr. Uday Pratap	Lead-Auditor	Ph.D. , PDIS, Lead Auditor ISO 14001:2015, QCI – WASH, Field expert
Mr. Shamsher Kharab	Co-Auditor	M.Sc., M.Tech in Environment Sciences, Field Expert, Post Diploma in Industrial Safety Management

EXECUTIVE SUMMARY

Green auditing is an essential step to identify and determine whether the institutions practices are sustainable and ecological. Traditionally, we were upright and efficient users of natural resources. But over the period of time, excessive usage of resources like water, electricity, petrol, etc. have become habitual for everyone especially, in urban and semi-urban areas. It is actually the right time to check if we (our process) are consuming more than required resources? Whether we are using resources sensibly?

Green audit standardizes all such practices and provides an efficient way to use natural resources. In the time of climate change and resource exhaustion it is necessary to re-check the processes and convert it in to green and sustainable. Green audit provides an approach for it. It also increases overall awareness among the individuals working in institution towards the eco-friendly environment.

This is the first attempt to conduct a green audit of the SMU campus for fulfilment of NAAC criteria. This audit was mainly focused on greening indicators like consumption of energy in terms of electricity and fossil fuel, quality of soil, water usage, vegetation, waste management practices and carbon foot print of the campus. Initially a questionnaire was shared to know about the existing resources of the campus and resource consumption pattern of the students and staffs in the SMU.

GREEN AUDIT – ANALYSIS

1.1 GENERAL INFORMATION

1. Does any Green Audit conducted earlier?

Yes, This is first time SMU has gone for External Green Audit in a systematic way of monitoring their environmental eminence.

2. What is the total strength (people count) of the Institute?

Students
Male: 2334 Female: 1639 Total: 3973

Teachers (including guest faculty)
Male: 199 Female: 144 Total: 343

Non-Teaching Staff
Male: 739 Female: 925 Total: 1664

Total Strength
Male: 3272 Female: 2708 Total: 5980

3. What is the total number of working days of your campus in a year?

There are two hundred eighty three (283) working days in a year.

4. Where is the campus located?

The campus is located at 5th Mile Tadong Gangtok, East Sikkim -737102

5. Which of the following are available in your institute?

Garden area	*Available*
Playground	*Available*
Kitchen	*Available*
Toilets	*Available*
Garbage Or Waste Store Yard	*Available*
Laboratory	*Available*
Canteen	*Available*
Hostel Facility	*Available*
Guest House	*Available*

6. Which of the following are found near your institute?

Municipal dump yard	*Not in vicinity of institute*
Garbage heap	*No Garbage heaps*
Public convenience	*Public convenience is available*
Sewer line	*Approximately 4 KM sewer line within campus*
Stagnant water	*No stagnant water*
Open drainage	*No*
Industry – (Mention the type)	*No*
Bus / Railway station	*Pakyong Airport, Gangtok*
Market / Shopping complex	*Available*

1.2 WASTE MINIMIZATION AND RECYCLING

1. Does your institute generate any waste? If so, what are they?

Yes, Solid waste, Canteen waste, paper, plastic, horticulture, hazardous waste, electronic waste, BMW waste, etc.

2. What is the approximate amount of waste generated per day? (in KG approx.)

Biodegradable waste – 300 Kg
Non-biodegradable waste - 100 Kg
Hazardous Waste - 100 Kg (BMW)
E-waste - 2 Kg

3. How is the waste generated in the institute managed? By Composting, Recycling, Reusing, Others (specify)

- *Single use plastic is banned on the campus*
- *Composting is done for horticulture waste management.*
- *Laboratory waste is managed by disposing through Effluent Treatment Plant*
- *SMU using waste packing material as pots for plants*
- *Food waste from canteens and Mess is disposed through piggery etc.*
- *They collect e-waste (computers, mobile, printers, servers, printers) in the campus, and send for recycling.*
- *They recycle used paper on the campus.*
- *Bi-annual one week collection drive is organized by campus.*

4. Do you use recycled paper in institute?

Yes, SMU collaborates with authorized third party recycle vendor for management of the used paper

5. How would you spread the message of recycling to others in the community?

- *Seminars and add-on courses for students and faculty*
- *Nukkar-Natak by Students to increasing awareness*
- *Part of Environment education*
- *Reuse waste paper for poster makings*

6. Can you achieve zero garbage in your institute? If yes, how?

Not yet achieved. SMU is in process to achieve zero garbage. SMU converts the biodegradable garden and kitchen waste into compost. The dry waste is reduced by using digital medium to circulate messages rather than printed paper.

1.3 GREENING THE CAMPUS

1. Is there a garden in your institute?

Yes, about 92,000 Sq meters areas are developed as Gardens.

	Total Area	Built Up Area	Green Cover Area	Open Space	Parking
SMU	86926 sqm	80081 sqm (incl all floors)	40000 sqm	20000 sqm	6000 sqm
SMIT	141359 sqm	111350 sqm (incl all floors)	52000 sqm	600000 sqm	4000 sqm

2. Do students spend time in the garden?

Yes, students spend around 2-4 Hours during winters.

3. Total number of Plants in Campus?

Plant type with approx. count

Full Grown Tree	1270
Semi Grown Tree	700
Hedge plant	72000
Grass cover in sq ft	990280

4. Is the SMU campus having any Horticulture Department? (If yes, give details)

Yes, Total 12 staff deployed in horticulture

5. How many Tree Plantation Drives organized by campus per annum?

- *One Plantation Drive is organized by campus every quarter. In total of 4 plantation drives carried out in last Financial Year 2021-2022. A total 100 plants were planted*
- *Plantation by the distinguished guest during event.*

6. How many trees and plants were planted in last drive? And, what is the survival rate?

Total 100 trees and hedge plants planted in this Financial Year with more than 70% survival rate.

7. Is there any Plant Distribution Program for Students and Community?

- *The SMU has a practice where all guests are given a planter as a gift rather than a bouquet of flowers*
- *Plants donated/planted at Govt Hospitals through NSS Teams on regular basis.*

8. Is there any Plant Ownership Program?

No

1.4 WATER AND WASTEWATER MANAGEMENT

1. List uses of water in your institute

Basic use of water in campus:

***Drinking** – 172.32 KL/month*

***Gardening** – 269.52 Kl/month, SMU uses STP treated water*

***Kitchen and Toilets** – 1135.60 KL/month*

***Hostel** – 4719.60 KL/Month*

***Others** – 481.52 KL/month*

Total = 6778.56 KL/Month

2. How does your institute store water? Are there any water saving techniques followed in your institute?

SMU relies on spring water as a primary source of water and 5 bore wells as a secondary source. 04 Underground Water tanks of 5.50,000 litres, 99 tanks of 10,00,000 litres and reservoir tanks of 17,70,000 litres installed for storage of water.

SMU ensures regular maintenance of water tanks and checking of water quality standards on the campus. The water tanks and water coolers are checked every 3 months, and RO systems are regularly changed.

Saving Techniques

- *SMU ensures that the faucets in the washrooms and water filtration units are checked regularly and do not have any leakages.*
- *SMU has also initiated the installation of auto push taps to reduce water wastage.*

3. Locate the point of entry of water and point of exit of waste water in your institute.

Entry *– SMU uses spring water and have 5 bore wells as a secondary source*

Exit *– From Canteen, Toilets, bathrooms and Hostels through covered drainage which is connected to sewage*

4. Write down ways that could reduce the amount of water used in your institute

Basic ways:

- *Close the taps after usage*
- *Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage*
- *The SMU ensures that the faucets in the washrooms and water filtration units are checked regularly and do not have any leakages.*

1.5 ANIMAL WELFARE

1. List the animals (wild and domestic) found on the campus (dogs, cats, squirrels, birds, insects, etc.)

Approx. 50 Dogs, 40 cats, 50+ Squirrels, 50+ monkeys, 1000+ Birds including butterflies are found in campus. A variety of bird's species and other flora and fauna available, so institute is doing their bit for bio diversity conservation.

2. Does your institute have a Biodiversity Program or a KARUNA CLUB?

*Yes **SMU environment committee** actively participates in activities including feeding the birds, planting fruit based plants for birds, organizes biodiversity awareness campaigns, etc.*

1.6 CARBON FOOTPRINT - EMISSION & ABSORPTION

1. Electricity used per year - CO2 emission from Electricity

(electricity used per year in kWh/1000) x 0.84
4896283 kWh/1000 x 0.84

= 4896283 /1000x0.84
= 4112.88 tons

2. LPG/PNG used per year - CO2 emission from LPG/PNG

(LPG/PNG used per year in kg/1000) x 2.99
18000 kg /1000 x 2.99

=18000/1000 x 2.99
=53.82 tons

3. Diesel used per year - CO2 emission from HSD (Diesel)

(diesel used per year in litre/1000) x 2.68
77713/1000 x 2.68
= 77713 /1000 x 2.68
= 208.27 tons

4. Transportation per year (car) CO2 emission from transportation (Bus and Car)

*SMU has 12 buses and 22 cars which runs on diesel (12*1*2*180/100)*0.01+*
*22*2*2*180/100*0.02*
= 0.43 + 3.17
= 3.60 tons

Total CO2 emission per year cumulative by electricity usage + bus and car transportation (4112.88 + 53.82 + 208.27 + 3.60 = 4378.57 tons)

Carbon absorption by flora in the institution

There are 1270 full grown trees and 700 semi grown trees of different species and approximately 72000 shrubs/hedge plants.

Carbon absorption capacity of one full grown tree 22 kg CO2 Therefore Carbon absorption capacity of 1270 full-grown trees 1270 x 22 kg CO2 =27.94 tons of CO2. The carbon absorption capacity of 700 semi-grown trees is 50% of that of full-grown trees. Hence the carbon absorption 700 x 6.8 kg of CO2 = 4.76 tons of CO2

There are approximately Hedge Plants 72000 of various species being raised in the gardens and grown in the areas where no buildings are built Carbon absorption of bush plants varies widely with their species. Certain bushes absorb very high level of CO2 where as some others absorb very low level of CO2. In the absence of a detailed scientific study, 200g of CO2, absorption is taken per bush (in consultation with Environmental Science specialists). Based on this, total carbon absorption of bushes is 72000 x 200 g = 14.40 tons of CO2

The lawns on the campus have buffalo grass, Mexican grass and indigenous grass species and cover a total area of 990280 sq. ft. Carbon absorption capacity of a 10 sq. ft. area of lawn is 1 g per day Therefore, carbon absorption by lawn area 990280 x 365 x 0.1 g CO2 = 36.15 tons of CO2

Grand total of carbon absorption capacity of the campus is 83.25 tons.

GREEN INITIATIVES BY CAMPUS

- Renewable Energy - Solar power plant of capacity 100 KW is installed on building roof
- Tree Plantation Drives – Four plantation drives were carried out in the current year in the Campus which included 25 plantations in each drive.
- Air Pollution Reduction - Personal Vehicles (Students) are not allowed in the campus to reduce the air pollution
- Solid Waste Management – Waste management is done by composting. There is ban on single plastic use and plastic crockery in the campus.
- SMU Environment Committee – SMU has an environment committee. Below are the highlights of their work on environment consciousness.

Cycle rally promotion to reduce air and noise pollution

Cleanliness drive for Swatchh Bharat Abhiyaan

Outreach programs on mental health and child health programmes

RECOMMENDATIONS

- Solar power plant capacity should be increased so that it fulfil at least 70% of the electricity requirements.
- Water Meter should be installed at every building of institute for monitoring of water consumption per capita.
- Plant distribution program in nearby villages and societies should be initiated periodically.
- SMU should increase drip irrigation to save water in campus
- Flow rate of taps should be checked, it should not be more than 2.5 litres/minute.
- Energy and water saving messages should be displayed at different places in the campus.
- Eco-friendly parameters should be included in the purchase of articles and goods for the SMU campus.
- Arrange training programmes on environmental management system and nature conservation for schools and local people.
- Establish an E-waste collection centre in campus.

CONCLUSION

This audit involved extensive consultation with all the teams, interactions with key personnel on wide range of issues related to Environmental aspects. SMU has Environmental Committee for sustainable use of resources.
Overall 60% of SMU campus is for landscaping. The University is considering the environmental impacts of most of its actions and makes an intensive effort to act in an environmentally responsible manner. Even though the University does perform quite well, the recommendations in this report highlight many ways in which the University can work to improve its actions and become a more sustainable institution.

Few things that are important to initiate includes initiation of drip irrigation and checking of water flow of taps. We also highly recommend for installation of water meters at each building/block and water balancing report

REFERENECE:

- The Environment [Protection] Act – 1986 (Amended 1991) & Rules-1986 (Amended 2010)
- The Petroleum Act: 1934 – The Petroleum Rules: 2002
- The Central Motor Vehicle Act: 1988 (Amended 2011) and The Central Motor Vehicle
- Rules:1989 (Amended in 2005)
- Energy Conservation Act 2010.
- The Water [Prevention & Control Of Pollution] Act – 1974 (Amended 1988) & the Water (Prevention & Control of Pollution) Rules – 1975
- The Air [Prevention & Control Of Pollution] Act – 1981 (Amended 1987) The Air (Prevention & Control of Pollution) Rules – 1982
- The Gas Cylinders Rules – 2016 (Replaces the Gas Cylinder Rules – 1981
- E-waste management rules 2016
- Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)
- The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules, 2008 (Amended 2016)
- The Noise Pollution Regulation & Control rules, 2000 (Amended 2010)
- The Batteries (Management and Handling) rules, 2001 (Amended 2010)
- Relevant Indian Standard Code practices

Transparency of Green Audit Report

Green audit report is one of the useful means of demonstrating an organization's commitment to openness and transparency. If an Organisation believes it has nothing to hide from its stakeholders, then it should feel confident enough to make its green audit reports freely available to those who request them. As a basic rule, green audit reports should be made available to all stakeholders.

ANNEXURE I – PLANTATION DRIVE DETAILS

Campus	Name of Trees	Tree Count
SMIT	Mango tree	40
SMIT	Jack fruits	12
SMIT	Guava	150
SMIT	Litchi	10
SMIT	Teak	200
SMIT	Algeria	44
SMIT	Chinese Pam	6
SMIT	Ashoka tree	100
SMIT	Peepal tree	16
SMIT	Bottel brush	23
SMIT	Swami	12
SMIT	Jacaranda	26
SMIT	Banyan	1
SMIT	Bottle Pam	150
SMIT	Rudraksh	1
SMIT	Barra	2
SMIT	Lampatty	12
SMIT	Kashia sima	15
SMIT	Simal	15
SMU	Pine	240
SMU	Pani Saaj	16
SMU	Chakrashi	10
SMU	Chinese Teak	9
SMU	Malata	26
SMU	Wila Chery	42
SMU	Rudrax	4
SMU	Rubber	3
SMU	Jacarand	12
SMU	Gulmohar	8
SMU	Peepal	53
SMU	Siltimur	2
SMU	Siltimur	2
SMU	Faeto	4
SMU	Katus	3
SMU	Lichi	1

ANNEXURE II – PHOTOGRAPHS OF ENVIRONMENT CONSCIOUSNESS

Well ventilated building structure

Well maintained SMU campus

Indoor plants for air purification

Green Campus

Plantation drive in SMU Campus

Plantation drive in the campus

Active participation by students and staff in Plantation Drive

Plantation by guests

Plantation programme by guests

Poster making campaign by students of SMU

Swatchh Bharat Poster making campaign

Swatchh Bharat Campaign

Active participants by students for Swatchh Baharat Abhiyan

Cleanliness drive in campus

Awareness drive at campus

Active participation by students for awareness drive

Best out of Waste Activities

Artificial nest from waste plastic containers

Smart Classrooms

Classrooms as per NBC guidelines with more than 40% window ratio

Color coded dustbins

Color coded dustbins

Well equiped library

Hi-tech Confrerence room

Water Cooler installed at campus

Push taps installed in water coolers

well equiped computer labs

Spacious and well equiped computer labs

Mess/Canteen on the campus

Wall of fame

Well quiped Gym in campus

Auditorium of SMU

********** END OF THE REPORT **********

SMU SIKKIM MANIPAL UNIVERSITY

Accredited by NAAC

ENVIRONMENT AUDIT REPORT

PREPARED BY

EHS ALLIANCE SERVICES

TABLE OF CONTENT

AUDIT CERTIFICATE

EHS alliance

CERTIFICATE

PRESENTED TO

SIKKIM MANIPAL UNIVERSITY (SMU)

Sikkim Manipal University, 5th Mile, Tadong, Gangtok, 737102

Has been assessed by EHS Alliance Services for the comprehensive study of environmental impacts on institutional working framework to fulfill the requirement of

ENVIRONMENT AUDIT

The environment legal compliances and initiatives carried out by the College have been verified on the report submitted and was found to be satisfactory.

The efforts taken by management and faculty towards environment and sustainability are highly appreciated and noteworthy.

EHS ALLIANCE SERVICES GURGAON

SIGNATURE

03.08.2022
DATE OF AUDIT

EHS ALLIANCE SERVICES, PLOT A-72, SURYA VIHAR, GURUGRAM, 122001
WWW.EHSALL.IN | BUSINESS@EHSALL.IN | EHSALLIANCE@GMAIL.COM

ACKNOWLEDGEMENT

EHS Alliance Services would like to thank the management of Sikkim Manipal University (SMU), Gangtok for assigning this important work of Environment Audit. We appreciate the co-operation of the teams in the completion of the assessment.

We would like to especially thank ***Lt Gen (Dr) Rajan S Grewal - Vice Chancellor, SMU*** for giving us an opportunity to evaluate the environmental performance of the campus.

We would also like to *thank* ***Col Manoj Kumar(Retd) - Head Engineering - Infrastructure and Facilities, SMU,*** for his Continuous Support and guidance, without which the completion of the project would not have been possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

We are also thankful to

Prof. (Dr) KS Sherpa - *Registrar, SMU*

Dr Murlidhar V Pai - *Dean, SMIMS*

Prof. (Dr) G L Sharma - *Director SMIT*

Col V S Yadav (Rtd.) - *Head General Services, SMU*

Col D B Chhetri (Rtd.) - *Head Administration, SMIT*

Mr. Sebom Mukherjee - *Dy. Manager (Housekeeping), SMIT*

DISCLAIMER

EHS Alliance Services Audit Team has prepared this report SMU based on input data submitted by the representatives of University complemented with the best judgment capacity of the expert team.

While all sensible care has been taken in its preparation, details contained in this report have been compiled in good faith based on the information gathered.

It is further informed that the conclusions have arrived following best estimates and no representation, warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

If you wish to distribute copies of this report external to your organisation, then all pages must be included.

EHS Alliance, its staff and agents shall keep confidential all information relating to your organisation and shall not disclose any such information to any third party, except that in the public domain or required by law or relevant accreditation bodies.

EHS Alliance staff, agents and accreditation bodies have signed individual confidentiality undertakings and will only receive confidential information on a 'need to know' basis.

Signature

LEAD AUDITOR

CONCEPT AND CONTEXT

In India, the process for environmental audit was first mentioned under the Environment Protection Act, 1986 by the Ministry of Environment of forests on 13th March, 1992. As per this act, every person owning an industry or performing an operation or process needs legal consent and must submit an environmental report or statement.

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory from the academic year 2019–20 onwards that all Higher Educational Institutions should submit an annual Green, Environment and Energy Audit Report. Moreover, it is part of the Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards a sustainable environment.

In view of the NAAC circular regarding environment auditing, the University management decided to conduct an external environment assessment study by a competent external professional auditor.

The term 'Environmental audit' means differently to different people. Terms like 'assessment', 'survey' and 'review' are also used to describe similar activities. Furthermore, some organizations believe that an 'environmental audit' addresses only environmental matters, whereas others use the term to mean an audit of health, safety and environment-related matters. Although there is no universal definition of Environment Audit, many leading companies/institutions follow the basic philosophy and approach summarized by the broad definition adopted by the International Chambers of Commerce (ICC) in its publication of Environmental Auditing (1989).

The ICC defines Environmental Auditing as:

"A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing intending to safeguard the environment and natural resources in its operations/projects."

This audit focuses on the environment legal compliances and implementation of rules defined by MoEFCC or the state pollution control board. The concepts, structure, objectives, methodology, tools of analysis and objectives of the audit are discussed below.

INTRODUCTION

Nature is a very precious gift for all life forms. Disturbance in nature causes environmental Problems. These are increasing day by day as a result of the development of urbanization and industrialization on earth. Because of the unplanned utilization of resources, our planet is facing tremendous pressure results a sharp rise in temperature. Therefore, there is an urgent need to plan the consumption of the resources in a sustainable manner to conserve natural resources for future generations.

Sustainable development is becoming popular in the world for saving the earth. Utilizing resources judicially can save the earth's precious resources. Measurement of environmental components is the most effective step to conserving and protecting natural resources.

Environmental auditing had begun in the early 1970s with the provision of civil lawsuits for non-compliance with environmental regulations. Environment auditing involves on-site visits, collection of samples, performing analyses, and reporting results to competent authorities.

Industry, the corporate world is initiating auditing for saving natural resources. Academic institutions also can contribute to the preservation and conservation of resources within their premises.

In thin "Environment Audit" report would help everyone to think about preserving resources, show a willingness to learn their importance, adopt steps to minimize resource use and set an example for others to follow the path of eco-friendly practices to achieve the goal of sustainable development. Effective implementation of environmental auditing helps in minimization of environmental risks at a low cost.

OVERVIEW OF THE UNIVERSITY

Sikkim Manipal University (SMU) formerly known as Sikkim Manipal University of Health, Medical and Technological Sciences came into existence on November 15, 1992 as a result of the agreement signed between the Government of Sikkim and the Manipal Pai Foundation, with the aim of imparting exemplary education and health care services in the state of Sikkim and country wide.

It is the first ever Public Private Partnership in the country for higher Education and Health Care Services. The University has two campuses: Medical campus and the Technology campus. Government of Sikkim provides a grant of Rs. 2.25 Crores per annum for the hospital against which CRH provides free treatment to BPL families and concessional treatment to other residents of the State.

The University was established in 1995 vide Sikkim Manipal University of Health, Medical and Technological Sciences Act (Act No. 9 of 1995). SMU is recognized by the University Grants Commission under Section 2(f) of the UGC Act, 1956 vide letter No F. 9-7/96(CPP-I) dated 9th Dec 1998 and approved by the Government of India. All courses run by the university are approved by the regulatory bodies like Medical Council of India (MCI), Nursing Council of India, Indian Association of Physiotherapy, All India Council for Technical Education (AICTE) and the Distance Education Council.

The Sikkim Manipal University of Health Medical and Technological Sciences (Amendment) Act No. 13 of 2009 was passed by the Sikkim Legislative Assembly on 12 Dec, 2009 and received the assent of The Governor of Sikkim on the 22nd of January 2010. Vide Notification No. 13/LD/P/2010, Dated: 08/04/2010 of Sikkim Government, Sikkim Manipal University of Health Medical and Technological Sciences was changed to Sikkim Manipal

MISSION | VISION | OBJECTIVES | CORE VALUES

VISION

Global Leadership in Human Development, Excellence in Education and Healthcare.

MISSION

Develop professionals of excellent technical calibre in the field of Health Sciences, Engineering, Management and Social Sciences with a humane approach capable of shouldering the responsibility of building the nation and be globally competent.

OBJECTIVES

- To support, promote and undertake the advancement of academics
- To promote use of ICT and modern education technologies
- To encourage research, creation and dissemination of knowledge
- To facilitate extension and community service
- To empower people of Sikkim and contribute to human development in Northeast
- To create environmental and social responsibilities among students and employees
- To ensure steady growth of the University

CORE VALUES

Integrity and Honesty
We conduct ourselves ethically and legally in all situations upholding stakeholder trust.

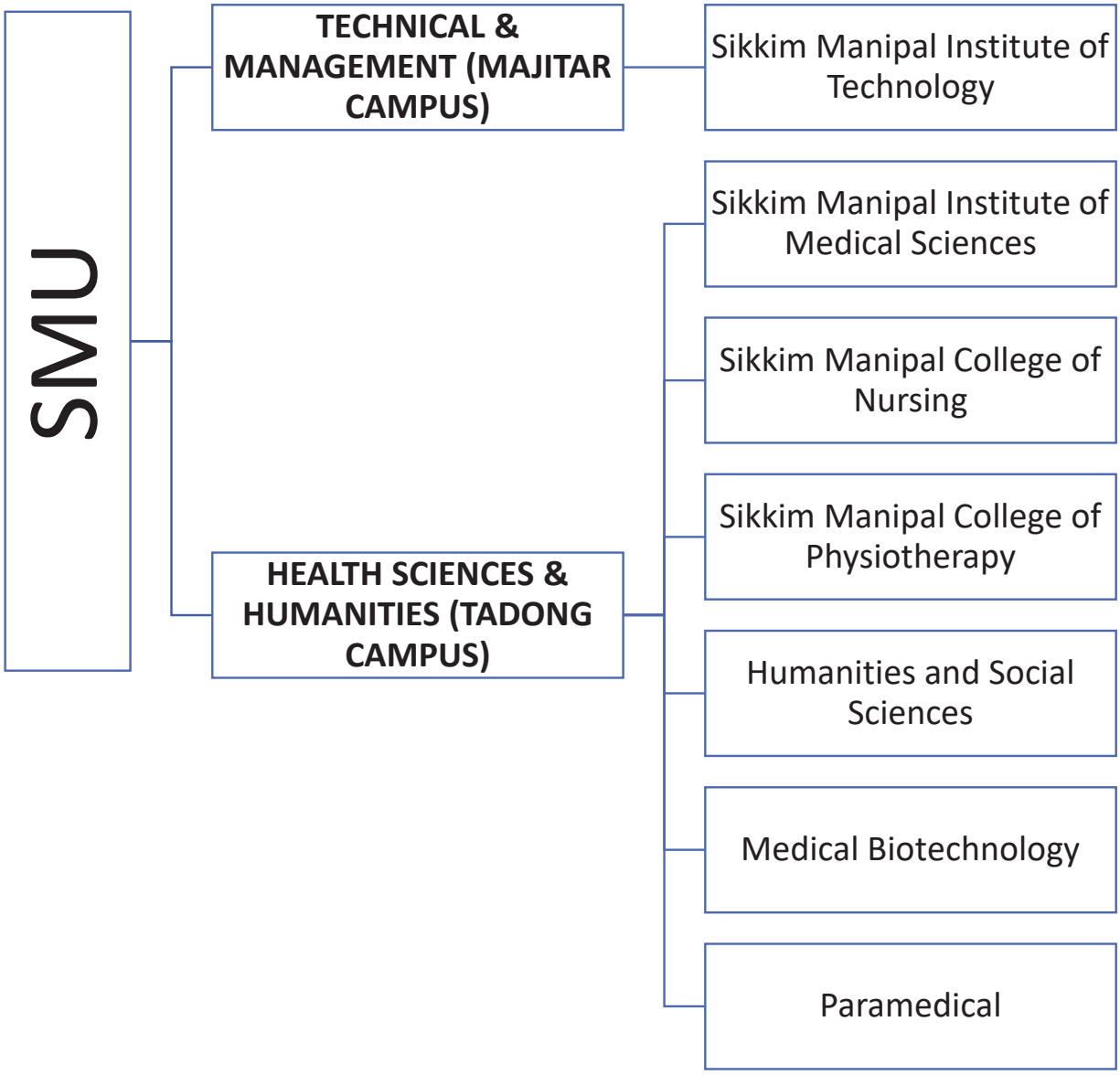
Committed to Teams, Accountable for Results and Passion to Win
We are passionate about winning and hold ourselves accountable to organisational goals. We believe in teamwork and foster a performance driven culture across the organisation.

Achieving Social Impact
We fulfil our responsibility to society, continuously contributing to build a better world.

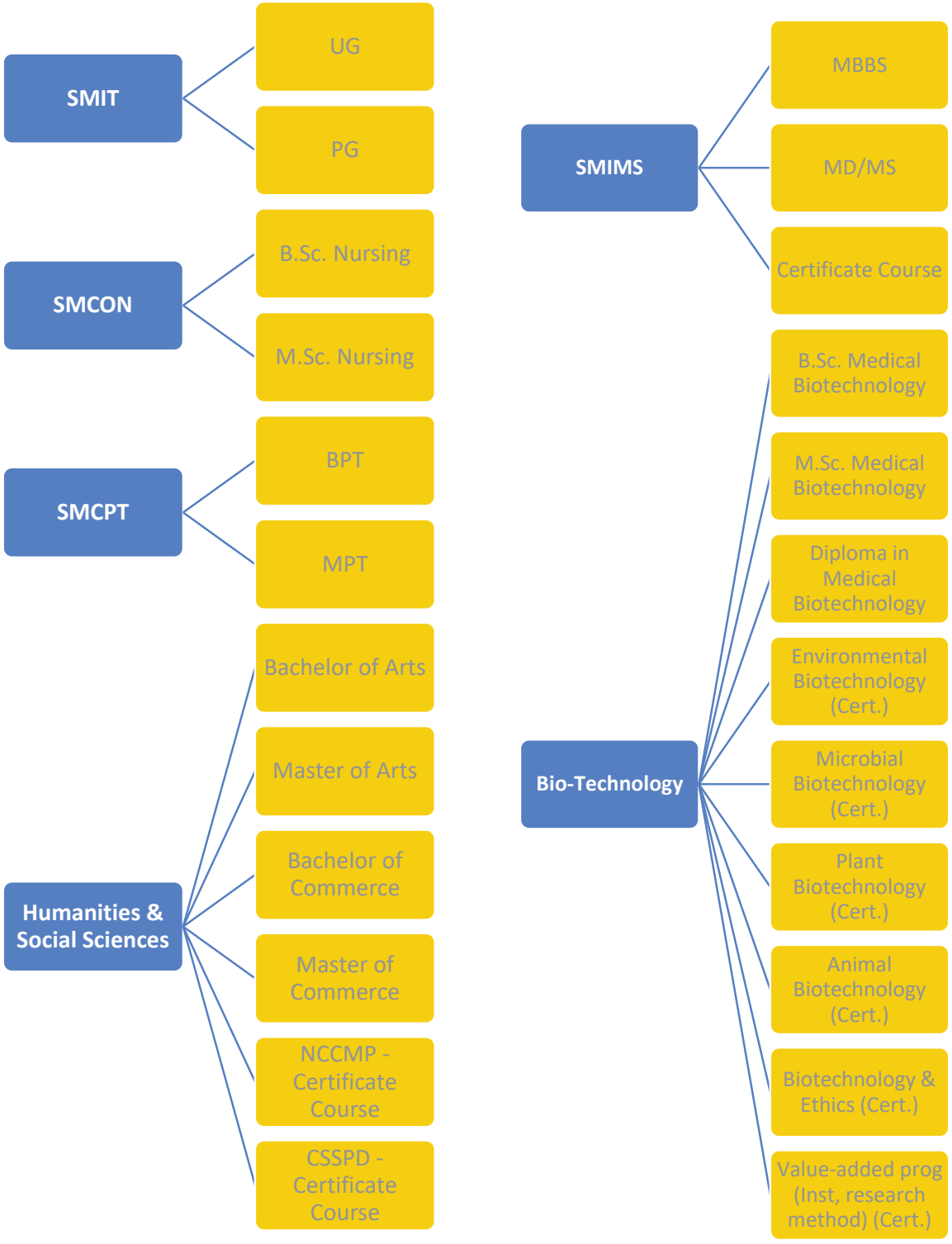
Respect and Fairness
We trust every individual and treat them with dignity, respect and fairness. We practice open and honest communication at all times.

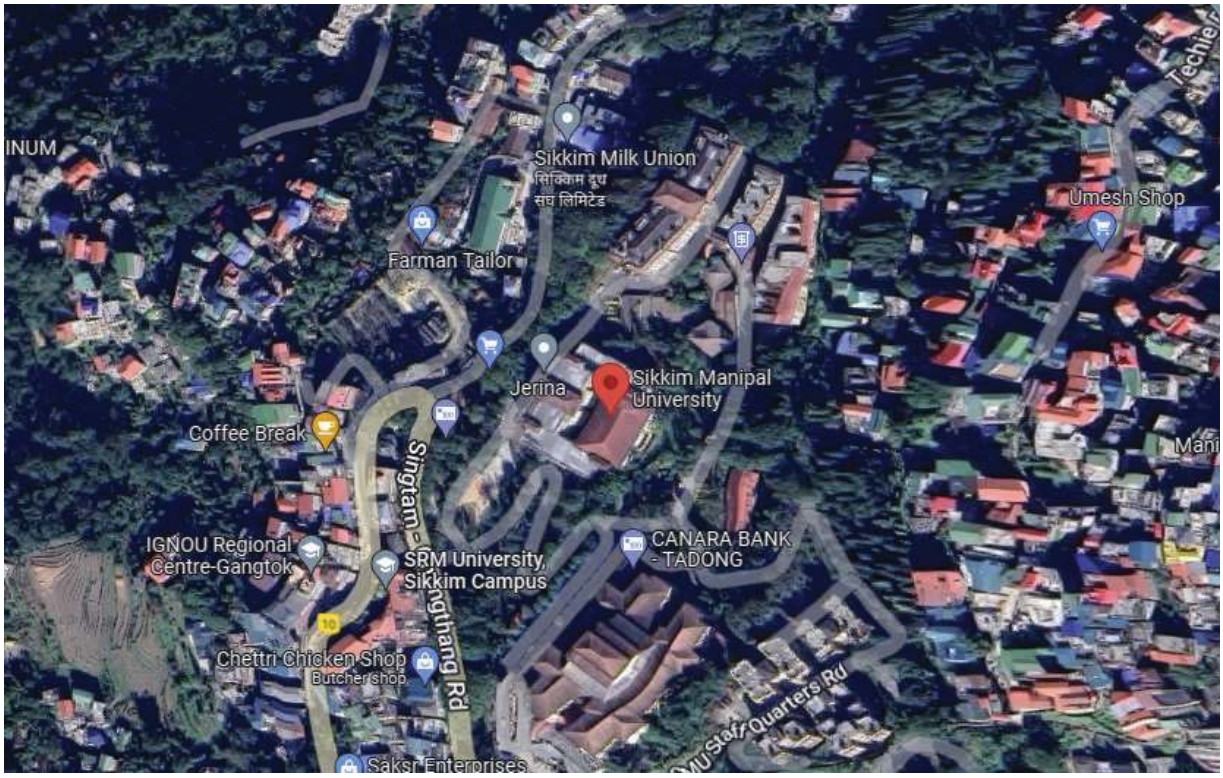
Excellence through Quality, Innovation and Leadership
We are committed to delivering superior programs and academic services through continuous innovation and leadership at all levels.

Below are the details of institutions of SMU


SMU
TECHNICAL & MANAGEMENT (MAJITAR CAMPUS)
Sikkim Manipal Institute of Technology
HEALTH SCIENCES & HUMANITIES (TADONG CAMPUS)
Sikkim Manipal Institute of Medical Sciences
Sikkim Manipal College of Nursing
Sikkim Manipal College of Physiotherapy
Humanities and Social Sciences
Medical Biotechnology
Paramedical

Presently, SMU offers various courses featuring a wide selection of undergraduate, postgraduate and PhD courses. Below are the details of SMU faculties namely:





Geo Location Geo Coordinates from Google maps: 27.3177334, 88.5960472

AUDIT PARTICIPANTS

On behalf of SMU

Name	Designation
Lt Gen (Dr) Rajan S Grewal	*Vice Chancellor, SMU*
Prof. (Dr) KS Sherpa	*Registrar, SMU*
Dr Murlidhar V Pai	*Dean, SMIMS*
Prof. (Dr) G L Sharma	*Director SMIT*
Col V S Yadav (Rtd.)	*Head General Services, SMU*
Col Manoj Kumar(Retd)	*Head Engineering - Infrastructure and Facilities, SMU*
Col D B Chhetri (Rtd.)	*Head Administration, SMIT*
Mr. Sebom Mukherjee	*Dy. Manager (Housekeeping), SMIT*

On behalf of EHS Alliance Services

Name	Position	Qualifications
Dr. Uday Pratap	*Lead-Auditor*	*Ph.D. , PDIS, QCI – WASH, Lead Auditor ISO 14001:2015*
Mr. Shamsher Kharab	*Co-Auditor*	*M.Sc., M.Tech in Environment Sciences, Field Expert, Post Diploma in Industrial Safety Management*

EXECUTIVE SUMMARY

The environment audit is a snapshot in time, in which one assesses campus performance in complying with applicable environmental laws and regulations. Though a helpful benchmark, the audit almost immediately becomes out-dated unless there is some mechanism in place to continue the effort of monitoring environmental compliance. Our approach to promote a Green Campus to inculcate the sustainable value systems among the students, so that they carry the learning and practices them in their future endeavours. This will ensure that Sustainability and Environmental practices get embedded in all the institutions and organizations in the country.

A Green Campus is a place where environmentally friendly practices and education combine to promote sustainability in the campus which ultimately offers an institution the opportunity to take the lead in redefining its environmental culture and developing new paradigms by creating sustainable solutions to environmental, social and economic needs of the mankind.

This is second environment audit of University for doing their bit towards environmental protection and environmental awareness at local and global front. Audit criterion is environmental cognizance, waste minimization and management, biodiversity conservation, water conservation, energy conservation and environmental legislative compliance by the campus. A questionnaire is used during audit. This audit report contains observations and recommendations for improvement of environmental consciousness.

WASTE MANAGEMENT

TYPES OF WASTE ON UNIVERSITY CAMPUS

To create effective waste management plans, the university first needs to know the types of waste they produce. Below, we have compiled a list of various kinds of waste commonly generated on institutional campus:

1. **Food Waste** - University campus generates food waste. The average mess and canteen generate approximately 20 kg of food waste a day. The reasons for food waste on an educational campus may be over-purchasing food to ensure a sufficient supply and then throwing it away, especially in all hostel messes where plentiful stores are essential. And in the cafeteria or hostel mess, students may pile food onto their ample trays, find it unappealing once they sit down and dutifully scrape it into the garbage. Immediate attention is given to food waste minimization techniques.

2. **Recyclable Paper, Cardboard, Plastic, Glass and Cans** -Campus tends to produce vast quantities of these recyclables. Even in the digital age, many students, professors and staff members still prefer handwritten notes and end up with piles of unwanted paper once their courses and projects are complete. The snacks so essential to late-night studying or socializing tend to come in recyclable plastic, glass or aluminium containers. And shipments of necessary items throughout the year are likely to arrive in recyclable plastic and cardboard packaging. The same is sold/auctioned to the scrap vendors from time to time.

3. **Student Clothes and Housewares** - As we have mentioned above, many students find it more convenient to throw away their clothes and dorm furnishings at the end of the year than donate or recycle them.

4. **E-Waste - Student and facility electronics often form a large portion of a campus's waste** — As campus continually upgrade their computing facilities and office computers to keep up with the latest technology, the old computers have to go somewhere. So do old printers, phones, copy machines and other electronics that receive upgrades over the years. Discarded student electronics often become part of a University's waste stream as well. Students may throw away old phones, TVs, tablets, laptops and printers, along with cords and other accessories. Recycling is a much more eco-friendly option — the metals in old electronics often have a high reuse value. The University has tie-up with external authorised agency details mentioned in legislation compliances.

5. **Chemical Waste -** Chemical waste on a university campus may come from numerous sources. Campus laboratories generate waste chemicals, as do cleaning services. The detergents used in campus laundry rooms eventually become waste as well. Much of these chemical substances are hazardous waste under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and must undergo specific disposal processes according to state environmental rules and regulations.

6. **Maintenance Waste -** In the maintenance department, spent paints, solvents, adhesives and lubricants all form potentially hazardous waste. Because they are difficult to recycle, spent incandescent light bulbs usually become landfill waste. Spent fluorescent light bulbs, which contain small amounts of mercury, typically require special handling because of the environmental and health risks they pose.

7. **Biological Waste** - Biological waste from laboratories and campus medical centres will require special handling and disposal as per BMW Rules, 2016. Tissue from biology and cadaver labs forms biological waste, as do tissue samples, contaminated bandages and used sharps from medical facilities

8. **Furniture** - Furniture waste on a University campus has a couple different sources. The campus itself may also get rid of old furniture as it modernizes its classrooms, cafeterias, computer labs and study spaces. Annually sold to junk dealer.

9. **Books/Magazines/Newspapers -** Books accounted for solid waste generation and University often generate tons of textbook waste. As courses upgrade to new editions, they may end up throwing their newly obsolete textbooks into the garbage if donation programs cannot use them. Students of SMU donates their text books and notes to junior students, or else are auctioned to reseller.

10. **C & D Waste -** Due to expansion of University campus building and renovation works result significant amount of construction and demolition waste that should be either used for back filling or disposed off through authorised dumping site by CPCB/SPCB.

11. **Solid Waste -** The University is managing solid waste by providing it to the Municipal Authority.

12. **Horticulture Waste** – University campus has lavish greenery and grounds that results significant horticulture waste which is managed by in-house composting system.

ENERGY CONSERVATION

1. **List ten ways that you use energy in your institute. (Electricity, LPG, firewood, others). Using this list, try to think of ways that you could use less energy every day.**

- *SMU uses electricity for Lights, fans, computers, smart boards, AC, etc.*
- *Electricity is mainly used in the classrooms, offices, staff room, library, seminar room, hostel, canteen, etc.*
- *SMU uses solar energy For street lights*
- *SMU use solar water heater in kitchens and hostels*
- *LPG is used for cooking purpose in canteen and hostel mess.*

2. **Are there any energy-saving methods employed in your institute? If yes, please specify. If no, suggest some**

Yes, SMU has adopted energy-saving techniques

- *Renewable source of energy through 100 KW solar panel is operational*
- *Solar heaters are installed for the hostel and mess*
- *LED lights have been installed in the campus*
- *Switch off fans and lights when not in use*
- *Switch off bulbs/LEDs in the well-lighted rooms during sunny afternoons.*
- *Various energy conservation awareness programs for students and staff*
- *Keep the computers and ACs in power-saving mode.*

3. **How many CFL/LED bulbs have your institute installed?**

SMU has replaced 70% conventional bulbs and tube lights with 18W LED Lights.

4. **Do you run "switch off" drills at the institute?**

Yes

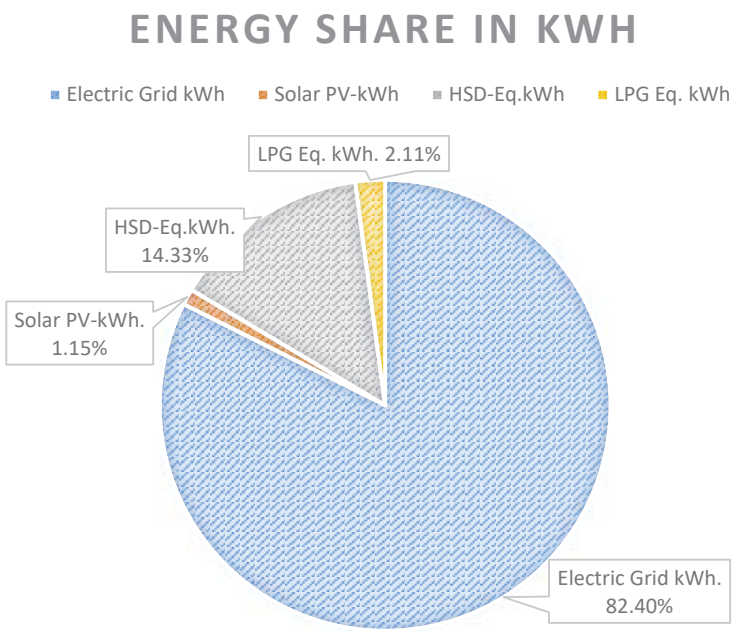
5. **Are your computers and other equipment put in power-saving mode?**

Yes, SMU put the equipment on power-saving mode

6. **Does your machinery (TV, AC, Computer, weighing balance, printers, etc.) run on standby modes most of the time? If yes, how many hours?**

Yes, approx. 6 hours

Energy Share	kWh	Percentage
Electric Grid kWh	4896283.00	82%
Solar PV-kWh	68530.00	1%
HSD-Eq.kWh	851734.48	14%
LPG Eq. kWh	125640.00	2%
Total -kWh	5942187.48	100%



SOLAR PV DETAILS

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
4,564	4,905	4,900	5,500	6,739	6,050	5,800	4,860	6,950	6,930	5,730	5,602	**68530**

WATER AND WASTE-WATER MANAGEMENT

1. List uses of water in your institute

Basic use of water in campus:

Drinking – 172.32 KL/month

Gardening – 269.52 Kl/month, SMU uses STP treated water

Kitchen and Toilets – 1135.60 KL/month

Hostel – 4719.60 KL/Month

Others – 481.52 KL/month

Total = 6778.56 KL/Month

2 How does your institute store water? Are there any water saving techniques followed in your institute?

SMU relies on spring water as a primary source of water and 5 bore wells as a secondary source. 04 Underground Water tanks of 5.50,000 litres, 99 tanks of 10,00,000 litres and reservoir tanks of 17,70,000 litres installed for storage of water. SMU ensures regular maintenance of water tanks and checking of water quality standards on the campus. The water tanks and water coolers are checked every 3 months, and water purification systems are regularly changed.

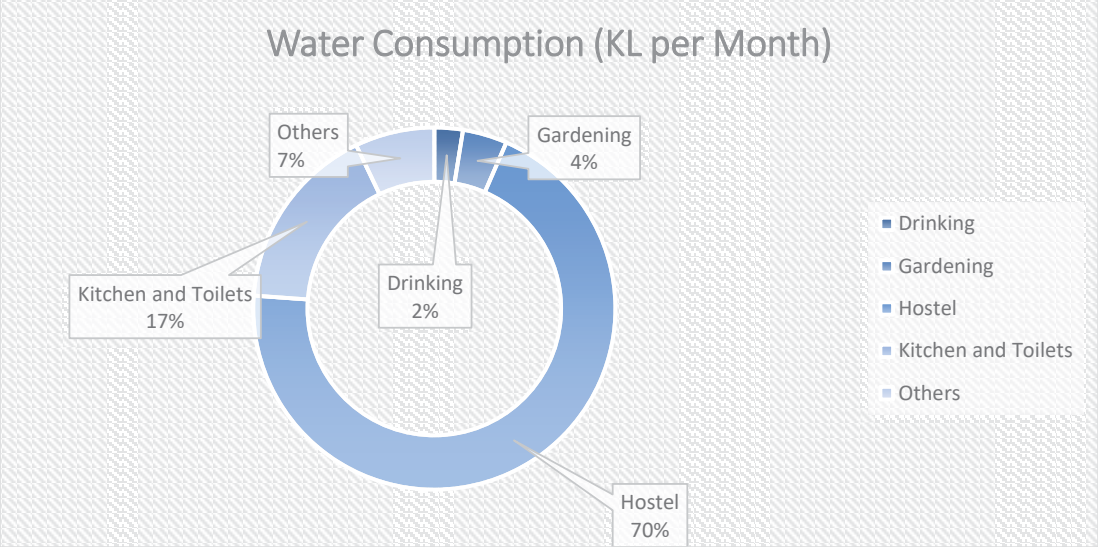
Saving Techniques

- *SMU ensures that the faucets in the washrooms and water filtration units are checked regularly and do not have any leakages.*
- *SMU has also initiated the installation of auto push taps to reduce water wastage.*

3. Locate the point of entry of water and point of exit of wastewater in your institute. (Entry and Exit)

Entry – SMU uses spring water and have 5 bore wells as a secondary source

Exit- From Canteen, Toilets, bathrooms, Hostels and Labs through covered drainage which is connected to a sewage



4. Write down ways that could reduce the amount of water used in your institute

Basic ways:

- *Close the taps after usage*
- *Maintenance and monitoring of valves in the supply system to avoid overflow, leakage and spillage*
- *SMU ensures that the faucets in the washrooms and water filtration units are checked regularly and do not have any leakages.*
- *SMU has initiated the installation of auto push taps to reduce water wastage.*

5. Does your institute harvest rainwater?

Yes, campus has rainwater storage tanks of capacity 40,000 litres

6. Is there any water recycling System?

Yes, there are fully functional STP (480 KLD) ETP (15 KLD) on the campus

Zero liquid discharge (ZLD) is a strategic wastewater management system that ensures that there will be no discharge of industrial wastewater into the environment. It is achieved by treating wastewater through recycling and then recovery and reuse for flushing, gardening, Dg cooling and housekeeping purpose. 480 KLD STP and 15KLD ETP installed and functional in Campus as per Environment Clearance from State Pollution Control Board. The flow diagram of STP is given below:

480 KLD STP : SMIT MAJITAR

15KLD ETP: TADONG CAMPUS

BIO DIVERSITY

Promoting biodiversity at the university campus provides students with educational, hands-on opportunities to make positive environmental impacts. Hanging birdhouses, planting wildflower gardens, and expanding recycling programs run by SMU management and students inside the premises as well as in adopted local villages. Birds and Squirrels are commonly found on campus. A variety of bird species and other flora and fauna are available but these are not harmful to humans so institute doing their bit

for its conservation. Approx. 50 Dogs, 40 cats, 50+ Squirrels, 50+ monkeys, 1000+ Birds including butterflies are found in campus. A variety of bird's species and other flora and fauna available, so institute is doing their bit for bio diversity conservation.

AIR QUALITY MANAGEMENT

1. Are the Rooms in Campus Well Ventilated?

Yes, as per National Building Code, guidelines

2. Window Floor ratio of the Rooms?

Very Good, ample daylight utilization because of big windows.

3. What is the ownership of the vehicles used by your campus?

SMU has 12 buses and 22 cars and others. All the vehicles runs on diesel.

4. Provide details of Institute-owned vehicles?

Details of University-owned vehicles	*Buses*	*Cars*	*Vans*	*Other*	*Total*
No. of vehicles - Diesel	*12*	*22*	*0*	*0*	*34*

5. Is the PUC of the campus vehicles done?

Yes

6. Specify the type of fuel used by your campus's vehicles

Diesel – 34
Petrol/CNG – 0
Electric – 0

8. Air Quality Monitoring Program (If, Any)

No

Air Pollution Mitigation The campus encourages the students to use public transport. There is no vehicle movement is allowed within the campus, except for goods and service movement periodically. The parking of staff vehicles is allowed at a designated space within the campus. Hence, air pollution due to vehicular movement is negligible. Paved roads and vegetation help in reducing dust pollution to a large extent Burning of waste within the campus is strictly banned.

ENVIRONMENT LEGISLATIVE COMPLIANCE

1. Are you aware of any environmental Laws About different aspects of environmental management?

Yes, To promote environment management on the campus, the university follows certain laws related to RRR such as e-waste Management and Handling Rules 2011, Plastic Waste Management Rules, 2016, Solid Waste Management Rules 2016, and more

2. Does your institute have any rules to protect the environment? List possible Rules you could include.

Yes, the environment committee of SMU is conscious of environment protection and takes proper measures in terms of awareness campaigns, activities, webinars, seminars, etc.

3. Does Environmental Ambient Air Quality Monitoring conducted by the Institute?

No

4. Does Environmental Water and Wastewater Quality monitoring conducted by the Institute?

No

5. Does stack monitoring of DG sets conducted by the Institute?

Yes, half yearly monitoring is done by the NABL approved Laboratory

6. Is any warning notice, letter issued by state government bodies?

No

7. Does any Hazardous waste generated by the Institute?

Yes, it is being disposed though the ETP and incinerator.

INCINERATOR: TADONG CAMPUS

GENERAL INFORMATION

1. Does your institute have any rules to protect the environment? List possible rules you could include.

Yes, SMU committee carries out a number of workshops, campaigns, and awareness programmes for environment protection in campus.

2. Are students and faculties aware of environmental cleanliness ways? If Yes Explain

SMU conducts various campaigns for cleanliness and awareness on Swachh Bharat Abhiyaan.

3. Does Important Days Like World Environment Day, Earth Day, and Ozone Day etc. eminent in Campus?

Yes, World Environment Day, Ozone Day, Earth Day, Earth Hour and more are celebrated on campus. Various plantation drives of native plants, etc. are organised time to time.

4. Does Institute participate in the National and Local Environmental Protection Movement?

Yes, SMU is actively participating in environment protection movements like Swatch Bharat Abhiyan by students at the campus

5. Does Institute have any Recognition or certification for environment friendliness?

Yes. SMU has received recognitions and certifications like a Certificate of Participation from 'Fit India' for successfully participating in 'World Cycle Day Celebration' on 3rd June, 2022

7. Does Institution conduct a green or environmental audit of its campus?

This is the second external audit carried out by the University.

8. Has the institution been audited /accredited by any other agency such as NABL, NABET, TQPM, NAAC etc.?

Yes, University is accredited by NAAC, NABH and NABL

RECOMMENDATIONS AND SUGGESTIONS

- Green building guidelines with ECBC compliance should be adopted for future expansion projects of the University.
- Increase recycling education on campus by conducting webinars and campaigns
- Expand work with community and nongovernmental organizations to assist in finding solutions to environmental problems.
- Environmental Monitoring i.e. (Ambient Air Quality monitoring and Stack Monitoring of DG sets need to be conducted by State Pollution Control Board, approved laboratory) should be conducted periodically.
- Agreement with third party authorised vendors should be done for different types of waste management, such as e-waste, BMW, Plastic waste, etc.
- Environmental parameters should be included in purchase policy to achieve cradle to grave approach for sustainability.

CONCLUSION

This audit involved extensive consultation with all the campus team, interactions with key personnel on wide range of issues related to environmental aspects. The University is devoted to promote the environment management and conservation in the campus and community. The audit has identified some suggestions for making the campus premise more environment friendly. The recommendations and suggestions are mentioned for university campus team to initiate actions.

The audit team opines that the overall site is well-maintained from environmental perspective. Still there are few things that are important to initiate which includes periodic inspection of buildings to increase the energy efficiency.

Even though the University does perform fairly well, the recommendations in this report highlight many ways in which the University can work to improve its actions and become a more sustainable institution.

REFERENCES

- **The Environment [Protection] Act – 1986 (Amended 1991) & Rules-1986 (Amended 2010)**
- **The Petroleum Act: 1934 – The Petroleum Rules: 2002**
- **The Central Motor Vehicle Act: 1988 (Amended 2011) and The Central Motor Vehicle Rules:1989 (Amended in 2005)**
- **Energy Conservation Act 2010.**
- **The Water [Prevention & Control Of Pollution] Act – 1974 (Amended 1988) & the Water (Prevention & Control of Pollution) Rules – 1975**
- **The Air [Prevention & Control Of Pollution] Act – 1981 (Amended 1987) The Air (Prevention & Control of Pollution) Rules – 1982**
- **The Gas Cylinders Rules – 2016 (Replaces the Gas Cylinder Rules – 1981**
- **E-waste management rules 2016**
- **Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)**
- **The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules, 2008 (Amended 2016)**
- **The Noise Pollution Regulation & Control rules, 2000 (Amended 2010)**
- **The Batteries (Management and Handling) rules, 2001 (Amended 2010)**
- **Relevant Indian Standard Code practices**

ANNEXURE I – RECOGNITIONS AND CERTIFICATES

आज़ादी का अमृत महोत्सव

SMIT SIKKIM MANIPAL UNIVERSITY

FIT INDIA

World CYCLE Day

Certificate of Participation

is presented to

Dr./Mr./Mrs. _____

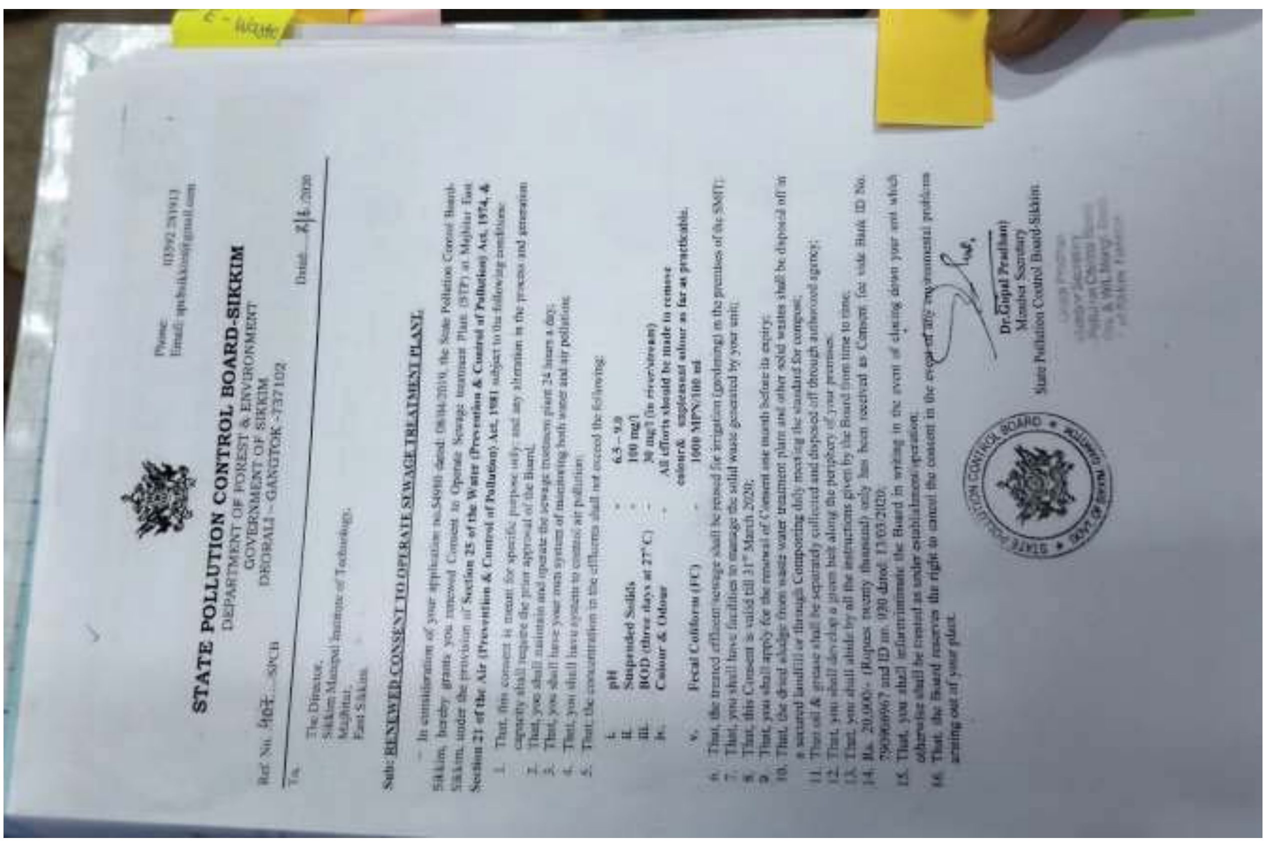
for successfully participating in the "World Cycle Day Celebration"

on 3rd June, 2022 at Sikkim Manipal Institute of Technology, Sikkim.

Event Co-ordinator	Associate Director (SA) SMIT	Director SMIT

विश्व साइकिल दिवस पर आयोजित किया गया उत्सव

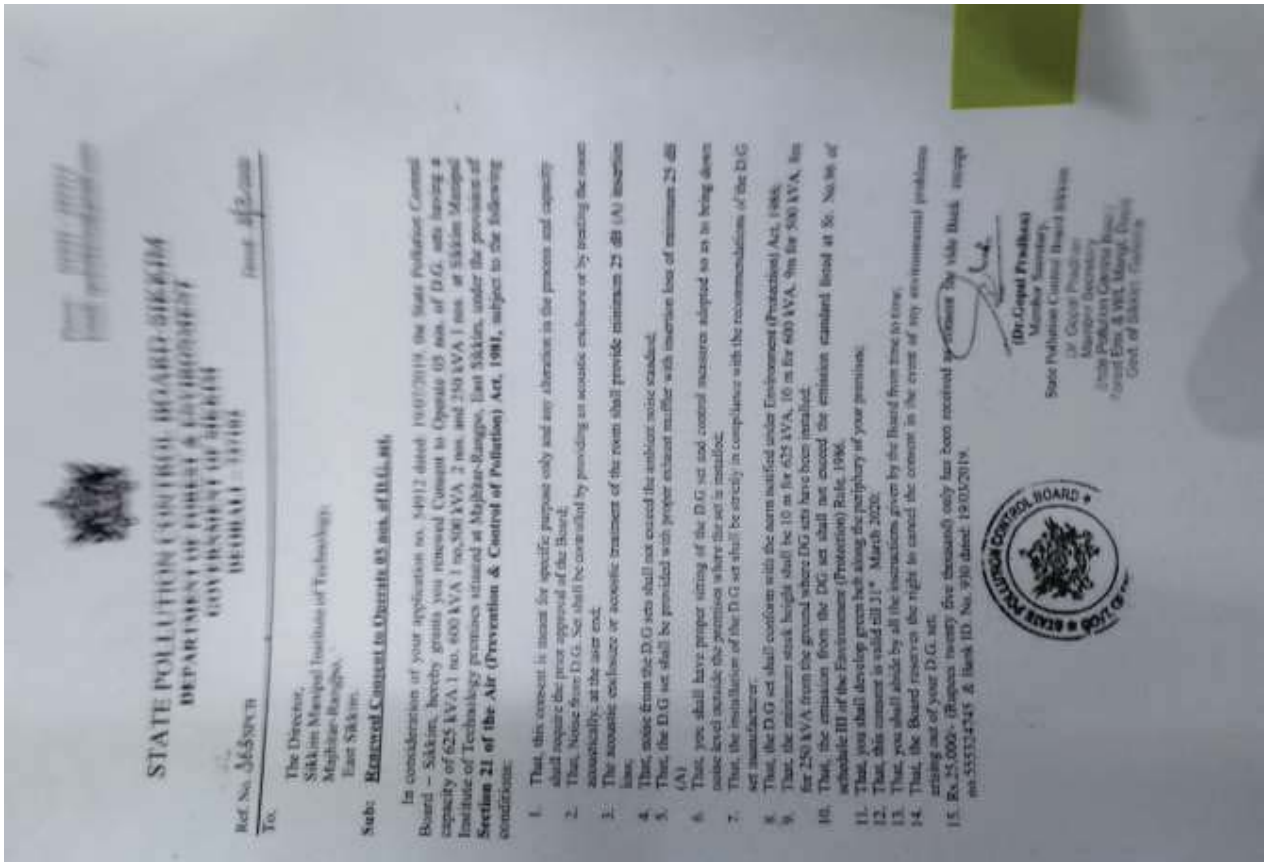
रंगपो (निज संवाददाता)। तीन जून को विश्व साइकिल दिवस के रूप में पालन किया जाता है। यह एक साधारण साइकिल को समर्पित एक दिन है, जो लगभग 200 वर्षों से परिचालन में एक सरल, लागत प्रभावी, पर्यावरण के अनुकूल और दीर्घकालिक परिवहन का रूप है। यह आयोजन जीवन और विषयों के सभी क्षेत्रों से साइकिल चालकों को आकर्षित करता है। एसएमआईटी माझिटार में भी साइकिल दिवस मनाया गया। एसएमआईटी के निदेशक प्रो. जी.एल. शर्मा, प्रो. (डॉ.) आनंद प्रकाश तिवारी, एसोसिएट निदेशक (छात्र मामले), प्रो. (डॉ.) अजय झा को पेडलिंग करके और वैश्विक उत्सव का आनंद लेते हुए प्रतिभागियों को प्रेरित करते देखा गया।



STATE POLLUTION CONTROL BOARD-SIKKIM
DEPARTMENT OF FOREST & ENVIRONMENT
GOVERNMENT OF SIKKIM
DEORALI – GANGTOK -737102

Sub: RENEWED CONSENT TO OPERATE SEWAGE TREATMENT PLANT.

Consent for STP



STATE POLLUTION CONTROL BOARD SIKKIM

Ref. No. [illegible] Dated [illegible]

To,

The Director,
Sikkim Manipal Institute of Technology,
Majhitar Rangpo,
East Sikkim.

Sub: **Renewal Consent to Operate 05 nos. of D.G. sets.**

In consideration of your application no. 34912 dated 19/03/2019, the State Pollution Control Board – Sikkim, hereby grants you renewed Consent to Operate 05 nos. of D.G. sets having a capacity of 625 kVA 1 no. 600 kVA 1 no.500 kVA 2 nos. and 250 kVA 1 nos. at Sikkim Manipal Institute of Technology premises situated at Majhitar-Rangpo, East Sikkim, under the provisions of **Section 21 of the Air (Prevention & Control of Pollution) Act, 1981,** subject to the following conditions:

1. That, this consent is issued for specific purpose only and any alteration in the process and capacity shall require the prior approval of the Board.
2. That, Noise from D.G. Set shall be controlled by providing an acoustic enclosure or by treating the room acoustically, at the user end.
3. The acoustic enclosure or acoustic treatment of the room shall provide minimum 25 dB (A) insertion loss.
4. That, noise from the D.G sets shall not exceed the ambient noise standard.
5. That, the D.G set shall be provided with proper exhaust muffler with insertion loss of minimum 25 dB (A).
6. That, you shall have proper siting of the D.G set and control measures adopted so as to bring down noise level outside the premises where the set is installed.
7. That, the installation of the D.G set shall be strictly in compliance with the recommendations of the D.G set manufacturer.
8. That, the D.G set shall conform with the norms notified under Environment (Protection) Act, 1986.
9. That, the minimum stack height shall be 10 m for 625 kVA, 10 m for 600 kVA, 9m for 500 kVA, 8m for 250 kVA from the ground where DG sets have been installed.
10. That, the emission from the DG set shall not exceed the emission standard listed at Sl. No.46 of schedule III of the Environment (Protection) Rule, 1986.
11. That, you shall develop green belt along the periphery of your premises.
12. That, this consent is valid till 31st March 2020.
13. That, you shall abide by all the instructions given by the Board from time to time.
14. That, the Board reserves the right to cancel the consent in the event of any environmental problem arising out of your D.G. set.
15. Rs.35,000/- (Rupees twenty five thousand) only has been received as consent fee vide Bank receipt no.555324545 & Bank ID. No.930 dated 19/03/2019.

(Dr. Gopal Pradhan)
Member Secretary
State Pollution Control Board Sikkim

CTO for 5 Digi Sets

Air Purifying Planggt inside buildings

DEPARTMENT OF SPORTS AND YOUTH AFFAIRS
NATIONAL SERVICE SCHEME
GOVERNMENT OF SIKKIM
GANGTOK-737101, SIKKIM

Ref. No [illegible] Dated Gangtok, the [illegible]

To,

The Director,
SMIT,
Majhitar,Rangpo.

Sub: Swachha Bharat Summer Internship 2019-20.

Respected Sir,

This is to inform you that your institution had participated in Swachha Bharat Summer Internship 2019-2020.There were many institution from all over Sikkim who had participated for the same.

In the East District your institution had secured 1st position and also bagged 1st position in the State Level as well .We the NSS Cell would like to heartily thank you for your participation and congratulate you and your team for securing 1st position both in District and State Level.

The team comprised of-
1.Mrs Jhuma Sunuwar-Teacher Coordinator.
2.Chandni Agarwal.
3.Sarena Chettri.
4.Konda Vaishnavi.
5.Yatharth Sharma.
6.Jharna.
7.Tashey Tsh Bhutia.
8.Udbhav Singh.

Thanking You.

Yours faithfully,

Tseten Bhutia,
State NSS Coordinator,
NSS Cell,Sikkim.

Appreciation letters from State NSS coordinator

ANNEXURE II - PHOTOGRAPHS

Well maintained Campus

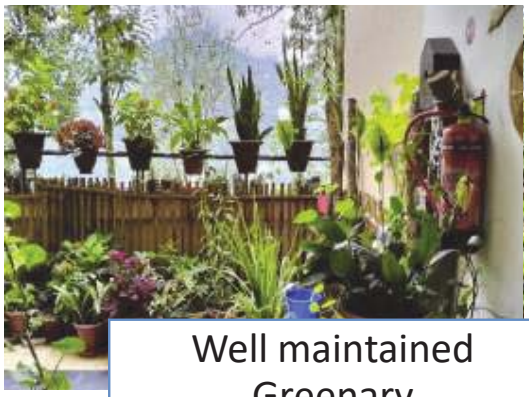
Lush Green Campus

Sports Ground

Lawn Bowls Ground

Ornamental Plants

Indoor Plants



Well maintained Greenary

Lush Green Campus

Ornamental Plants

Ornamental Plants

Ornamental Plants

Indoor Plants

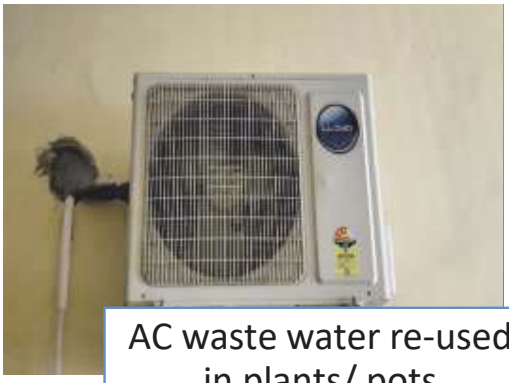
Incinerator

BMW segregation

Use of Urinals to save water

Water flow rate as per standards

AC waste water conservation using pipes



AC waste water re-used in plants/ pots

Paved Pathways

Solar Power plant installed on the building roofs

Color coded dustbins

Bird nest in campus

Display of Awareness messages

Display of Awareness messages

Active participation of students in plantation drive

Plantation drive in nearby area

Awareness programme in village area

Awareness programme by Red Ribbon Club

Cleanliness Drive

Awareness campaign on World Tobacco Day

International Yoga Day Celebration

International Yoga Day Celebration

World Health Day Celebration

Poster making activity

SMU in media

Central AC System - HVAC

********** END OF THE REPORT **********