

Andhra Christian College, Guntur

(DAY, EVENING & P.G.)

Accredited with 'A' Grade by NAAC

Dr. K. Moses

M.Sc., M.Ed., Ph.D

PRINCIPAL



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GREEN AUDIT / ENVIRONMENTAL AUDIT – [2022-2023]

The objective of this Green Audit / Environmental Audit is to assess the current state of biodiversity and green cover in the college and to suggest ways to enhance it. The students used transect and quadrant methods to identify the different types of flora and fauna in the college. This audit also helps the students in gaining knowledge about the richness of nature through identifying the organisms. The staff and students made several surveys to assess both the quantitative and qualitative aspects. The survey indicates high biodiversity of plants and limited number of animal species. It is proposed to increase the number of plant and animal species to make college look more ecofriendly.

PURPOSE

- To conduct a Biodiversity Audit on A.C College, Guntur campus and suggest measures for the improvement

AIMS

- To identify the different types of plants and animals on the college campus
- Students through participating in this audit will not only identify the various species but also will be able to tabulate and analyze the data.
- To recommend ways to increase biodiversity on the college campus

PROCEDURE

A comprehensive survey of the flora and fauna was carried out on the college campus spread over an area of 20 acres. The study was carried out from 03-01-2022 and 06-01-2022. Two batches of 10 students each of B.Sc., (CBZ) from A.C.College, Guntur, Guntur district were assigned to do the audit and they surveyed the entire area and identified the flora and fauna on the campus. Data was scientifically recorded and tabulated.

List of Audited Plants on the campus for the academic year 2022-23

S.No.	Scientific name of plant	Local Name	Family	Habitat T/S/H/C	Uses
1	<i>Parthenium hysterophorus</i>	Carrot grass	Asteraceae	H	Medicinal
2	<i>Acalypha indica</i>	Indian mercury	Euphorbiaceae	H	Medicinal
3	<i>Sida acuta</i>	Common wire weed	Malvaceae	H	Medicinal
4	<i>Boerhaavia diffusa</i>	Punarnava	Nyctaginaceae	H	Medicinal
5	<i>Euphorbia hirta</i>	Asthma weed	Euphorbiaceae	H	Medicinal
6	<i>Cynodon dactylon</i>	Bermuda grass	Poaceae	H	Medicinal
7	<i>Citrus aurantifolia</i>	Key lime	Rutaceae	T	Medicinal
8	<i>Manilkara zapota</i>	Sapota	Sapotaceae	T	Edible Fruit
9	<i>Murraya koenigii</i>	Curry leaves	Rutaceae	T	Medicinal
10	<i>Ziziphus zuzuba</i>	Jujube	Rhamnaceae	S	Medicinal
11	<i>Croton bonplandianum</i>	Ban tulasi	Euphorbiaceae	H	Medicinal
12	<i>Vernonia cinerea</i>	Purple fleabane	Asteraceae	H	Medicinal
13	<i>Tridax procumbens</i>	Tridax daisy	Asteraceae	H	Medicinal
14	<i>Ruellia tuberosa</i>	Cracker plant	Acanthaceae	H	Medicinal
15	<i>Ocimum sanctum</i>	Tulasi	Lamiaceae	H	Medicinal
16	<i>Cocos nucifera</i>	Coconut	Arecaceae	T	Medicinal
17	<i>Ixora chinensis</i>	Scarlet jungle flame	Rubiaceae	S	Ornamental
18	<i>Abutilon indicum</i>	Indian mallow	Malvaceae	S	Medicinal
19	<i>Asparagus recemosus</i>	Shatavari	Asparagaceae	S	Medicinal
20	<i>Polyalthia longifolia</i>	Naramamidi	Annonaceae	T	Ornamental
21	<i>Cicca distica</i>	Chinni usiri	Euphorbiaceae	T	Medicinal
22	<i>Cocos nucifera</i>	Kobbari	Arecaceae	T	Edible
23	<i>Albizia lebbeck</i>	Dirisena	Mimosaceae	T	Ornamental
24	<i>Millingtonia hortensis</i>	Akasa malli	Bignoniaceae	T	Ornamental
25	<i>Bauhinia variegata</i>	Addaku	Fabaceae	T	Ornamental
26	<i>Tabebuia rosea</i>	Rosy trumpet	Bignoniaceae	T	Ornamental
27	<i>Casuarina equisetifolia</i>	Sarugudu	Casuarinaceae	T	Fire wood
28	<i>Borassus flabellifer</i>	Thati	Areaceae	T	Toddy
29	<i>Spathodia campanulata</i>	Tulip tree	Bignoniaceae	T	Ornamental
30	<i>Syagrus romanzoffiana</i>	Queen palm	Arecaceae	T	Ornamental
31	<i>Dalberzia sissoo</i>	Indian Rose wood	Fabaceae	T	Ornamental
32	<i>Wrightia tinctoria</i>	Tooth ache plant	Apocyanaceae	T	Medicinal
33	<i>Vitex negundi</i>	Chinese chaste tree	Lamiaceae	T	Medicinal
34	<i>Tecoma stans</i>	Golden bells	Bignoniaceae	T	Ornamental
35	<i>Rhaphidophora tetrasperma</i>	Mini monstera	Araceae	C	Ornamental

36	<i>Azadirachta indica</i>	Neem tree	Meliaceae	T	Medicinal & Timber
37	<i>Bamboosa aridinarifolia</i>	Bamboo	Poaceae	T	Timber
38	<i>Pongamia pinnata</i>	Kanuga	Fabaceae	T	Medicinal
39	<i>Ceodea grandis</i>	Lettuce tree	Nyctaginaceae	T	Medicinal
40	<i>Psidium guajava</i>	Jama	Myrtaceae	T	Edible fruit
41	<i>Cycas revoluta</i>	Sago palm	Cycadaceae	T	Medicinal
42	<i>Pritchardia pacifica</i>	Fiji Fan Palm	Arecaceae	T	Ornamental
43	<i>Bougainvillea spectabilis</i>	Kagithapu puvuu	Nyctaginaceae	S	Ornamental
44	<i>Ceiba pentandra</i>	Booruga	Malvaceae	T	Economic
45	<i>Dypsis lutescens</i>	Areca palm	Arecaceae	T	Ornamental
46	<i>Trichilia dregeana</i>	Forest Mahogany	Meliaceae	T	Timber
47	<i>Mangifera indica</i>	Mango	Anacardaceae	T	Fruit
48	<i>Leucaena leucocephala</i>	Lead Tree	Fabaceae	T	Economic
49	<i>Thuja orientalis</i>	Chinese thuja	Cupressaceae	T	Medicinal
50	<i>Syzygium cumini</i>	Kala jamoon	Myrtaceae	T	Edible
51	<i>Ixora chinensis</i>	Nooru varahalu	Rubiaceae	S	Ornamental
52	<i>Licuala grandis</i>	Palasa palm	Arecaceae	T	Ornamental
53	<i>Delonix regia</i>	Gold mohar /Turai	Fabaceae	T	Ornamental
54	<i>Yucca gloriosa</i>	Nabhi	Asparagaceae	S	Ornamental
55	<i>Hibiscus rosasinensis</i>	Mandara	Malvaceae	S	Ornamental
56	<i>Syzygium jambos</i>	Rose apple	Myrtaceae	T	Ornamental
57	<i>Citrus aurantiifolia</i>	orange	Rutaceae	T	Edible fruit
58	<i>Adenium obesum</i>	Desert rose	Apocynaceae	S	Ornamental
59	<i>Catheranthus roseus</i>	Billa ganneru	Apocynaceae	H	Medicinal
60	<i>Tradescantia spathacea</i>	Boat lilly	Commelinaceae	H	Ornamental
61	<i>Chrysanthemum indicum</i>	Chemanthi	Asteraceae	H	Ornamental
62	<i>Agave americana</i>	Kalabanda	Asparagaceae	H	Medicinal
63	<i>Murraya paniculata</i>	Curry leaf	Rutaceae	T	Condiment
64	<i>Allamanda cathartica</i>	Butter cup	Apocyanaceae	S	Ornamental
65	<i>Jasminum sambac</i>	Malle puvvu	Oleaceae	S	Ornamental
66	<i>Citrus lemon</i>	Nimbu/ Nimma	Rutaceae	T	Medicinal
67	<i>Bryophyllum pinnata</i>	Ranapala	Crassulaceae	H	Ornamental
68	<i>Euphorbia hirta</i>	Mexican plant	Euphorbiaceae	H	Medicinal
69	<i>Ficus retusa</i>	Peddajuvvi	Moraceae	T	Timber
70	<i>Costus spiralis</i>	Crepe ginger	Costaceae	H	Medicinal
71	<i>Coleus barbatus</i>	Gandh Moolika	Lamiaceae	H	Ornamental
72	<i>Aloe vera</i>	Kalabanda	Asphodelaceae	S	Medicinal
73	<i>Andrographis paniculata</i>	Nela vemu	Acanthaceae	H	Medicinal
74	<i>Artemisia annua</i>	Machipatri	Asteraceae	H	Medicinal

75	<i>Centella asiatica</i>	Saraswathi aaku	Apiaceae	H	Medicinal
76	<i>Withania somnifera</i>	aswagandha	Solanaceae	H	Medicinal
77	<i>Rauwolfia serpentina</i>	Sarpagandha	Apocyanaceae	S	Medicinal
78	<i>Acorus calamus</i>	Vasa	Acoraceae	H	Medicinal
79	<i>Ruta graveolens</i>	Sadapaku	Rutaceae	H	Medicinal
80	<i>Cassia alata</i>	Seema tangedu	Caesalpinoideae	S	Medicinal
81	<i>Gymnema sylvestris</i>	Podapatri	Apocyanaceae	H	Medicinal
82	<i>Plumbago zeylanica</i>	Chitrak	Plumbaginaceae	H	Medicinal
83	<i>Psoralea corylifolia</i>	Bavanchalu	Fabaceae	H	Medicinal
84	<i>Evolvulus alsinoides</i>	Vishnukranthi	Acathaceae	H	Medicinal
85	<i>Adathoda vasica</i>	addasaram	Acanthaceae	H	Medicinal
86	<i>Uraria picta</i>	Prishni parni	Fabaceae	H	Medicinal

DISCUSSION

The environmental audit conducted by the college for the year 2022-23 revealed the existence of many species of plants on the campus. Out of the plant species the trees outnumber the herbs and shrubs. Many flowering and Medicinal plants are seen to flourish in the campus. The college management has taken an active role in increasing the greenery on the campus. However there is scope for adding more plants as the college is huge and sprawling. By increasing the greenery of the college not only more animals are attracted to the trees for the shelter but also lead to increase in biodiversity and maintain the ecological balance.

CONCLUSIONS AND RECOMMENDATIONS

This Green/Environmental Audit was completed as per the schedule and the data collected was systematically tabulated and analyzed in the above table. This audit helped very much to improve the knowledge, awareness and skills of students in conserving biodiversity.

GREEN AUDIT CERTIFICATE

This is to certify that the staff of the Government Degree College for Women (A) and students and faculty of Andhra Christian College have conducted the green audit 05-01-2022 to 08-01-2022 for the academic year 2022-23 to assess the green initiative planning efforts and activities implemented on the college campus like plantation, biodiversity preservation and creating environmental awareness. The green audit proved that the campus is eco-friendly.

Place: Guntur

Date: 10-01-2022.

External Auditors:

1. 
M. SANTOSH KUMARI, M.Sc., B.Ed.
LECTURER IN BOTANY
GOVT. COLLEGE FOR WOMEN (A)
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- 3.



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GREEN AUDIT / ENVIRONMENTAL AUDIT – [2021 - 2022]

The aim and objective of this Green Audit/Environmental Audit is to assess the biodiversity and green cover in the college for the year 2021-22 and to suggest ways to further enhance and conserve it. The students used the tried and tested transect and quadrant methods to identify the different types of flora and fauna in the college. This audit also helps the students in gaining knowledge about the significance of nature through identifying different organisms. The staff and students made several surveys to assess both the quantitative and qualitative aspects. The survey indicates limited number of species of plants and very few species of animals. It is proposed to increase the number of plant and animal species to make the college look more ecofriendly.

PURPOSE

- To conduct a Biodiversity Audit on A.C College, Guntur campus and suggest measures for the improvement for the academic year 2021-22.

AIMS

- To identify the different types of plants and animals on the college campus
- Students through participating in this audit will not only identify the various species but also will be able to tabulate and analyze the data.
- To recommend ways to increase biodiversity on the college campus

PROCEDURE

A comprehensive survey of the flora and fauna was carried out on the college campus spread over an area of 20 acres. The study was carried out from 06-01-2021 and 09-01-2021. One batch of 10 students of B.Sc., (CBZ) from A. C. College, Guntur, Guntur district were assigned to do the audit and they surveyed the entire area and identified the flora and fauna on the campus. Data was scientifically recorded and tabulated.

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72	<i>Aloe vera</i>	Kalabanda	Asphodelaceae	S	Medicinal

DISCUSSION

This environmental audit conducted by the college for the academic year 2021-22 showed a rapid increase in the number species of plants on the campus. Out of the plant species the trees continue to outnumber the herbs and shrubs. Flowering plant species are found to be in good number. The college management took adequate measures to increase the greenery on the campus. There is still scope for adding many more plants as the college is huge and sprawling. By increasing the greenery of the college not only more animals are attracted to the trees for the shelter but also increase the biodiversity and maintain the ecological balance.

CONCLUSIONS AND RECOMMENDATIONS

This Green/Environmental Audit for the year 2021-22 was completed as per the schedule and the data collected was systematically tabulated and analyzed in the above table. This audit also helped to improve the knowledge, awareness and skills of students in conserving biodiversity. It was noted that the staff and students took an active role in ecological activities by increasing the green cover. It is recommended that the staff should continue to carry out this endeavor.

GREEN AUDIT CERTIFICATE

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"Ye shall know the truth and the truth shall set you free".... St. John 8 : 32

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GREEN AUDIT / ENVIRONMENTAL AUDIT – [2020 - 2021]

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- To conduct a Biodiversity Audit on A.C College, Guntur campus and suggest measures for the improvement for the academic year 2020-21.

AIMS

- To identify the different types of plants and animals on the college campus
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- To recommend ways to increase biodiversity on the college campus

PROCEDURE

A comprehensive survey of the flora and fauna was carried out on the college campus spread over an area of 20 acres. The study was carried out from 05-01-2020 and 10-01-2020. One batch of 10 students of B.Sc., (CBZ) from A. C. College, Guntur, Guntur district were

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17	<i>Polyalthia longifolia</i>	Naramamidi	Annonaceae	T	Ornamental
18	<i>Cicca distica</i>	Chinni usiri	Euphorbiaceae	T	Medicinal
19	<i>Cocos nucifera</i>	Kobbari	Arecaceae	T	Edible
20	<i>Albizia lebbek</i>	Dirisena	Mimosaceae	T	Ornamental
21	<i>Millingtonia hortensis</i>	Akasa malli	Bignoniaceae	T	Ornamental
22	<i>Bauhinia variegata</i>	Addaku	Fabaceae	T	Ornamental
23	<i>Tabebuia rosea</i>	Rosy trumpet	Bignoniaceae	T	Ornamental
24	<i>Casuarina equisetifolia</i>	Sarugudu	Casuarinaceae	T	Fire wood
25	<i>Borassus flabellifer</i>	Thati	Arecaceae	T	Toddy
26	<i>Spathodia campanulata</i>	Tulip tree	Bignoniaceae	T	Ornamental
27	<i>Syagrus romanzoffiana</i>	Queen palm	Arecaceae	T	Ornamental
28	<i>Dalberzia sissoo</i>	Indian Rose	Fabaceae	T	Ornamental

		wood			
29	<i>Wrightia tinctoria</i>	Tooth ache plant	Apocyanaceae	T	Medicinal
30	<i>Vitex negundi</i>	Chinese chaste tree	Lamiaceae	T	Medicinal
31	<i>Tecoma stans</i>	Golden bells	Bignoniaceae	T	Ornamental
32	<i>Rhaphidophora tetrasperma</i>	Mini monstera	Araceae	C	Ornamental
33	<i>Azadirachta indica</i>	Neem tree	Meliaceae	T	Medicinal & Timber
34	<i>Bamboosa aridinarifolia</i>	Bamboo	Poaceae	T	Timber
35	<i>Pongamia pinnata</i>	Kanuga	Fabaceae	T	Medicinal
36	<i>Ceodea grandis</i>	Lettuce tree	Nyctaginaceae	T	Medicinal
37	<i>Psidium guajava</i>	Jama	Myrtaceae	T	Fruit
38	<i>Cycas revoluta</i>	Sago palm	Cycadaceae	T	Medicinal
39	<i>Pritchardia pacifica</i>	Fiji Fan Palm	Arecaceae	T	Ornamental
40	<i>Bougainvillea spectabilis</i>	Kagithapu puvuu	Nyctaginaceae	S	Ornamental
41	<i>Ceiba pentandra</i>	Booruga	Malvaceae	T	Economic Imp
42	<i>Dyopsis lutescens</i>	Areca palm	Arecaceae	T	Ornamental
43	<i>Trichilia dregeana</i>	Forest Mahogany	Meliaceae	T	Timber
44	<i>Mangifera indica</i>	Mango	Anacardaceae	T	Fruit
45	<i>Leucaena leucocephala</i>	Lead Tree	Fabaceae	T	Economic
46	<i>Thuja orientalis</i>	Chinese thuja	Cupressaceae	T	Medicinal
47	<i>Syzygium cumini</i>	Kala jamoon	Myrtaceae	T	Edible
48	<i>Ixora chinensis</i>	Nooru varahalu	Rubiaceae	S	Ornamental
49	<i>Licuala grandis</i>	Palasa palm	Arecaceae	T	Ornamental
50	<i>Delonix regia</i>	Gold mohar/Turai	Fabaceae	T	Ornamental
51	<i>Yucca gloriosa</i>	Nabhi	Asparagaceae	S	Ornamental
52	<i>Hibiscus rosasinensis</i>	Mandara	Malvaceae	S	Ornamental
53	<i>Syzygium jambos</i>	Rose apple	Myrtaceae	T	Ornamental
54	<i>Citrus aurantiifolia</i>	orange	Rutaceae	T	Edible fruit
55	<i>Tradescantia spathacea</i>	Boat lilly	Commelinaceae	H	Ornamental
56	<i>Chrysanthemum indicum</i>	Chemanthi	Asteraceae	H	Ornamental
57	<i>Agave americana</i>	Kalabanda	Asparagaceae	H	Medicinal

58	<i>Murraya paniculata</i>	Curry leaf	Rutaceae	T	Condiment
59	<i>Allamanda cathartica</i>	Butter cup	Apocyanaceae	S	Ornamental
60	<i>Jasminum sambac</i>	Malle puvvu	Oleaceae	S	Ornamental
61	<i>Citrus lemon</i>	Nimbu/ Nimma	Rutaceae	T	Medicinal
62	<i>Kalanchoe/Bryophyllum pinnata</i>	Ranapala	Crassulaceae	H	Ornamental
63	<i>Ficus retusa</i>	Peddajuvvi	Moraceae	T	Timber
64	<i>Costus spiralis</i>	Crepe ginger	Costaceae	H	Medicinal
65	<i>Aloe vera</i>	Kalabanda	Asphodelaceae	S	Medicinal

DISCUSSION

This environmental audit conducted by the college for the academic year 2020-21 showed a good increase in the number species of plants on the campus. The number of animal species remains constant. Out of the plant species the trees continue to outnumber the herbs and shrubs. Flowering plants are found to have increased in numbers. The college management, vigilant as ever took adequate measures to increase the greenery on the campus. There is still scope for adding many more plants as the college is huge and sprawling. By increasing the greenery of the college not only more animals are attracted to the trees for the shelter but also increase the biodiversity and maintain the ecological balance.

CONCLUSIONS AND RECOMMENDATIONS

This Green/Environmental Audit for the year 2020-21 was completed as per the schedule and the data collected was systematically tabulated and analyzed in the above table. The audit also helped to improve the knowledge, awareness and skills of students in conserving biodiversity. It was recommended that the staff should interact with the students often in increasing their knowledge in horticulture and silviculture in conducting plantation drives.

GREEN AUDIT CERTIFICATE

This is to certify that the staff of the Government Degree College for Women (A) and students and faculty of Andhra Christian College have conducted the green audit from 04-01-2020 to 10-01-2020 for the academic year 2020-21 to assess the green initiative planning efforts and activities implemented on the college campus like plantation, biodiversity preservation and creating environmental awareness. The green audit proved that the campus is eco-friendly.

Place: Guntur

Date: 12-01-2020.

External Auditors:

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(DAY, EVENING & P.G.)

Accredited with 'A' Grade by NAAC

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GREEN AUDIT / ENIRONMENTAL AUDIT – [2019 - 2020]

The aim of this Green Audit/Environmental Audit is to assess the biodiversity and green cover in the college for the year 2019-20 and to suggest ways to further enhance it. The students used the tried and tested transect and quadrant methods to identify the different types of flora and fauna in the college. This audit also helps the students in gaining knowledge about the richness of nature through identifying different organisms. The staff and students made several surveys to assess both the quantitative and qualitative aspects. The survey indicates limited number of species of plants and very few species of animals. It is proposed to increase the number of plant and animal species to make the college look more ecofriendly.

PURPOSE

- To conduct a Biodiversity Audit on A.C College, Guntur campus and suggest measures for the improvement for the academic year 2019-20.

AIMS

- To identify the different types of plants and animals on the college campus
- Students through participating in this audit will not only identify the various species but also will be able to tabulate and analyze the data.
- To recommend ways to increase biodiversity on the college campus

PROCEDURE

A comprehensive survey of the flora and fauna was carried out on the college campus spread over an area of 20 acres. The study was carried out from 04-01-2019 and 10-01-2019. Two batches of 10 students each of B.Sc., (CBZ) from A. C. College, Guntur, Guntur district were assigned to do the audit and they surveyed the entire area and identified the flora and fauna on the campus. Data was scientifically recorded and tabulated.

List of Audited Plants on the campus for the academic year 2019-20

S.No.	Scientific name of the plant	Local Name	Family	Habitat T/S/H/C	Uses
1	<i>Parthenium hysterophorus</i>	Carrot grass	Asteraceae	H	Medicinal
2	<i>Sida acuta</i>	Common wire weed	Malvaceae	H	Medicinal
3	<i>Euphorbia hirta</i>	Asthma weed	Euphorbiaceae	H	Medicinal
4	<i>Citrus aurantifolia</i>	Key lime	Rutaceae	T	Medicinal
5	<i>Manilkara zapota</i>	Sapota	Sapotaceae	T	Edible Fruit
6	<i>Murraya koenigii</i>	Curry leaves	Rutaceae	T	Medicinal
7	<i>Vernonia cinerea</i>	Purple fleabane	Asteraceae	H	Medicinal
8	<i>Tridax procumbens</i>	Tridax daisy	Asteraceae	H	Medicinal
9	<i>Ocimum sanctum</i>	Tulasi	Lamiaceae	H	Medicinal
10	<i>Cocos nucifera</i>	Coconut	Arecaceae	T	Medicinal
11	<i>Ixora chinensis</i>	Scarlet jungle flame	Rubiaceae	S	Ornamental
12	<i>Polyalthia longifolia</i>	Naramamidi	Annonaceae	T	Ornamental
13	<i>Cicca distica</i>	Chinni usiri	Euphorbiaceae	T	Medicinal
14	<i>Cocos nucifera</i>	Kobbari	Arecaceae	T	Edible
15	<i>Albizia lebbek</i>	Dirisena	Mimosaceae	T	Ornamental
16	<i>Millingtonia hortensis</i>	Akasa malli	Bignoniaceae	T	Ornamental
17	<i>Bauhinia variegata</i>	Addaku	Fabaceae	T	Ornamental
18	<i>Tabebuia rosea</i>	Rosy trumpet	Bignoniaceae	T	Ornamental
19	<i>Borassus flabellifer</i>	Thati	Arecaceae	T	Toddy
20	<i>Spathodia campanulata</i>	Tulip tree	Bignoniaceae	T	Ornamental
21	<i>Syagrus romanzoffiana</i>	Queen palm	Arecaceae	T	Ornamental
22	<i>Dalbergia sissoo</i>	Indian Rose wood	Fabaceae	T	Ornamental
23	<i>Wrightia tinctoria</i>	Tooth ache plant	Apocyanaceae	T	Medicinal
24	<i>Vitex negundi</i>	Chinese chaste tree	Lamiaceae	T	Medicinal
25	<i>Rhaphidophora tetrasperma</i>	Mini monstera	Araceae	C	Ornamental
26	<i>Azadirachta indica</i>	Neem tree	Meliaceae	T	Medicinal & Timber

27	<i>Bamboosa aridinarifolia</i>	Bamboo	Poaceae	T	Timber
28	<i>Pongamia pinnata</i>	Kanuga	Fabaceae	T	Medicinal
29	<i>Ceodea grandis</i>	Lettuce tree	Nyctaginaceae	T	Medicinal
30	<i>Psidium guajava</i>	Jama	Myrtaceae	T	Fruit
31	<i>Cycas revoluta</i>	Sago palm	Cycadaceae	T	Medicinal
32	<i>Pritchardia pacifica</i>	Fiji Fan Palm	Arecaceae	T	Ornamental
33	<i>Bougainvillea spectabilis</i>	Kagithapu puvuu	Nyctaginaceae	S	Ornamental
34	<i>Ceiba pentandra</i>	Booruga	Malvaceae	T	Economic Imp
35	<i>Dypsis lutescens</i>	Areca palm	Arecaceae	T	Ornamental
36	<i>Trichilia dregeana</i>	Forest Mahogany	Meliaceae	T	Timber
37	<i>Mangifera indica</i>	Mango	Anacardaceae	T	Fruit
38	<i>Leucaena leucocephala</i>	Lead Tree	Fabaceae	T	Economic
39	<i>Thuja orientalis</i>	Chinese thuja	Cupressaceae	T	Medicinal
40	<i>Syzygium cumini</i>	Kala jamoon	Myrtaceae	T	Edible
41	<i>Ixora chinensis</i>	Nooru varahalu	Rubiaceae	S	Ornamental
42	<i>Licuala grandis</i>	Palasa palm	Arecaceae	T	Ornamental
43	<i>Delonix regia</i>	Gold mohar/Turai	Fabaceae	T	Ornamental
44	<i>Yucca gloriosa</i>	Nabhi	Asparagaceae	S	Ornamental
45	<i>Hibiscus rosasinensis</i>	Mandara	Malvaceae	S	Ornamental
46	<i>Syzygium jambos</i>	Rose apple	Myrtaceae	T	Ornamental
47	<i>Citrus aurantiifolia</i>	orange	Rutaceae	T	Edible fruit
48	<i>Chrysanthemum indicum</i>	Chemanthi	Asteraceae	H	Ornamental
49	<i>Agave americana</i>	Kalabanda	Asparagaceae	H	Medicinal
50	<i>Murraya paniculata</i>	Curry leaf	Rutaceae	T	Condiment
51	<i>Allamanda cathartica</i>	Butter cup	Apocyanaceae	S	Ornamental
52	<i>Jasminum sambac</i>	Malle puvvu	Oleaceae	S	Ornamental
53	<i>Citrus lemon</i>	Nimbu/ Nimma	Rutaceae	T	Medicinal
54	<i>Kalanchoe/Bryophyllum pinnata</i>	Ranapala	Crassulaceae	H	Ornamental
55	<i>Ficus retusa</i>	Peddajuvvi	Moraceae	T	Timber
56	<i>Costus spiralis</i>	Crepe ginger	Costaceae	H	Medicinal
57	<i>Aloe vera</i>	Kalabanda	Asphodelaceae	S	Medicinal

DISCUSSION

This environmental audit conducted by the college for the academic year 2019-20 showed a modest increase in the number species of plants on the campus. However the number of animal species remains constant. Out of the plant species the trees continue to outnumber the herbs and shrubs. Flowering plants are found too few in numbers. The college management took adequate measures to increase the greenery on the campus. There is still scope for adding many more plants as the college is huge and sprawling. By increasing the greenery of the college not only more animals are attracted to the trees for the shelter but also increase the biodiversity and maintain the ecological balance.

CONCLUSIONS AND RECOMMENDATIONS

This Green/Environmental Audit for the year 2019-20 was completed as per the schedule and the data collected was systematically tabulated and analyzed in the above table. This audit also helped to improve the knowledge, awareness and skills of students in conserving biodiversity. It was recommended that the staff should interact with the students often in increasing their knowledge in horticulture in conducting plantation drives.

GREEN AUDIT CERTIFICATE

This is to certify that the staff of the Government Degree College for Women (A) and students and faculty of Andhra Christian College have conducted the green audit 04-01-2019 and 10-01-2019 for the academic year 2019-20 to assess the green initiative planning efforts and activities implemented on the college campus like plantation, biodiversity preservation and creating environmental awareness. The green audit proved that the campus is eco-friendly.

Place: Guntur

Date: 13-01-2018.

External Auditors:

1. 
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GREEN AUDIT / ENVIRONMENTAL AUDIT – [2018 - 2019]

The objective of this Green Audit / Environmental Audit is to assess the current state of biodiversity and green cover in the college and to suggest ways to enhance it. The students used transect and quadrant methods to identify the different types of flora and fauna in the college. This audit also helps the students in gaining knowledge about the richness of nature through identifying different organisms. The staff and students made several surveys to assess both the quantitative and qualitative aspects. The survey indicates limited number of species of plants and very few species of animals. It is proposed to increase the number of plant and animal species to make the college look more ecofriendly.

PURPOSE

- To conduct a Biodiversity Audit on A.C College, Guntur campus and suggest measures for the improvement

AIMS

- To identify the different types of plants and animals on the college campus
- Students through participating in this audit will not only identify the various species but also will be able to tabulate and analyze the data.
- To recommend ways to increase biodiversity on the college campus

PROCEDURE

A comprehensive survey of the flora and fauna was carried out on the college campus spread over an area of 20 acres. The study was carried out from 03-01-2022 and 12-01-2022. Two batches of 10 students each of B.Sc., (CBZ) from A. C. College, Guntur, Guntur district were assigned to do the audit and they surveyed the entire area and identified the flora and fauna on the campus. Data was scientifically recorded and tabulated.

List of Audited Plants on the campus for the academic year 2018 - 19

S.No.	Scientific name of the plant	Local Name	Family	Habitat T/S/H/C	Uses
1	<i>Euphorbia hirta</i>	Asthma weed	Euphorbiaceae	H	Medicinal
2	<i>Citrus aurantifolia</i>	Key lime	Rutaceae	T	Medicinal
3	<i>Manilkara zapota</i>	Sapota	Sapotaceae	T	Edible Fruit
4	<i>Murraya koenigii</i>	Curry leaves	Rutaceae	T	Medicinal
5	<i>Ocimum sanctum</i>	Tulasi	Lamiaceae	H	Medicinal
6	<i>Cocos nucifera</i>	Coconut	Arecaceae	T	Medicinal
7	<i>Ixora chinensis</i>	Scarlet jungle flame	Rubiaceae	S	Ornamental
8	<i>Polyalthia longifolia</i>	Naramamidi	Annonaceae	T	Ornamental
9	<i>Cicca distica</i>	Chinni usiri	Euphorbiaceae	T	Medicinal
10	<i>Cocos nucifera</i>	Kobbari	Arecaceae	T	Edible
11	<i>Albizia lebbek</i>	Dirisena	Mimosaceae	T	Ornamental
12	<i>Millingtonia hortensis</i>	Akasa malli	Bignoniaceae	T	Ornamental
13	<i>Bauhinia variegata</i>	Addaku	Fabaceae	T	Ornamental
14	<i>Tabebuia rosea</i>	Rosy trumpet	Bignoniaceae	T	Ornamental
15	<i>Borassus flabellifer</i>	Thati	Arecaceae	T	Toddy
16	<i>Spathodia campanulata</i>	Tulip tree	Bignoniaceae	T	Ornamental
17	<i>Syagrus romanzoffiana</i>	Queen palm	Arecaceae	T	Ornamental
18	<i>Dalbergia sissoo</i>	Indian Rose wood	Fabaceae	T	Ornamental
19	<i>Wrightia tinctoria</i>	Tooth ache plant	Apocyanaceae	T	Medicinal
20	<i>Vitex negundi</i>	Chinese chaste tree	Lamiaceae	T	Medicinal
21	<i>Rhaphidophora tetrasperma</i>	Mini monstera	Araceae	C	Ornamental
22	<i>Azadirachta indica</i>	Neem tree	Meliaceae	T	Medicinal & Timber
23	<i>Bamboosa aridinarifolia</i>	Bamboo	Poaceae	T	Timber
24	<i>Pongamia pinnata</i>	Kanuga	Fabaceae	T	Medicinal
25	<i>Ceodea grandis</i>	Lettuce tree	Nyctaginaceae	T	Medicinal

26	<i>Psidium guajava</i>	Jama	Myrtaceae	T	Fruit
27	<i>Cycas revoluta</i>	Sago palm	Cycadaceae	T	Medicinal
28	<i>Pritchardia pacifica</i>	Fiji Fan Palm	Arecaceae	T	Ornamental
29	<i>Ceiba pentandra</i>	Booruga	Malvaceae	T	Economic Imp
30	<i>Dypsis lutescens</i>	Areca palm	Arecaceae	T	Ornamental
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32	<i>Mangifera indica</i>	Mango	Anacardaceae	T	Fruit
33	<i>Leucaena leucocephala</i>	Lead Tree	Fabaceae	T	Economic
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37	<i>Licuala grandis</i>	Palasa palm	Arecaceae	T	Ornamental
38	<i>Delonix regia</i>	Gold mohar/Turai	Fabaceae	T	Ornamental
39	<i>Yucca gloriosa</i>	Nabhi	Asparagaceae	S	Ornamental
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46	<i>Jasminum sambac</i>	Malle puvvu	Oleaceae	S	Ornamental
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49	<i>Ficus retusa</i>	Peddajuvvi	Moraceae	T	Timber
50	<i>Costus spiralis</i>	Crepe ginger	Costaceae	H	Medicinal
51	<i>Aloe vera</i>	Kalabanda	Asphodelaceae	S	Medicinal

DISCUSSION

This environmental audit conducted by the college revealed the existence of very few species of plants on the campus. The number of species of animals was even lower and includes lizards, squirrels, birds and snakes. Out of the plant species the trees outnumber the herbs and shrubs. Flowering plants which contribute to the aesthetic sense are found too few in numbers. The college management has resolved to take an active role in increasing the greenery on the

campus. There is scope for adding many more plants as the college is huge and sprawling. By increasing the greenery of the college not only more animals are attracted to the trees for the shelter but also increase the biodiversity and maintain the ecological balance.

CONCLUSIONS AND RECOMMENDATIONS

This Green/Environmental Audit was completed as per the schedule and the data collected was systematically tabulated and analyzed in the above table. This audit also helped to improve the knowledge, awareness and skills of students in conserving biodiversity. It was recommended that the staff should interact with the students often in conducting plantation drives.

GREEN AUDIT CERTIFICATE

This is to certify that the staff of the Government Degree College for Women (A) and students and faculty of Andhra Christian College have conducted the green audit from 03-01-2018 to 12-01-2018 for the academic year 2018-19 to assess the green initiative planning efforts and activities implemented on the college campus like plantation, biodiversity preservation and creating environmental awareness. The green audit proved that the campus is eco-friendly.

Place: Guntur

Date: 14-01-2018.

External Auditors:

1. 
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Principal
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"Ye shall know the truth and the truth shall set you free".... St. John 8 : 32

Andhra Christian College, Guntur

(DAY, EVENING & P.G.)

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ENERGY AUDIT OF ANDHRA CHRISTIAN COLLEGE, GUNTUR

Date: 11-01-2023

1. INTRODUCTION

The purpose of this energy audit is to quantify electrical energy consumption and recommend where savings are possible. It is carried out by a 'walk through audit' that involves examining every item that consumes electric energy, estimating power ratings, operating hours and preparing electric energy budget. Energy wastage and inefficiencies in use of electrical and electronic items are identified as well those requiring maintenance or replacements are identified. Action plan for an energy management strategy will be designed following the audit.

2. AIM

Conducting Energy Audit and to evolve energy conservation measures in Andhra Christian College, Guntur, Guntur district.

3. OBJECTIVES

- To assess the current pattern of electrical energy consumption on the college campus.

- To know energy losses.
- Suggesting and implementing energy saving methods.

4. METHODOLOGY*

The energy audit was conducted through a walk-through survey of the campus of Andhra Christian College, Guntur, Guntur district. College areas are allotted to four groups of two members each.

4.1. SITE SURVEY

In every room and outside, members physically visited the rooms and estimated the number and type of lights, i.e., incandescent, fluorescent, CFL and LED, and the lights power rating i.e., number of watts and hours of daily use are estimated. The same procedure is carried out for other electrical items computers, Printer and LCDs. Energy meter readings of the college were taken for this purpose.

CALCULATION OF AVERAGE ELECTRICAL ENERGY CONSUMPTION PER DAY

Location (Room No./ Varandah / Open space / Main Gate	Description of electrical equipment	Quantity	Wattage of the each equipment (in Watts)	Average No. of hours used per day (in hours)	Electrical energy consumption per day (kWh)
Principal's Office	LED lights	11	20	7	1.54
	Air Conditioner	1	1500	7	10.5

	Ceiling Fans	4	75	7	2.1
	LED Monitor	1	60	7	0.42
	Printer	1	250	2	0.5
	Fridge	1	167	5	0.835
	Stand Fan	1	75	0.1	0.0075
Manager's Office	LED lights	4	20	5	0.4
	Ceiling Fan	2	75	5	0.75
Main Office	Tube Lights	3	40	7	0.84
	LED lights	5	20	7	0.7
	Desktop computers	3	150	7	3.15
	Printers	2	250	2	1
	Xerox machine	1	250	2	0.5
Men's staff room	Ceiling Fans	4	75	5	1.5
	Tube lights	7	40	5	1.4
	LED light	3	20	5	0.3
Ladies waiting room	Ceiling Fans	3	75	5	1.125
	LED lights	7	20	5	0.7

IQAC Room	Ceiling fan	1	75	2	0.15
	Tube Lights	2	40	2	0.16
	Desktop Monitor	1	150	1	0.15
CRESTE Room	LED Lights	8	20	5	0.8
	Ceiling Fans	4	75	3	0.9
	Air Conditioner	2	1500	3	9
	Desktop Monitor	1	150	5	0.75
	Printer	1	250	1	0.25
Room No 1	LED lights	4	20	5	0.4
	Ceiling Fans	2	75	5	0.75
Room No 2	LED lights	3	20	5	0.3
	Tube lights	3	40	1	0.12
	Ceiling fans	4	75	3	0.9
Room No 3 (Virtual Lab)	Ceiling Fans	6	75	2	0.9
	LED Lights	17	20	1	0.34
	LCD projectors	2	100	1	0.2

Room No 4 (Digital Lab)	LCD projectors	3	100	1	0.3
	LED Lights	17	20	1	0.34
	Ceiling Fans	6	75	1	0.45
	Desktop computers	30	150	2	9
	Television	1	40	0	0
Room No 5	Ceiling Fans	2	75	1	0.15
	Tube Light	1	40	1	0.04
	LED Lights	3	20	3	0.18
Room No 6	Ceiling Fans	2	75	1	0.15
	LED Lights	3	20	3	0.18
Room No 7	Ceiling Fans	2	75	1	0.15
	LED Lights	1	20	3	0.06
	Tube Lights	2	40	1	0.08
Room No 8	Air Conditioner	1	1500	0.1	0.15
	CFL Lights	7	20	0.2	0.028
	Ceiling Fans	6	75	0.5	0.225

	Desktop computers	10	150	1	1.5
	Stand Fan	1	75	0.2	0.015
	LCD Projector	1	100	0.2	0.02
Room No 9	Ceiling Fans	2	75	2	0.3
	Tube Lights	3	40	2	0.24
	LED Lights	1	20	3	0.06
Room No 10	Ceiling Fans	2	75	2	0.3
	Tube Lights	1	40	2	0.08
	LED Lights	3	20	3	0.18
Room No 11	Ceiling Fans	2	75	2	0.3
	Tube Lights	1	40	2	0.08
	LED Lights	3	20	3	0.18
Room No 12	Ceiling Fans	2	75	2	0.3
	LED Lights	5	20	3	0.3
Correspondent Room	Air Conditioner	1	1500	0.2	0.3
	LED Lights	4	20	0.1	0.008

Assembly Hall	Focus Lights	7	500	0.1	0.35
	LED Lights	16	20	1	0.32
	Ceiling Fans	19	75	0.5	0.7125
	Bulbs	6	40	2	0.48
Library	LED Lights	18	20	5	1.8
	Tube Lights	28	40	2	2.24
Library	Ceiling Fans	20	75	5	7.5
	Stand Fans	2	75	0.5	0.075
Room No 40	Ceiling Fan	2	75	2	0.3
	Tube Light	2	40	2	0.16
Room No 41	LED Lights	2	20	2	0.08
	Ceiling Fan	1	75	2	0.15
Room No 42	Tube Light	2	40	2	0.16
	Ceiling Fans	2	75	2	0.3
Room No 43	Tube Light	2	40	2	0.16
	Ceiling Fans	2	75	2	0.3
Room No 46	Tube Light	1	40	5	0.2
	Ceiling Fans	2	75	5	0.75

Room No 47	Tube Light	3	40	5	0.6
	Ceiling Fans	2	75	5	0.75
Evening college corridor	Tube Light	7	40	2	0.56
Room No 48	Ceiling Fans	3	75	3	0.675
	LED Lights	4	20	3	0.24
Room No 49	Ceiling Fan	3	75	3	0.675
	LED Light	1	20	3	0.06
Room No 50	Ceiling Fan	2	75	3	0.45
	LED Light	1	20	3	0.06
Room No 51	Ceiling Fan	1	75	3	0.225
	LED Light	1	20	3	0.06
Room No 52	Ceiling Fan	1	75	3	0.225
	LED Light	1	20	3	0.06
Room No 53	Ceiling Fan	2	75	3	0.45
	LED Light	3	20	3	0.18
Room No 56	Ceiling Fan	2	75	3	0.45

	LED Light	3	20	3	0.18
Room No 59	Ceiling Fan	2	75	3	0.45
	LED Light	4	20	3	0.24
	LCD Projector	1	100	2	0.2
Room No 83	Ceiling Fan	3	75	5	1.125
	LED Light	4	20	5	0.4
	LCD Projector	1	100	2	0.2
Botany dept Museum	Tube Lights	3	40	2	0.24
	LED Lights	2	20	2	0.08
	Stand fans	4	75	2	0.6
	LCD projector	1	100	2	0.2
Botany Men's Staffroom	Tube Lights	2	40	3	0.24
	LED Lights	1	20	5	0.1
	Ceiling Fans	2	75	5	0.75
	Stand Fans	2	75	0.5	0.075
	Fridge	1	167	5	0.835

	Desktop computer	1	150	3	0.45
Botany Ladies Staffroom	LED Lights	1	20	3	0.06
	Tube Lights	2	40	3	0.24
	Ceiling Fans	2	75	5	0.75
	Desktop computer	1	150	2	0.3
Botany Head Room	Tube light	2	40	2	0.16
Botany Head Room	Ceiling Fan	1	75	2	0.15
Botany – Microbiology Lab	Air Conditioner	2	1500	1	3
	Tube Lights	5	20	2	0.2
	Ceiling Fan	3	75	2	0.45
Botany – Inter Lab	LED Lights	6	20	2	0.24
	Ceiling Fans	6	75	2	0.9
	Tube Lights	12	40	2	0.96
Botany – Degree Lab	LED Lights	8	20	2	0.32

	Ceiling Fans	7	75	2	1.05
	LCD projector	1	100	0.5	0.05
	Tube lights	20	40	2	1.6
Botany – Library	Tube lights	3	40	1	0.12
	LED Light	1	20	1	0.02
Zoology Dept Museum	Ceiling Fan	2	75	2	0.3
	LED Lights	1	20	3	0.06
	Tube Lights	4	40	2	0.32
Zoology Staffroom	Tube Lights	2	40	2	0.16
	LED Lights	2	20	2	0.08
Zoology Head room	Tube Light	3	40	2	0.24
	Ceiling Fan	1	75	2	0.15
Zoology – Inter Lab	Tube Lights	26	40	1	1.04
	Ceiling Fans	6	75	1	0.45
Zoology – Degree Lab	Tube Lights	24	40	1	0.96
	LED Lights	3	20	2	0.12
	LCD Projector	1	100	1	0.1

Room no 24	Tube Lights	13	40	1	0.52
	LED Lights	1	20	2	0.04
	Ceiling Fans	4	75	2	0.6
P.G. Zoology	Ceiling Fans	12	75	2	1.8
	Stand Fan	1	75	1	0.075
	Tube Lights	20	40	2	1.6
	Fridge	1	167	1	0.167
B.Com Staff room	Ceiling Fans	2	75	2	0.3
	Tube Lights	2	40	2	0.16
Seminar Hall	Ceiling Fans	11	75	2	1.65
	LED Lights	8	20	2	0.32
	Tube Lights	16	40	2	1.28
	Air Conditioner	6	1500	0.2	1.8
M.Com (Final Class room)	Ceiling Fans	4	75	2	0.6
	Tube lights	4	40	2	0.32
M.Com 1 st Year Classroom	Ceiling Fan	4	75	3	0.9
	Tube Lights	4	40	2	0.32
M.Com Staffroom	Ceiling Fans	2	75	3	0.45

	Tube lights	2	40	3	0.24
Maths Dept Staffroom	LED lights	6	20	3	0.36
	Ceiling Fans	2	75	3	0.45
	Fridge	1	167	2	0.334
Maths Headroom	Tube lights	2	40	5	0.4
	LED light	1	20	5	0.1
	Ceiling Fans	3	75	5	1.125
	Printers	2	250	0.5	0.25
Maths Headroom	Desktop Computer	1	150	3	0.45
	Xerox Machine	1	250	0.5	0.125
Chemistry Dept Lab – 1	Tube lights	28	40	2	2.24
	Ceiling Fans	4	75	2	0.6
Chemistry Storeroom	LED lights	4	20	1	0.08
	Tube lights	4	40	1	0.16
	LCD projector	1	100	1	0.1
	Ceiling Fans	6	75	1	0.45

Chemistry Seminar Hall	Tube Lights	8	40	3	0.96
	Ceiling Fan	4	75	3	0.9
Chemistry Corridor	Tube Lights	3	40	3	0.36
	LED Lights	2	20	3	0.12
	Ceiling Fan	2	75	3	0.45
Chemistry Headroom	LED Lights	2	20	3	0.12
	Ceiling Fans	2	75	3	0.45
Chemistry Lab – 3	Tube Light	16	40	3	1.92
	Ceiling Fan	1	75	2	0.15
Chemistry Physical Lab	Tube Lights	6	40	2	0.48
	Ceiling Fan	2	75	2	0.3
Chemistry Lab – 2	Tube Lights	5	40	2	0.4
	Stand Fan	2	75	2	0.3
Chemistry P.G. Head	Tube Lights	2	40	2	0.16
	Ceiling Fan	1	75	2	0.15
Chemistry Ladies Staffroom	LED Lights	2	20	3	0.12
	Ceiling Fans	2	75	3	0.45
Physics Lab – 1	Ceiling Fans	12	75	3	2.7

	Tube Lights	44	40	3	5.28
	LED Lights	3	20	3	0.18
	LCD projector	1	100	1	0.1
Physics Lab - 2	Ceiling Fan	8	75	5	3
	Tube Lights	23	40	5	4.6
Physics Computer Lab	Window A.C	2	1000	0.1	0.2
	Desktop Computer	20	150	2	6
	Stand Fan	1	75	2	0.15
	Fridge	1	167	1	0.157
Physical Education	LED Lights	2	20	3	0.12
	Ceiling Fan	5	75	3	1.125
	Tube Lights	4	40	3	0.48
Telugu Department	Ceiling Fan	3	75	3	0.675
	Tube Lights	2	40	3	0.24
History Department	Ceiling Fan	2	75	3	0.45
	Tube Lights	2	40	3	0.24
Political Science Dept	Ceiling Fan	3	75	3	0.675

	Tube Lights	4	40	3	0.48
Scholarship	Tube Lights	4	40	3	0.48
	Ceiling Fan	2	75	3	0.45
Economics Department	Ceiling Fan	2	75	3	0.45
	Tube Light	2	40	3	0.24
Total Electricity Consumption					159.24

The above calculated average consumption of electrical energy units per day were approximately coincided with average daily consumption units of electrical energy as per invoice issued by the power supply authorities.

6. CONCLUSION AND RECOMMENDATIONS

Energy audit was conducted on the Andhra Christian College, Guntur district campus during the period from 8-12-2022 to 16-12 2022 for a period of two days. In the energy audit conducted at Andhra Christian College, Guntur, Guntur district, following conclusions were reached.

- It is observed that there are many fluorescent and CFL tube lights in use which must be replaced with LED tube light to save a lot of energy
- It was found that fans consume the most electricity. Many old fans of over 20 years standing were identified. The continuous use of ceiling

fans for more than 5 hours also contributes significantly to the high cost of electricity. Old fans should also be checked and replaced for significant reduction in energy consumption. Instead of conventional fans, BLDC fans could be used for reduced consumption.

- Outdoor energy consumption can be significantly reduced by using solar lights in all areas of the college.
- Solar Power units installed in the campus must be fully used and if necessary new solar power units must be installed to make the campus eco-friendly.
- High energy consuming devices like A.Cs, computers, fridges, printers should be used efficiently as and when required.

Guntur,

Dt. 11-01-2023


ASSISTANT ENGINEER
OPERATION :: A.P.C.P.D.C.
03 SECTION :: GUNTUR

"Ye shall know the truth and the truth shall set you free".... St. John 8 : 32

Andhra Christian College, Guntur

(DAY, EVENING & P.G.)

Accredited with 'A' Grade by NAAC



Estd. 1885

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ENERGY AUDIT OF ANDHRA CHRISTIAN COLLEGE, GUNTUR

Date: 18-01-2022

1. INTRODUCTION

The purpose of this energy audit is to quantify electrical energy consumption and recommend where savings are possible. It is carried out by a 'walk through audit' that involves examining every item that consumes electric energy, estimating power ratings, operating hours and preparing electric energy budget. Energy wastage and inefficiencies in use of electrical and electronic items are identified as well those requiring maintenance or replacements are identified. Action plan for an energy management strategy will be designed following the audit.

2. AIM

Conducting Energy Audit and to evolve energy conservation measures in Andhra Christian College, Guntur, Guntur district.

3. OBJECTIVES

- To assess the current pattern of electrical energy consumption on the college campus.
- To know energy losses.
- Suggesting and implementing energy saving methods.

4. METHODOLOGY*

The energy audit was conducted through a walk-through survey of the campus of Andhra Christian College, Guntur, Guntur district. College areas are allotted to four groups of two members each.

4.1. SITE SURVEY

In every room and outside, members physically visited the rooms and estimated the number and type of lights, i.e., incandescent, fluorescent, CFL and LED, and the lights power rating i.e., number of watts and hours of daily use are estimated. The same procedure is carried out for other electrical items computers, Printer and LCDs. Energy meter readings of the college were taken for this purpose.

CALCULATION OF AVERAGE ELECTRICAL ENERGY CONSUMPTION PER DAY

Location (Room No./ Varandah / Open space / Main Gate	Description of electrical equipment	Quantity	Wattage of the each equipment (in Watts)	Average No. of hours used per day (in hours)	Electrical energy consumption per day (kWh)
Principal's Office	LED lights	11	20	5	1.1
	Air Conditioner	1	1500	5	7.5
	Ceiling Fans	4	75	5	1.5
	LED Monitor	1	60	5	0.3
	Printer	1	250	2	0.5
	Fridge	1	167	4	0.668
	Stand Fan	1	75	0.1	0.0075
Manager's Office	LED lights	4	20	5	0.4
	Ceiling Fan	2	75	5	0.75
Main Office	Tube Lights	3	40	5	0.6
	LED lights	5	20	5	0.5
	Desktop computers	3	150	5	2.25
	Printers	2	250	2	1
	Xerox machine	1	250	1	0.25

Men's staff room	Ceiling Fans	4	75	5	1.5
	Tube lights	7	40	5	1.4
	LED light	3	20	5	0.3
Ladies waiting room	Ceiling Fans	3	75	4	0.9
	LED lights	7	20	4	0.56
IQAC Room	Ceiling fan	1	75	2	0.15
	Tube Lights	2	40	2	0.16
	Desktop Monitor	1	150	1	0.15
CRESTE Room	LED Lights	8	20	2	0.32
	Ceiling Fans	4	75	2	0.6
	Air Conditioner	2	1500	2	6
	Desktop Monitor	1	150	2	0.3
	Printer	1	250	1	0.25
Room No 1	LED lights	4	20	2	0.16
	Ceiling Fans	2	75	2	0.3
Room No 2	LED lights	3	20	2	0.12
	Tube lights	3	40	1	0.12
	Ceiling fans	4	75	3	0.9
Room No 3 (Virtual Lab)	Ceiling Fans	6	75	2	0.9
	LED Lights	17	20	0.5	0.17
	LCD projectors	2	100	0.5	0.1
Room No 4 (Digital Lab)	LCD projectors	3	100	0.5	0.15
	LED Lights	17	20	0.5	0.17
	Ceiling Fans	6	75	1	0.45
	Desktop computers	30	150	2	9
	Television	1	40	0	0
Room No 5	Ceiling Fans	2	75	1	0.15
	Tube Light	1	40	1	0.04
	LED Lights	3	20	2	0.12

Room No 6	Ceiling Fans	2	75	1	0.15
	LED Lights	3	20	3	0.18
Room No 7	Ceiling Fans	2	75	1	0.15
	LED Lights	1	20	3	0.06
	Tube Lights	2	40	1	0.08
Room No 8	Air Conditioner	1	1500	0.1	0.15
	CFL Lights	7	20	0.2	0.028
	Ceiling Fans	6	75	0.5	0.225
	Desktop computers	10	150	1	1.5
	Stand Fan	1	75	0.2	0.015
	LCD Projector	1	100	0.2	0.02
Room No 9	Ceiling Fans	2	75	2	0.3
	Tube Lights	3	40	2	0.24
	LED Lights	1	20	3	0.06
Room No 10	Ceiling Fans	2	75	2	0.3
	Tube Lights	1	40	2	0.08
	LED Lights	3	20	2	0.12
Room No 11	Ceiling Fans	2	75	2	0.3
	Tube Lights	1	40	2	0.08
	LED Lights	3	20	3	0.18
Room No 12	Ceiling Fans	2	75	2	0.3
	LED Lights	5	20	3	0.3
Correspondent Room	Air Conditioner	1	1500	0.2	0.3
	LED Lights	4	20	0.1	0.08
Assembly Hall	Focus Lights	7	500	0.1	0.35
	LED Lights	16	20	1	0.32
	Ceiling Fans	19	75	0.5	0.7125
	Bulbs	6	40	2	0.48
Library	LED Lights	18	20	4	1.44
	Tube Lights	28	40	4	4.48
Library	Ceiling Fans	20	75	2	3

	Stand Fans	2	75	0.5	0.075
Room No 40	Ceiling Fan	2	75	2	0.3
	Tube Light	2	40	2	0.16
Room No 41	LED Lights	2	20	2	0.08
	Ceiling Fan	1	75	2	0.15
Room No 42	Tube Light	2	40	2	0.16
	Ceiling Fans	2	75	2	0.3
Room No 43	Tube Light	2	40	2	0.16
	Ceiling Fans	2	75	2	0.3
Room No 46	Tube Light	1	40	2	0.08
	Ceiling Fans	2	75	2	0.3
Room No 47	Tube Light	3	40	2	0.24
	Ceiling Fans	2	75	2	0.3
Evening college corridor	Tube Light	7	40	4	1.12
Room No 48	Ceiling Fans	3	75	3	0.675
	LED Lights	4	20	3	0.24
Room No 49	Ceiling Fan	3	75	3	0.675
	LED Light	1	20	3	0.06
Room No 50	Ceiling Fan	2	75	3	0.45
	LED Light	1	20	3	0.06
Room No 51	Ceiling Fan	1	75	3	0.225
	LED Light	1	20	3	0.06
Room No 52	Ceiling Fan	1	75	3	0.225
	LED Light	1	20	3	0.06
Room No 53	Ceiling Fan	2	75	3	0.45
	LED Light	3	20	3	0.18
Room No 56	Ceiling Fan	2	75	3	0.45
	LED Light	3	20	3	0.18
Room No 59	Ceiling Fan	2	75	3	0.45
	LED Light	4	20	3	0.24
	LCD Projector	1	100	2	0.2
Room No 83	Ceiling Fan	3	75	5	1.125

	LED Light	4	20	5	0.4
	LCD Projector	1	100	2	0.2
Botany dept Museum	Tube Lights	3	40	2	0.24
	LED Lights	2	20	2	0.08
	Stand fans	4	75	2	0.6
	LCD projector	1	100	2	0.2
Botany Men's Staffroom	Tube Lights	2	40	3	0.24
	LED Lights	1	20	5	0.1
	Ceiling Fans	2	75	5	0.75
	Stand Fans	2	75	0.5	0.075
	Fridge	1	167	5	0.835
	Desktop computer	1	150	3	0.45
Botany Ladies Staffroom	LED Lights	1	20	3	0.06
	Tube Lights	2	40	3	0.24
	Ceiling Fans	2	75	2	0.3
	Desktop computer	1	150	2	0.3
Botany Head Room	Tube light	2	40	2	0.16
Botany Head Room	Ceiling Fan	1	75	2	0.15
Botany – Microbiology Lab	Air Conditioner	2	1500	1	3
	Tube Lights	5	20	2	0.2
	Ceiling Fan	3	75	2	0.45
Botany – Inter Lab	LED Lights	6	20	2	0.24
	Ceiling Fans	6	75	2	0.9
	Tube Lights	12	40	2	0.96
Botany – Degree Lab	LED Lights	8	20	2	0.32
	Ceiling Fans	7	75	2	1.05
	LCD projector	1	100	0.5	0.05
	Tube lights	20	40	2	1.6

Botany – Library	Tube lights	3	40	1	0.12
	LED Light	1	20	1	0.02
Zoology Dept Museum	Ceiling Fan	2	75	2	0.3
	LED Lights	1	20	3	0.06
	Tube Lights	4	40	2	0.32
Zoology Staffroom	Tube Lights	2	40	2	0.16
	LED Lights	2	20	2	0.08
Zoology Head room	Tube Light	3	40	2	0.24
	Ceiling Fan	1	75	2	0.15
Zoology – Inter Lab	Tube Lights	26	40	1	1.04
	Ceiling Fans	6	75	1	0.45
Zoology – Degree Lab	Tube Lights	24	40	1	0.96
	LED Lights	3	20	2	0.12
	LCD Projector	1	100	1	0.1
Room no 24	Tube Lights	13	40	1	0.52
	LED Lights	1	20	2	0.04
	Ceiling Fans	4	75	2	0.6
P.G. Zoology	Ceiling Fans	12	75	2	1.8
	Stand Fan	1	75	1	0.075
	Tube Lights	20	40	2	1.6
	Fridge	1	167	1	0.167
B.Com Staff room	Ceiling Fans	2	75	2	0.3
	Tube Lights	2	40	2	0.16
Seminar Hall	Ceiling Fans	11	75	2	1.65
	LED Lights	8	20	2	0.32
	Tube Lights	16	40	2	1.28
	Air Conditioner	6	1500	0.2	1.3
M.Com (Final Class room)	Ceiling Fans	4	75	2	0.6
	Tube lights	4	40	2	0.32
M.Com 1 st Year Classroom	Ceiling Fan	4	75	3	0.9
	Tube Lights	4	40	2	0.32
M.Com	Ceiling Fans	2	75	3	0.45

Staffroom	Tube lights	2	40	3	0.24
Maths Dept Staffroom	LED lights	6	20	3	0.36
	Ceiling Fans	2	75	3	0.45
	Fridge	1	167	2	0.334
Maths Headroom	Tube lights	2	40	2	0.16
	LED light	1	20	2	0.04
	Ceiling Fans	3	75	2	0.45
	Printers	2	250	0.5	0.25
Maths Headroom	Desktop Computer	1	150	3	0.45
	Xerox Machine	1	250	0.5	0.125
Chemistry Dept Lab – 1	Tube lights	28	40	2	2.24
	Ceiling Fans	4	75	2	0.6
Chemistry Storeroom	LED lights	4	20	1	0.08
	Tube lights	4	40	1	0.16
	LCD projector	1	100	1	0.1
	Ceiling Fans	6	75	1	0.45
Chemistry Seminar Hall	Tube Lights	8	40	3	0.96
	Ceiling Fan	4	75	3	0.9
Chemistry Corridor	Tube Lights	3	40	3	0.36
	LED Lights	2	20	3	0.12
	Ceiling Fan	2	75	3	0.45
Chemistry Headroom	LED Lights	2	20	3	0.12
	Ceiling Fans	2	75	3	0.45
Chemistry Lab – 3	Tube Light	16	40	3	1.92
	Ceiling Fan	1	75	2	0.15
Chemistry Physical Lab	Tube Lights	6	40	2	0.48
	Ceiling Fan	2	75	2	0.3
Chemistry Lab – 2	Tube Lights	5	40	2	0.4
	Stand Fan	2	75	2	0.3
Chemistry P.G. Head	Tube Lights	2	40	2	0.16
	Ceiling Fan	1	75	2	0.15
Chemistry	LED Lights	2	20	3	0.12

Ladies Staffroom	Ceiling Fans	2	75	3	0.45
Physics Lab – 1	Ceiling Fans	12	75	1	0.9
	Tube Lights	44	40	1	1.76
	LED Lights	3	20	3	0.18
	LCD projector	1	100	1	0.1
Physics Lab – 2	Ceiling Fan	8	75	3	1.8
	Tube Lights	23	40	2	1.84
Physics Computer Lab	Window A.C	2	1000	0.1	0.2
	Desktop Computer	20	150	1	3
	Stand Fan	1	75	2	0.15
	Fridge	1	167	1	0.167
Physical Education	LED Lights	2	20	3	0.12
	Ceiling Fan	5	75	3	1.125
	Tube Lights	4	40	3	0.48
Telugu Department	Ceiling Fan	3	75	3	0.675
	Tube Lights	2	40	2	0.16
History Department	Ceiling Fan	2	75	2	0.3
	Tube Lights	2	40	2	0.16
Political Science Dept	Ceiling Fan	3	75	3	0.675
	Tube Lights	4	40	2	0.32
Scholarship	Tube Lights	4	40	2	0.32
	Ceiling Fan	2	75	2	0.3
Economics Department	Ceiling Fan	2	75	2	0.3
	Tube Light	2	40	2	0.16
Total Electricity Consumption					129.047

The above calculated average consumption of electrical energy units per day were approximately coincided with average daily consumption units of electrical energy as per invoice issued by the power supply authorities.

6. CONCLUSION AND RECOMMENDATIONS

Energy audit was conducted on the Andhra Christian College, Guntur district campus during the period from 10-12-2021 to 18-12-2021 for a period of two days. In the energy audit conducted at Andhra Christian College, Guntur, Guntur district, following conclusions were reached.

- It is observed that there are many fluorescent and CFL tube lights in use which must be replaced with LED tube light to save a lot of energy
- It was found that fans consume the most electricity. Many old fans of over 20 years standing were identified. The continuous use of ceiling fans for more than 5 hours also contributes significantly to the high cost of electricity. Old fans should also be checked and replaced for significant reduction in energy consumption. Instead of conventional fans, BLDC fans could be used for reduced consumption.
- Outdoor energy consumption can be significantly reduced by using solar lights in all areas of the college.
- Solar Power units installed in the campus must be fully used and if necessary new solar power units must be installed to make the campus eco-friendly.
- High energy consuming devices like a.c.s, computers, fridges, printers should be used efficiently as and when required.

Guntur,

Dt. 18-01-2022


ASSISTANT ENGINEER
OPERATION :: A.P.C.P.D
D3 SECTION - GUN

"Ye shall know the truth and the truth shall set you free".... St. John 8 : 32

Andhra Christian College, Guntur

(DAY, EVENING & P.G.)

Accredited with 'A' Grade by NAAC

Dr. K. Moses

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PRINCIPAL



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ENERGY AUDIT OF ANDHRA CHRISTIAN COLLEGE, GUNTUR

Date : 07-01-2021

1. INTRODUCTION

The purpose of this energy audit is to quantify electrical energy consumption and recommend where savings are possible. It is carried out by a 'walk through audit' that involves examining every item that consumes electric energy, estimating power ratings, operating hours and preparing electric energy budget. Energy wastage and inefficiencies in use of electrical and electronic items are identified as well those requiring maintenance or replacements are identified. Action plan for an energy management strategy will be designed following the audit.

2. AIM

Conducting Energy Audit and to evolve energy conservation measures in Andhra Christian College, Guntur, Guntur district.

3. OBJECTIVES

- To assess the current pattern of electrical energy consumption on the college campus.
- To know energy losses.
- Suggesting and implementing energy saving methods.

4. METHODOLOGY*

The energy audit was conducted through a walk-through survey of the campus of Andhra Christian College, Guntur, Guntur district. College areas are allotted to four groups of two members each.

4.1. SITE SURVEY

In every room and outside, members physically visited the rooms and estimated the number and type of lights, i.e., incandescent, fluorescent, CFL and LED, and the lights power rating i.e., number of watts and hours of daily use are estimated. The same procedure is carried out for other electrical items computers, Printer and LCDs. Energy meter readings of the college were taken for this purpose.

CALCULATION OF AVERAGE ELECTRICAL ENERGY CONSUMPTION PER DAY

Location (Room No./ Varandah / Open space / Main Gate	Description of electrical equipment	Quantity	Wattage of the each equipment (in Watts)	Average No. of hours used per day (in hours)	Electrical energy consumption per day (kWh)
Principal's Office	LED lights	11	20	5	1.1
	Air Conditioner	1	1500	2	3
	Ceiling Fans	4	75	5	1.5
	LED Monitor	1	60	5	0.3
	Printer	1	250	2	0.5
	Fridge	1	167	5	0.835
	Stand Fan	1	75	0.1	0.0075
Manager's Office	LED lights	4	20	2	0.16
	Ceiling Fan	2	75	5	0.75

Main Office	Tube Lights	3	40	4	0.48
	LED lights	5	20	4	0.4
	Desktop computers	3	150	4	1.8
	Printers	2	250	4	2
	Xerox machine	1	250	2	0.5
Men's staff room	Ceiling Fans	4	75	4	1.2
	Tube lights	7	40	4	1.12
	LED light	3	20	4	0.24
Ladies waiting room	Ceiling Fans	3	75	5	1.125
	LED lights	7	20	4	0.56
IQAC Room	Ceiling fan	1	75	2	0.15
	Tube Lights	2	40	2	0.16
	Desktop Monitor	1	150	1	0.15
CRESTE Room	LED Lights	8	20	2	0.32
	Ceiling Fans	4	75	2	0.6
	Air Conditioner	2	1500	2	6
	Desktop Monitor	1	150	2	0.3
	Printer	1	250	1	0.25
Room No 1	LED lights	4	20	2	0.16
	Ceiling Fans	2	75	2	0.3
Room No 2	LED lights	3	20	2	0.12

	Tube lights	3	40	1	0.12
	Ceiling fans	4	75	3	0.9
Room No 3 (Virtual Lab)	Ceiling Fans	6	75	2	0.9
	LED Lights	17	20	0.5	0.17
	LCD projectors	2	100	0.5	0.1
Room No 4 (Digital Lab)	LCD projectors	3	100	0.5	0.15
	LED Lights	17	20	0.5	0.17
	Ceiling Fans	6	75	1	0.45
	Desktop computers	30	150	2	9
	Television	1	40	0	0
Room No 5	Ceiling Fans	2	75	1	0.15
	Tube Light	1	40	1	0.04
	LED Lights	3	20	2	0.12
Room No 6	Ceiling Fans	2	75	1	0.15
	LED Lights	3	20	3	0.18
Room No 7	Ceiling Fans	2	75	1	0.15

	LED Lights	1	20	3	0.06
	Tube Lights	2	40	1	0.08
Room No 8	Air Conditioner	1	1500	0.1	0.15
	CFL Lights	7	20	0.2	0.028
	Ceiling Fans	6	75	0.5	0.225
	Desktop computers	10	150	1	1.5
	Stand Fan	1	75	0.2	0.015
	LCD Projector	1	100	0.2	0.02
Room No 9	Ceiling Fans	2	75	2	0.3
	Tube Lights	3	40	2	0.24
	LED Lights	1	20	3	0.06
Room No 10	Ceiling Fans	2	75	2	0.3
	Tube Lights	1	40	2	0.08
	LED Lights	3	20	2	0.12
Room No 11	Ceiling Fans	2	75	2	0.3
	Tube Lights	1	40	2	0.08

	LED Lights	3	20	3	0.18
Room No 12	Ceiling Fans	2	75	2	0.3
	LED Lights	5	20	3	0.3
Correspondent Room	Air Conditioner	1	1500	0.2	0.3
	LED Lights	4	20	0.1	0.008
Assembly Hall	Focus Lights	7	500	0.1	0.35
	LED Lights	16	20	1	0.32
	Ceiling Fans	19	75	0.5	0.7125
	Bulbs	6	40	2	0.48
Library	LED Lights	18	20	2	0.72
	Tube Lights	28	40	2	2.24
Library	Ceiling Fans	20	75	2	3
	Stand Fans	2	75	0.5	0.075
Room No 40	Ceiling Fan	2	75	2	0.3
	Tube Light	2	40	2	0.16
Room No 41	LED Lights	2	20	2	0.08
	Ceiling Fan	1	75	2	0.15
Room No 42	Tube Light	2	40	2	0.16

	Ceiling Fans	2	75	2	0.3
Room No 43	Tube Light	2	40	2	0.16
	Ceiling Fans	2	75	2	0.3
Room No 46	Tube Light	1	40	2	0.08
	Ceiling Fans	2	75	2	0.3
Room No 47	Tube Light	3	40	2	0.24
	Ceiling Fans	2	75	2	0.3
Evening college corridor	Tube Light	7	40	2	0.56
Room No 48	Ceiling Fans	3	75	3	0.675
	LED Lights	4	20	3	0.24
Room No 49	Ceiling Fan	3	75	3	0.675
	LED Light	1	20	3	0.06
Room No 50	Ceiling Fan	2	75	3	0.45
	LED Light	1	20	3	0.06
Room No 51	Ceiling Fan	1	75	3	0.225
	LED Light	1	20	3	0.06
Room No 52	Ceiling Fan	1	75	3	0.225

	LED Light	1	20	3	0.06
Room No 53	Ceiling Fan	2	75	3	0.45
	LED Light	3	20	3	0.18
Room No 56	Ceiling Fan	2	75	3	0.45
	LED Light	3	20	3	0.18
Room No 59	Ceiling Fan	2	75	3	0.45
	LED Light	4	20	3	0.24
	LCD Projector	1	100	2	0.2
Room No 83	Ceiling Fan	3	75	5	1.125
	LED Light	4	20	5	0.4
	LCD Projector	1	100	2	0.2
Botany dept Museum	Tube Lights	3	40	2	0.24
	LED Lights	2	20	2	0.08
	Stand fans	4	75	2	0.6
	LCD projector	1	100	2	0.2
Botany Men's Staffroom	Tube Lights	2	40	3	0.24

	LED Lights	1	20	5	0.1
	Ceiling Fans	2	75	5	0.75
	Stand Fans	2	75	0.5	0.075
	Fridge	1	167	5	0.835
	Desktop computer	1	150	3	0.45
Botany Ladies Staffroom	LED Lights	1	20	3	0.06
	Tube Lights	2	40	3	0.24
	Ceiling Fans	2	75	2	0.3
	Desktop computer	1	150	2	0.3
Botany Head Room	Tube light	2	40	2	0.16
Botany Head Room	Ceiling Fan	1	75	2	0.15
Botany – Microbiology Lab	Air Conditioner	2	1500	1	3
	Tube Lights	5	20	2	0.2
	Ceiling Fan	3	75	2	0.45
Botany – Inter Lab	LED Lights	6	20	2	0.24

	Ceiling Fans	6	75	2	0.9
	Tube Lights	12	40	2	0.96
Botany – Degree Lab	LED Lights	8	20	2	0.32
	Ceiling Fans	7	75	2	1.05
	LCD projector	1	100	0.5	0.05
	Tube lights	20	40	2	1.6
Botany – Library	Tube lights	3	40	1	0.12
	LED Light	1	20	1	0.02
Zoology Dept Museum	Ceiling Fan	2	75	2	0.3
	LED Lights	1	20	3	0.06
	Tube Lights	4	40	2	0.32
Zoology Staffroom	Tube Lights	2	40	2	0.16
	LED Lights	2	20	2	0.08
Zoology Head room	Tube Light	3	40	2	0.24
	Ceiling Fan	1	75	2	0.15
Zoology – Inter Lab	Tube Lights	26	40	1	1.04
	Ceiling Fans	6	75	1	0.45

Zoology – Degree Lab	Tube Lights	24	40	1	0.96
	LED Lights	3	20	2	0.12
	LCD Projector	1	100	1	0.1
Room no 24	Tube Lights	13	40	1	6.52
	LED Lights	1	20	2	0.04
	Ceiling Fans	4	75	2	0.6
P.G. Zoology	Ceiling Fans	12	75	2	1.8
	Stand Fan	1	75	1	0.075
	Tube Lights	20	40	2	1.6
	Fridge	1	167	1	0.167
B.Com Staff room	Ceiling Fans	2	75	2	0.3
	Tube Lights	2	40	2	0.16
Seminar Hall	Ceiling Fans	11	75	2	1.65
	LED Lights	8	20	2	0.32
	Tube Lights	16	40	2	1.28
	Air Conditioner	6	1500	0.2	1.8
M.Com (Final Class	Ceiling Fans	4	75	2	0.6

Zoology – Degree Lab	Tube Lights	24	40	1	0.96
	LED Lights	3	20	2	0.12
	LCD Projector	1	100	1	0.1
Room no 24	Tube Lights	13	40	1	6.52
	LED Lights	1	20	2	0.04
	Ceiling Fans	4	75	2	0.6
P.G. Zoology	Ceiling Fans	12	75	2	1.8
	Stand Fan	1	75	1	0.075
	Tube Lights	20	40	2	1.6
	Fridge	1	167	1	0.167
B.Com Staff room	Ceiling Fans	2	75	2	0.3
	Tube Lights	2	40	2	0.16
Seminar Hall	Ceiling Fans	11	75	2	1.65
	LED Lights	8	20	2	0.32
	Tube Lights	16	40	2	1.28
	Air Conditioner	6	1500	0.2	1.8
M.Com (Final Class	Ceiling Fans	4	75	2	0.6

room)	Tube lights	4	40	2	0.32
M.Com 1 st Year Classroom	Ceiling Fan	4	75	3	0.9
	Tube Lights	4	40	2	0.32
M.Com Staffroom	Ceiling Fans	2	75	3	0.45
	Tube lights	2	40	3	0.24
Maths Dept Staffroom	LED lights	6	20	3	0.36
	Ceiling Fans	2	75	3	0.45
	Fridge	1	167	2	0.334
Maths Headroom	Tube lights	2	40	2	0.16
	LED light	1	20	2	0.04
	Ceiling Fans	3	75	2	0.45
	Printers	2	250	0.5	0.25
Maths Headroom	Desktop Computer	1	150	3	0.45
	Xerox Machine	1	250	0.5	0.125
Chemistry Dept Lab – 1	Tube lights	28	40	2	2.24
	Ceiling Fans	4	75	2	0.6
Chemistry Storeroom	LED lights	4	20	1	0.08
	Tube lights	4	40	1	0.16

	LCD projector	1	100	1	0.1
	Ceiling Fans	6	75	1	0.45
Chemistry Seminar Hall	Tube Lights	8	40	3	0.96
	Ceiling Fan	4	75	3	0.9
Chemistry Corridor	Tube Lights	3	40	3	0.36
	LED Lights	2	20	3	0.12
	Ceiling Fan	2	75	3	0.45
Chemistry Headroom	LED Lights	2	20	3	0.12
	Ceiling Fans	2	75	3	0.45
Chemistry Lab – 3	Tube Light	16	40	3	1.92
	Ceiling Fan	1	75	2	0.15
Chemistry Physical Lab	Tube Lights	6	40	2	0.48
	Ceiling Fan	2	75	2	0.3
Chemistry Lab – 2	Tube Lights	5	40	2	0.4
	Stand Fan	2	75	2	0.3
Chemistry P.G. Head	Tube Lights	2	40	2	0.16
	Ceiling Fan	1	75	2	0.15

Chemistry Ladies Staffroom	LED Lights	2	20	3	0.12
	Ceiling Fans	2	75	3	0.45
Physics Lab – 1	Ceiling Fans	12	75	1	0.9
	Tube Lights	44	40	1	1.76
	LED Lights	3	20	3	0.18
	LCD projector	1	100	1	0.1
Physics Lab – 2	Ceiling Fan	8	75	2	1.2
	Tube Lights	23	40	2	1.84
Physics Computer Lab	Window A.C	2	1000	0.1	0.2
	Desktop Computer	20	150	1	3
	Stand Fan	1	75	2	0.15
	Fridge	1	167	1	0.167
Physical Education	LED Lights	2	20	3	0.12
	Ceiling Fan	5	75	3	1.125
	Tube Lights	4	40	3	0.48
Telugu Department	Ceiling Fan	3	75	3	0.675
	Tube Lights	2	40	2	0.16
History Department	Ceiling Fan	2	75	2	0.3
	Tube Lights	2	40	2	0.16
Political Science Dept	Ceiling Fan	3	75	3	0.675
	Tube Lights	4	40	2	0.32
Scholarship	Tube Lights	4	40	2	0.32

	Ceiling Fan	2	75	2	0.3
Economics Department	Ceiling Fan	2	75	2	0.3
	Tube Light	2	40	2	0.16
Total Electricity Consumption					120.519

The above calculated average consumption of electrical energy units per day were approximately coincided with average daily consumption units of electrical energy as per invoice issued by the power supply authorities.

6. CONCLUSION AND RECOMMENDATIONS

Energy audit was conducted on the Andhra Christian College, Guntur district campus during the period from 15-12-2022 to 22-12-2022 for a period of two days. In the energy audit conducted at Andhra Christian College, Guntur, Guntur district, following conclusions were reached.

- It is observed that there are many fluorescent and CFL tube lights in use which must be replaced with LED tube light to save a lot of energy
- It was found that fans consume the most electricity. Many old fans of over 20 years standing were identified. The continuous use of ceiling fans for more than 5 hours also contributes significantly to the high cost of electricity. Old fans should also be checked and replaced for significant reduction in energy consumption. Instead of conventional fans, BLDC fans could be used for reduced consumption.
- Outdoor energy consumption can be significantly reduced by using solar lights in all areas of the college.

- Solar Power units installed in the campus must be fully used and if necessary new solar power units must be installed to make the campus eco-friendly.
- High energy consuming devices like a.c.s, computers, fridges, printers should be used efficiently as and when required.

Guntur,

Dt. 17-01-2021


ASSISTANT ENGINEER
OPERATION :: A.P.C.P.D.C.L
D3 SECTION :: GUNTUR

Andhra Christian College, Guntur

(DAY, EVENING & P.G.)

Accredited with 'A' Grade by NAAC

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ENERGY AUDIT OF ANDHRA CHRISTIAN COLLEGE, GUNTUR

Date : 03-01-2020

1. INTRODUCTION

The purpose of this energy audit is to quantify electrical energy consumption and recommend where savings are possible. It is carried out by a 'walk through audit' that involves examining every item that consumes electric energy, estimating power ratings, operating hours and preparing electric energy budget. Energy wastage and inefficiencies in use of electrical and electronic items are identified as well those requiring maintenance or replacements are identified. Action plan for an energy management strategy will be designed following the audit.

2. AIM

Conducting Energy Audit and to evolve energy conservation measures in Andhra Christian College, Guntur, Guntur district.

3. OBJECTIVES

- To assess the current pattern of electrical energy consumption on the college campus.
- To know energy losses.
- Suggesting and implementing energy saving methods.

4. METHODOLOGY*

The energy audit was conducted through a walk-through survey of the campus of Andhra Christian College, Guntur, Guntur district. College areas are allotted to four groups of two members each.

4.1. SITE SURVEY

In every room and outside, members physically visited the rooms and estimated the number and type of lights, i.e., incandescent, fluorescent, CFL and LED, and the lights power rating i.e., number of watts and hours of daily use are estimated. The same procedure is carried out for other electrical items computers, Printer and LCDs. Energy meter readings of the college were taken for this purpose.

CALCULATION OF AVERAGE ELECTRICAL ENERGY CONSUMPTION PER DAY

Location (Room No./ Varandah / Open space / Main Gate	Description of electrical equipment	Quantity	Wattage of the each equipment (in Watts)	Average No. of hours used per day (in hours)	Electrical energy consumption per day (kWh)
Principal's Office	LED lights	11	20	7	1.54
	Air Conditioner	1	1500	7	10.5
	Ceiling Fans	4	75	7	2.1
	LED Monitor	1	60	7	0.42
	Printer	1	250	2	0.5
	Fridge	1	167	5	0.835
	Stand Fan	1	75	0.1	0.0075
Manager's Office	LED lights	4	20	2	0.16
	Ceiling Fan	2	75	5	0.75
Main Office	Tube Lights	3	40	5	0.6
	LED lights	5	20	5	0.5
	Desktop computers	3	150	7	3.15

	Printers	2	250	2	1
	Xerox machine	1	250	2	0.5
Men's staff room	Ceiling Fans	4	75	5	1.5
	Tube lights	7	40	5	1.4
	LED light	3	20	5	0.3
Ladies waiting room	Ceiling Fans	3	75	5	1.125
	LED lights	7	20	5	0.7
IQAC Room	Ceiling fan	1	75	2	0.15
	Tube Lights	2	40	2	0.16
	Desktop Monitor	1	150	1	0.15
CRESTE Room	LED Lights	8	20	5	0.8
	Ceiling Fans	4	75	3	0.9
	Air Conditioner	2	1500	2	6
	Desktop Monitor	1	150	5	0.75
	Printer	1	250	1	0.25
Room No 1	LED lights	4	20	5	0.4
	Ceiling Fans	2	75	5	0.75
Room No 2	LED lights	3	20	5	0.7
	Tube lights	3	40	1	0.12
	Ceiling fans	4	75	3	0.9
Room No 3 (Virtual Lab)	Ceiling Fans	6	75	2	0.9
	LED Lights	17	20	0.5	0.17
	LCD projectors	2	100	0.5	0.1
Room No 4 (Digital Lab)	LCD projectors	3	100	0.5	0.15
	LED Lights	17	20	0.5	0.17
	Ceiling Fans	6	75	1	0.45
	Desktop computers	30	150	2	9
	Television	1	40	0	0
Room No 5	Ceiling Fans	2	75	1	0.15

	Tube Light	1	40	1	0.04
	LED Lights	3	20	3	0.18
Room No 6	Ceiling Fans	2	75	1	0.15
	LED Lights	3	20	3	0.18
Room No 7	Ceiling Fans	2	75	1	0.15
	LED Lights	1	20	3	0.06
	Tube Lights	2	40	1	0.08
Room No 8	Air Conditioner	1	1500	0.1	0.15
	CFL Lights	7	20	0.2	0.028
	Ceiling Fans	6	75	0.5	0.225
	Desktop computers	10	150	1	1.5
	Stand Fan	1	75	0.2	0.015
	LCD Projector	1	100	0.2	0.02
Room No 9	Ceiling Fans	2	75	2	0.3
	Tube Lights	3	40	2	0.24
	LED Lights	1	20	3	0.06
Room No 10	Ceiling Fans	2	75	2	0.3
	Tube Lights	1	40	2	0.08
	LED Lights	3	20	3	0.18
Room No 11	Ceiling Fans	2	75	2	0.3
	Tube Lights	1	40	2	0.08
	LED Lights	3	20	3	0.18
Room No 12	Ceiling Fans	2	75	2	0.3
	LED Lights	5	20	3	0.3
Correspondent Room	Air Conditioner	1	1500	0.2	0.3
	LED Lights	4	20	0.1	0.008
Assembly Hall	Focus Lights	7	500	0.1	0.35
	LED Lights	16	20	1	0.32
	Ceiling Fans	19	75	0.5	0.7125
	Bulbs	6	40	2	0.48
Library	LED Lights	18	20	5	1.8

	Tube Lights	28	40	2	2.24
Library	Ceiling Fans	20	75	5	7.5
	Stand Fans	2	75	0.5	9.075
Room No 40	Ceiling Fan	2	75	2	0.3
	Tube Light	2	40	2	0.16
Room No 41	LED Lights	2	20	2	0.08
	Ceiling Fan	1	75	2	0.15
Room No 42	Tube Light	2	40	2	0.16
	Ceiling Fans	2	75	2	0.3
Room No 43	Tube Light	2	40	2	0.16
	Ceiling Fans	2	75	2	0.
Room No 46	Tube Light	1	40	5	0.2
	Ceiling Fans	2	75	5	0.75
Room No 47	Tube Light	3	40	5	0.6
	Ceiling Fans	2	75	5	0.75
Evening college corridor	Tube Light	7	40	2	0.56
Room No 48	Ceiling Fans	3	75	3	0.675
	LED Lights	4	20	3	0.24
Room No 49	Ceiling Fan	3	75	3	0.675
	LED Light	1	20	3	0.06
Room No 50	Ceiling Fan	2	75	3	0.45
	LED Light	1	20	3	0.06
Room No 51	Ceiling Fan	1	75	3	0.225
	LED Light	1	20	3	0.06
Room No 52	Ceiling Fan	1	75	3	0.225
	LED Light	1	20	3	0.06
Room No 53	Ceiling Fan	2	75	3	0.45
	LED Light	3	20	3	0.18
Room No 56	Ceiling Fan	2	75	3	0.45
	LED Light	3	20	3	0.18
Room No 59	Ceiling Fan	2	75	3	0.45
	LED Light	4	20	3	0.24
	LCD	1	100	2	0.2

	Projector				
Room No 83	Ceiling Fan	3	75	5	1.125
	LED Light	4	20	5	0.4
	LCD Projector	1	100	2	0.2
Botany dept Museum	Tube Lights	3	40	2	0.24
	LED Lights	2	20	2	0.08
	Stand fans	4	75	2	0.6
	LCD projector	1	100	2	0.2
Botany Men's Staffroom	Tube Lights	2	40	3	0.24
	LED Lights	1	20	5	0.1
	Ceiling Fans	2	75	5	0.75
	Stand Fans	2	75	0.5	0.075
	Fridge	1	167	5	9.835
	Desktop computer	1	150	3	0.45
Botany Ladies Staffroom	LED Lights	1	20	3	0.06
	Tube Lights	2	40	3	0.24
	Ceiling Fans	2	75	5	0.75
	Desktop computer	1	150	2	0.3
Botany Head Room	Tube light	2	40	2	0.16
Botany Head Room	Ceiling Fan	1	75	2	0.15
Botany – Microbiology Lab	Air Conditioner	2	1500	1	3
	Tube Lights	5	20	2	0.2
	Ceiling Fan	3	75	2	0.45
Botany – Inter Lab	LED Lights	6	20	2	0.24
	Ceiling Fans	6	75	2	0.9
	Tube Lights	12	40	2	0.96
Botany – Degree Lab	LED Lights	8	20	2	0.32
	Ceiling Fans	7	75	2	1.05

	LCD projector	1	100	0.5	0.05
	Tube lights	20	40	2	1.6
Botany – Library	Tube lights	3	40	1	0.12
	LED Light	1	20	1	0.02
Zoology Dept Museum	Ceiling Fan	2	75	2	0.3
	LED Lights	1	20	3	0.06
	Tube Lights	4	40	2	0.32
Zoology Staffroom	Tube Lights	2	40	2	0.16
	LED Lights	2	20	2	0.08
Zoology Head room	Tube Light	3	40	2	0.24
	Ceiling Fan	1	75	2	0.15
Zoology – Inter Lab	Tube Lights	26	40	1	1.04
	Ceiling Fans	6	75	1	0.45
Zoology – Degree Lab	Tube Lights	24	40	1	0.96
	LED Lights	3	20	2	0.12
	LCD Projector	1	100	1	0.5
Room no 24	Tube Lights	13	40	1	0.52
	LED Lights	1	20	2	0.04
	Ceiling Fans	4	75	2	0.6
P.G. Zoology	Ceiling Fans	12	75	2	1.8
	Stand Fan	1	75	1	0.075
	Tube Lights	20	40	2	1.6
	Fridge	1	167	1	0.167
B.Com Staff room	Ceiling Fans	2	75	2	0.3
	Tube Lights	2	40	2	0.16
Seminar Hall	Ceiling Fans	11	75	2	1.65
	LED Lights	8	20	2	0.32
	Tube Lights	16	40	2	1.28
	Air Conditioner	6	1500	0.2	1.8
M.Com (Final Class room)	Ceiling Fans	4	75	2	0.6
	Tube lights	4	40	2	0.32

M.Com 1 st Year Classroom	Ceiling Fan	4	75	3	0.9
	Tube Lights	4	40	2	0.32
M.Com Staffroom	Ceiling Fans	2	75	3	0.45
	Tube lights	2	40	3	0.24
Maths Dept Staffroom	LED lights	6	20	3	0.36
	Ceiling Fans	2	75	3	0.45
	Fridge	1	167	2	0.334
Maths Headroom	Tube lights	2	40	5	0.4
	LED light	1	20	5	0.1
	Ceiling Fans	3	75	5	1.125
	Printers	2	250	0.5	0.25
Maths Headroom	Desktop Computer	1	150	3	0.45
	Xerox Machine	1	250	0.5	0.125
Chemistry Dept Lab – 1	Tube lights	28	40	2	2.24
	Ceiling Fans	4	75	2	0.6
Chemistry Storeroom	LED lights	4	20	1	0.08
	Tube lights	4	40	1	0.16
	LCD projector	1	100	1	0.1
	Ceiling Fans	6	75	1	0.45
Chemistry Seminar Hall	Tube Lights	8	40	3	0.96
	Ceiling Fan	4	75	3	0.9
Chemistry Corridor	Tube Lights	3	40	3	0.36
	LED Lights	2	20	3	0.12
	Ceiling Fan	2	75	3	0.45
Chemistry Headroom	LED Lights	2	20	3	0.12
	Ceiling Fans	2	75	3	0.45
Chemistry Lab – 3	Tube Light	16	40	3	1.92
	Ceiling Fan	1	75	2	0.15
Chemistry Physical Lab	Tube Lights	6	40	2	0.48
	Ceiling Fan	2	75	2	0.3
Chemistry Lab – 2	Tube Lights	5	40	2	0.4
	Stand Fan	2	75	2	0.3

Chemistry P.G. Head	Tube Lights	2	40	2	0.16
	Ceiling Fan	1	75	2	0.15
Chemistry Ladies Staffroom	LED Lights	2	20	3	0.12
	Ceiling Fans	2	75	3	0.45
Physics Lab – 1	Ceiling Fans	12	75	3	2.25
	Tube Lights	44	40	3	5.28
	LED Lights	3	20	3	0.18
	LCD projector	1	100	1	0.1
Physics Lab – 2	Ceiling Fan	8	75	5	3
	Tube Lights	23	40	5	4.6
Physics Computer Lab	Window A.C	2	1000	0.1	0.2
	Desktop Computer	20	150	2	6
	Stand Fan	1	75	2	0.15
	Fridge	1	167	1	0.167
Physical Education	LED Lights	2	20	3	0.12
	Ceiling Fan	5	75	3	1.125
	Tube Lights	4	40	3	0.48
Telugu Department	Ceiling Fan	3	75	3	0.675
	Tube Lights	2	40	3	0.24
History Department	Ceiling Fan	2	75	3	0.45
	Tube Lights	2	40	3	0.24
Political Science Dept	Ceiling Fan	3	75	3	0.675
	Tube Lights	4	40	3	0.48
Scholarship	Tube Lights	4	40	3	0.48
	Ceiling Fan	2	75	3	0.45
Economics Department	Ceiling Fan	2	75	3	0.45
	Tube Light	2	40	3	0.24
Total Electricity Consumption					155.024

The above calculated average consumption of electrical energy units per day were approximately coincided with average daily consumption units of electrical energy as per invoice issued by the power supply authorities.

6. CONCLUSION AND RECOMMENDATIONS

Energy audit was conducted on the Andhra Christian College, Guntur district campus during the period from 06-12-2022 to 07-12-2022 for a period of two days. In the energy audit conducted at Andhra Christian College, Guntur, Guntur district, following conclusions were reached.

- It is observed that there are many fluorescent and CFL tube lights in use which must be replaced with LED tube light to save a lot of energy
- It was found that fans consume the most electricity. Many old fans of over 20 years standing were identified. The continuous use of ceiling fans for more than 5 hours also contributes significantly to the high cost of electricity. Old fans should also be checked and replaced for significant reduction in energy consumption. Instead of conventional fans, BLDC fans could be used for reduced consumption.
- Outdoor energy consumption can be significantly reduced by using solar lights in all areas of the college.
- Solar Power units installed in the campus must be fully used and if necessary new solar power units must be installed to make the campus eco-friendly.
- High energy consuming devices like a.c.s, computers, fridges, printers should be used efficiently as and when required.

Guntur,

Dt. 03-01-2020


ASSISTANT ENGINEER
OPERATION :: A.P.C.P.D.C.I
03 SECTION :: GUNTUR