

ENERGY AUDIT

STUDY PERIOD (TWO YEARS) 2021 – 2022 AND 2022 – 2023

Sustainability study

RENEWAL AUDIT REPORT

Studied for
Sri Padmavati Mahila Visvavidyalayam

Govt. State Level University
Recognized by UGC (Under the act of 1956)

Studied in the capacity of

Accredited and Certified
Green Building Professional



Website: <https://thegreenviosolutions.co.in/>

Email: greenviosolutions@gmail.com

Valid till **30 April 2024**

Disclaimer

The Audit Team has prepared this report for the **Sri Padmavati Mahila Visvavidyalayam** located at NTR Marg, Padmavathi Nagar, Tirupati – 517 502, Andhra Pradesh, India based on input data submitted by the University and analyzed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National and International Standards; the report has been generated based on a comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase-wise or as a whole depending on the decision taken by the Hon'ble Management and University. The warranty or undertaking, expressed 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.

The audit is a thorough study based on the inspection and investigation of data collected over a while and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied or regenerated in any form.

The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm with the Project Head - Ar. Nahida Shaikh who is an Accredited and Certified Green Building Professional. Green Building consultancy is her forte and she is one of the most sought-after names when it comes to providing excellent quality services within the stipulated time frame.

The Study is conducted incapacity of an Accredited & Certified Green Building Professional with extensive experience.

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

Sustainable Academe is our department for conducting Audits

Palghar District, Maharashtra- 401208

sustainableacademe@gmail.com

Acknowledgment

The Audit Assessment Team thanks the **Sri Padmavati Mahila Visvavidyalayam, Andhra Pradesh** for assigning this important work of Energy Audit. We appreciate the cooperation extended to our team during the entire process.

Our heartfelt thanks to Chairperson of the entire process **Prof. Tripura Sundari**, Director, IQAC-SPMVV and **Prof. T. Kumar**, Convenor of the process for the valuable inputs.

Our special thanks are due to **Prof. M. Aruna**, Dept. of Law; **Prof. T.G.Amuthavalli**, Dept. of Education; **Prof. R. Jaya Madhuri**, Dept. of Microbiology; **Prof. A. Sridevi**, Institute of Pharmaceutical Technology; **Ms. M. Mohini**, Assistant Engineer-II (Civil) Engineering section and **Mr. M. Anand**, Assistant Engineer (Electrical) Engineering section.

We highly appreciate the assistance of the **entire Teaching, Non-teaching, and Admin staff** for their support while collecting the data.

Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

Contents

Disclaimer	1
Acknowledgment	2
Contents.....	3
1. Introduction.....	4
2. Compliance	7
3. Evidences	9
4. Inferences.....	11
5. Compilation.....	14

RENEWAL REPORT

1. Introduction

1.1 About the Institute

Sri Padmavati Mahila Visvavidyalayam (University for Women) was founded in the year 1983 by Sri N.T.Rama Rao, the then Chief Minister of Andhra Pradesh, with the fervent desire to train women students as better builders of the Nation and to inculcate skills of leadership in all aspects of life.

The University was established under the Sri Padmavati Mahila Visvavidyalayam Act of 1983, which has come into force on the 14 of April 1983. It was started with ten faculties and 300 students and twenty staff members. Today the University has a student population nearly 4,000 and an academic staff of 105 and 131 academic consultants.

This year the University has 59 courses at the post-graduate and undergraduate level and a good component of research. The campus has the necessary buildings to run its academic programmes and administrative machinery.

There are separate buildings for **Humanities and Sciences, University Administration, Central Library, University Auditorium, Sericulture Complex, and School of Pharmaceutical Sciences** and also an independent building for **Computer Science, Business Management and Engineering College.**

1.2 Assessment of the Institute

The University is recognized as a State University as documented below:

1.2.1 University Act

It was established under the **Andhra Pradesh Act under 16, 1983, as amended by Act No. 17 of 1985** and was thus established as The University was established under the Sri Padmavati Mahila Visvavidyalayam Act of 1983.

1.2.2 Recognitions

The courses provided are recognized by Govt. of India's **University Grant Commission (UGC) sections 2(f) and 12(b) respectively.**

1.2.3 Certification

The University has received the following Certifications.

- The University received the **ISO 9001:2015 Certification** for providing Educational Services by M/s HYM International Certifications Pvt. Ltd.
- In the **NIRF rankings**, Sri Padmavati Mahila Visvavidyalayam (SPMVV) in Tirupati retained its rank band 151-200 for University category

1.2.4 Accreditation

The following are details of the reaccreditation of the University.

Cycle	First	Second	Third	Fourth
CGPA	-	2.51	3.11	3.38
Grade	Four Star	B	A	A+
Year	2002	2010	2016	2023

Table 1: NAAC Accreditation details of the University

1.2.5 Approval

The details of the significant approvals are as follows:

S. No.	Institute/ Department	Approval	Since
1	Institute of Pharmaceutical Technology	Pharmacy Council of India (P.C.I) A statutory body of government of India constituted under the Pharmacy Act, 1948, responsible for regulation of pharmacy education and practice of profession in the country for registration as a pharmacist.	2000
2	Department of Law	Bar Council of India (B.C.I) A statutory body established under the section 4 of Advocates Act 1961 that regulates the legal practice and legal education in India.	2015
3	Department of Education	National Council for Teacher Education (N.C.T.E) A statutory body in pursuance of the National Council for	1996

		Teacher Education Act, 1993	
4	B.Ed Special Education	Rehabilitation Council of India (RCI) The apex government body, set up under an Act of Parliament, to regulate training programmes and courses targeted at disabled, disadvantaged, and special education requirement communities.	1989
5	School of Engineering & Technology	All India Council for Technical Education (AICTE) A national-level Apex Advisory Body to conduct a survey on the facilities available for technical education and to promote development in the country in a coordinated and integrated manner.	2009
6	School of Nursing	The University has the approval of Andhra Pradesh Government, State Nursing Council and Indian Nursing Council, New Delhi for the G.N.M. Course offered	2013

Table 2: Details of the various Approvals of the Institute

1.3 Site Area & Building Spread Area

The **total site area is 130 Acres** and the **total Built-up area of University is 8,18,750 sq. ft.**

1.4 Timeline of activities for research

As the University had undergone a renewal for the Academic year 2021-2022 and 2022-2023, data collection processes for verification purposes were asked to be submitted.

- Discussion with the University
- Allotment and Initiation by the University
- Process discussion with team
- Data submitted by University
- Submission of the files

2. Compliance

The compliance study was carried out through investigative ways. This was done to understand the **extent of suggestions and their implementations based on previous report of Academic years 2019-2020 and 2020-2021.**

2.1 Quantitative analysis

The information for the existing nos. of electrical appliances is documented below

- **Lights** - The data is analysed as follows:
 - The current nos. are 40W Non-LED (3,093 nos.) + 20W LED (2,043 nos.) + 36W LED (357 nos.) + Street Lights LED (150 nos.)
 - Thus the summarised information shows there are **3,093 Non-LED lights** as compared to **previous year's figure of 3,155 nos.**
 - Similarly, there are **2,550 LED lights** as compared to **previous year's figure of 2,006 nos.**
 - It may be possible due to the campus up gradation and better strategies for the newly constructed premises.
 - The practice for replacement of Non-LED lights should continue in the long run till the time the University is a 100% LED lights premises.
- **Ceiling fans** - The current data is **3,464 nos.** Previously it was **3,380 nos.** there has been an exceptional change as the **current fans are 5-star rated fans and energy efficient.** It is due to replacement with air conditioners, campus up gradation and better strategies for the newly constructed premises.
- **Air conditioners** - The current data is **250 nos.** Previously it was **195 nos.** there has been an increase in the nos. but we feel this will add to the electrical loads of the premises and hence certain replacements should be thought about.

2.2 Comparative analysis

The details of the suggestions are based on the **Original Report dated 14 January 2022** is further documented below. It is based on the data collection process.

S. No.	Recommendation Title	Status
1.	Pollution Meter	<ul style="list-style-type: none"> ➤ The automobiles and diesel and petrol vehicles are not allowed to enter on to the campus. ➤ There is a parking provision for all the vehicles of staff adjacent to the front gate of the main block. ➤ The campus ensures pollution free air quality by all means.
2.	Electromechanical systems - Electrical and Lighting	Partially implemented for old buildings. But for new buildings completed.
3.	Electric charging points	Not available
4.	Building management systems	Not implemented
5.	Facility management systems and controls	Not implemented
6.	Adaptive reuse of existing spaces through design intervention	Not implemented

Table 3: Details of the compliance study

3. Evidences

The information shared by the Institute to support the documentations are listed below:

SRI PADMAVATHI MAHILA VISWA VIDYALAYAM, TIRUPATHI
ELECTRICAL - LOAD PARTICULARS
SUBSTATION-I Buildings

S.No	Building Name	40W TUBE LIGHTS	20W LED TUBE LIGHTS	5 Star rated ceiling Fans(75W)	1.5 Ton Air Conditioners	7.5 Ton Air Conditioners	36 W 2X2 LED Fittings
1	Humanities block - I	380.00	51.00	320.00	79.00	--	--
2	Humanities block - II	--	120.00	80.00	6.00	--	24.00
3	Sericulture department	27.00	13.00	39.00	2.00	--	8.00
4	Visveswara block	--	240.00	262.00	14.00	--	54.00
5	C.V Raman block	--	400.00	289.00	2.00	3.00	90.00
6	K.L rao block	--	23.00	127.00	15.00	--	74.00
7	health centre	20.00	3.00	15.00	2.00	--	--
8	science block - I	274.00	36.00	98.00	5.00	--	10.00
9	science block-II	68.00	15.00	54.00	6.00	--	15.00
10	science block - III	--	148.00	98.00	15.00	--	8.00
11	MBA Building	51.00	19.00	42.00	5.00	--	--
12	Indoor stadium	29.00	15.00	16.00	--	--	--
13	yoga class room	14.00	6.00	16.00	--	--	--
14	Canteen	6.00	22.00	5.00	--	--	--
15	kinnera block	124.00	30.00	172.00	--	--	--
16	kalyani block	146.00	45.00	176.00	--	--	--
17	A mess	51.00	--	21.00	--	--	--
18	Gowthami block	98.00	31.00	103.00	--	--	--
19	Gongotri block	98.00	30.00	102.00	--	--	--
20	B mess	41.00	--	20.00	--	--	--
21	Sravanthi block	133.00	41.00	102.00	--	--	--
22	Gayatri block	188.00	--	132.00	--	--	--
23	Manjeera block	243.00	258.00	320.00	--	--	--
24	Visiting hall	12.00	2.00	7.00	--	--	--
25	Swarnamukhi block	132.00	32.00	116.00	--	--	--
26	Staff quarters	22.00	--	20.00	--	--	--
27	proff quarters	7.00	--	7.00	--	--	--
28	Sravanthi dinning hall	23.00	--	19.00	--	--	--
29	New dinning hall	--	42.00	66.00	--	--	--
30	Godavari block	71.00	20.00	72.00	--	--	--
31	All hostel security rooms	35.00	5.00	--	--	--	--
32	Sub-station -I	--	6.00	4.00	--	--	--
33	Library Building	--	120.00	100.00	4.00	--	8.00
34	Sump Room	--	12.00	4.00	--	--	--
Total		2293.00	1785.00	3024.00	105.00	3.00	291.00

SUB STATION-II Buildings

1	Administrative building	200.00	41.00	120.00	24.00	--	30.00
2	Auditorium	96.00	4.00	10.00	10.00	--	20.00
3	Saaveri guest house	31.00	124.00	60.00	22.00	--	--
4	Computer centre (MCA)	62.00	22.00	33.00	4.00	4.00	8.00
5	physics Department	68.00	13.00	21.00	--	--	--
6	B.pharmacy building	288.00	30.00	153.00	6.00	--	8.00
7	Animal house	15.00	2.00	8.00	5.00	--	--
8	V.C residence	7.00	16.00	14.00	7.00	--	--
9	DDE Department	30.00	--	15.00	--	--	--
10	Sub-station -II	3.00	6.00	6.00	--	--	--
Total		800.00	258.00	480.00	78.00	4.00	66.00

LED Street lights

1	LED Street lights	60W	100
2	LED Street lights	45W	30
3	LED Street lights	20W	20
Total			150

4	Sub station - I Motors	7.5 HP	12
5	Sub station - II Motors	7.5 HP	6

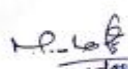

 EXECUTIVE ENGINEER
 SRI PADMAVATHI MAHILA VISWA VIDYALAYAM
 TIRUPATI-517 502
 REGISTERED
 SRI PADMAVATHI MAHILA VISWA VIDYALAYAM
 TIRUPATI-517 502

Plate 1: Details of the electromechanical systems



**Sri Padmavati Mahila Visvavidyalayam::Tirupati
(Women's University)
Computer Centre**

From
Prof. K. Usha Rani
Director
University Computer Centre
SPMVV,
Tirupati.

17-04-2023

To
Prof. John Sushma
Member, IQAC
SPMVV
Tirupati.

Madam,

Ref: Your letter dated 17-04-2023

As per your request herewith providing information regarding the number of computers / printers in the Computer Centre for GREEN AUDIT purpose

Purchased during the year 2022-23 :

- Server - 01
- Computers - 25
- Printer - 01

Total available computers in working condition :

- Server - 01
- Computers - 61
- Printer - 04

Yours faithfully,
K. Usha Rani
DIRECTOR 17/4/23
COMPUTER CENTRE
SPMVV
TIRUPATI-517 002

Plate 2: Details of the computers in the premises

4. Inferences

4.1 Section-wise recommendations

The following suggestions are to be considered as a **first priority** for implementation. These **should be executed within the next 1.5 to 2.5 years from the date of the Report submission**. The Institute can execute a plan after discussion with Project Head.

4.1.1 Ceiling Fans

The current light analysis shows that Non-LED tube lights consume 40W when in use; these should be replaced with LED lights which consume on an average 16-20W when in use. Our technical analysis shows that there would be a reduction of an average of **63% reduction** in energy consumption through lights specifically as a part of the electro -mechanical system if all **Non-LED on all floors and blocks** are replaced with an energy efficient appliance whenever the University undergoes renovation.

4.2 Consolidated recommendations

The following details are consolidated study recommendations related to 'entire Institute' and should be considered as **second priority** for implementation, once the section wise recommendations are implemented. The following recommendations should be **implemented within 2.5 to 3.5 years from the date of the Report submission.**

4.2.1 Solar farms

This will serve as a noble project and will provide dual benefits to farm land and University w.r.t to electricity bill power reduction.



Plate 3: Solar farm concept for the Institute (For reference purpose only)

Source: Image by Zsuzsa Bóka from Pixabay

4.2.2 Solar tree

Since there is availability of space; the solar trees can be installed in multiple places as they will provide dual benefits of aesthetic and energy reduction.



Plate 4: Solar tree concept for the Institute (For reference purpose only)

Source: Image by <https://timesofindia.indiatimes.com/india/cmeri-installed-the-worlds-largest-solar-tree-at-durgapur/articleshow/77856790.cms>

4.2.3 Solar parking

The University can turn its existing parking areas into solar panel powered parking areas. This will provide shade and renewable energy benefit to the University.



Plate 5: Solar parking concept for the Institute (For reference purpose only)

Source: Image by <https://solarpowerproject.in/solar-panels-for-parking-lots.php>

4.2.4 Smart gardening

The University can undertake a Smart Gardening system using IoT Technology. This will result in saving time by scheduling time for watering; saving money through automated water schedules tracking dampness of soil to know when, how much water garden needs.

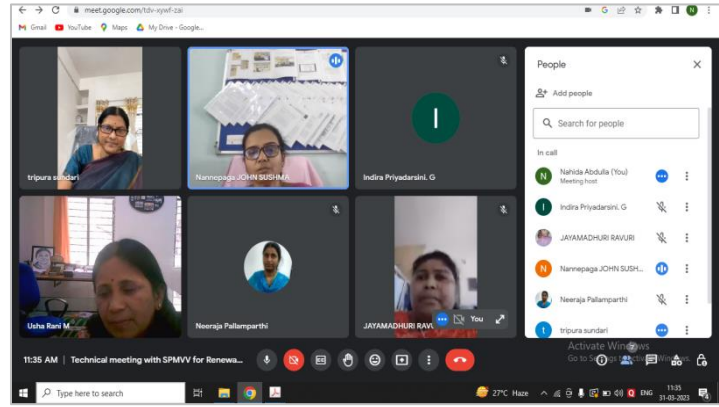


Plate 6: Solar farm concept for the Institute (For reference purpose only)

Image source: <https://housing.com/news/smart-gardening/>

Data source: <https://www.happysprout.com/inspiration/what-is-smart-gardening/>

RENEWAL



Core team working on site and in discussion with external team



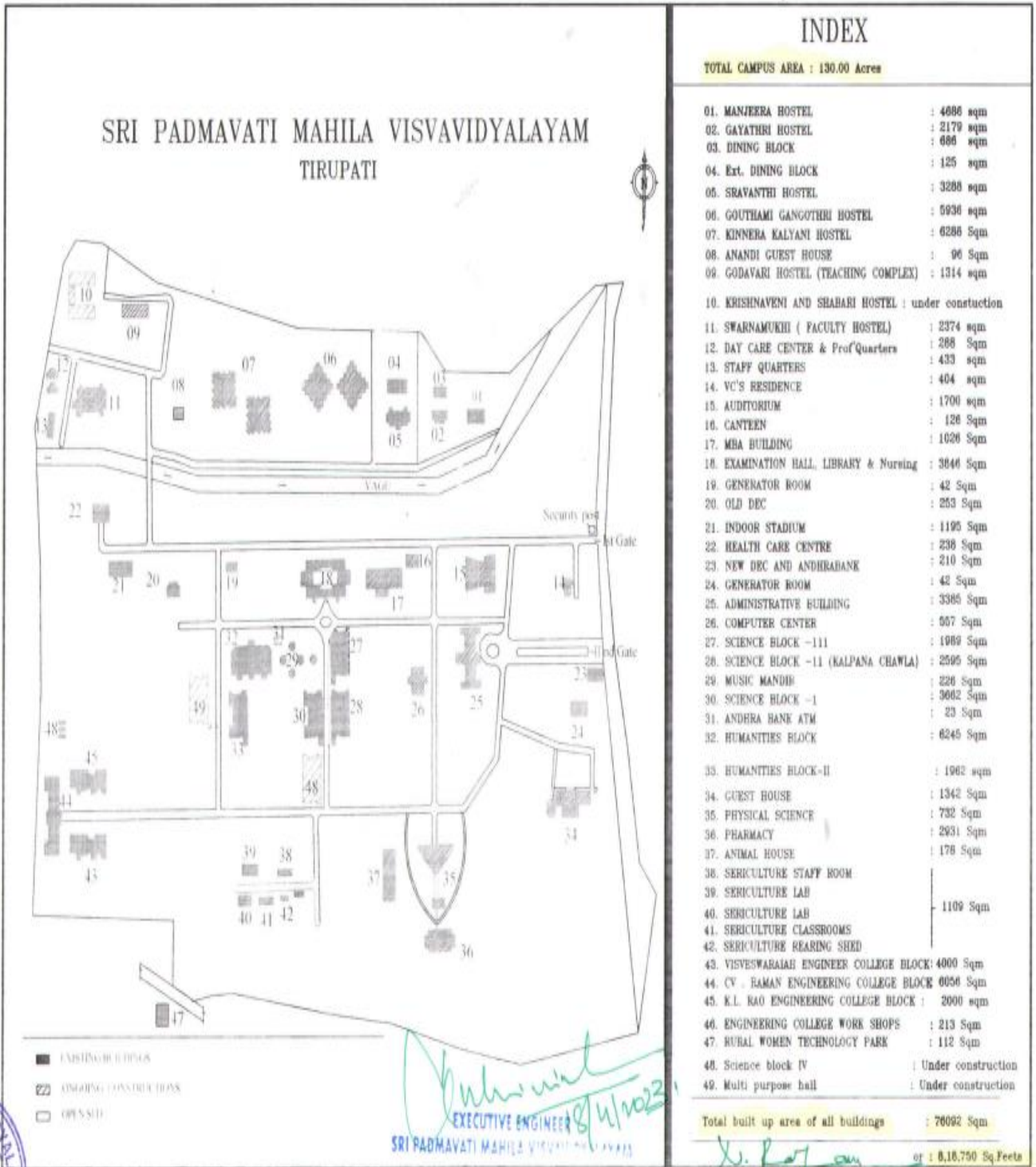
Enhanced green cover in the site



Facilities such as Library, Ground and Auditorium among many others



Social upliftment initiatives by the NSS Team



INDEX

TOTAL CAMPUS AREA : 130.00 Acres

01. MANJEEERA HOSTEL	: 4686 sqm
02. GAYATHRI HOSTEL	: 2179 sqm
03. DINING BLOCK	: 666 sqm
04. Ext. DINING BLOCK	: 125 sqm
05. SRAVANTHI HOSTEL	: 3286 sqm
06. GOUTHAMI GANGOTRI HOSTEL	: 5936 sqm
07. KINNERA KALYANI HOSTEL	: 6286 Sqm
08. ANANDI GUEST HOUSE	: 96 Sqm
09. GODAVARI HOSTEL (TEACHING COMPLEX)	: 1314 sqm
10. KRISHNAVENI AND SHABARI HOSTEL	: under construction
11. SWARNAMUKHI (FACULTY HOSTEL)	: 2374 sqm
12. DAY CARE CENTER & Prof/Quarters	: 286 Sqm
13. STAFF QUARTERS	: 433 sqm
14. VC'S RESIDENCE	: 404 sqm
15. AUDITORIUM	: 1700 sqm
16. CANTEN	: 126 Sqm
17. MBA BUILDING	: 1026 Sqm
18. EXAMINATION HALL, LIBRARY & Nursing	: 3646 Sqm
19. GENERATOR ROOM	: 42 Sqm
20. OLD DEC	: 253 Sqm
21. INDOOR STADIUM	: 1195 Sqm
22. HEALTH CARE CENTRE	: 236 Sqm
23. NEW DEC AND ANDHRABANK	: 210 Sqm
24. GENERATOR ROOM	: 42 Sqm
25. ADMINISTRATIVE BUILDING	: 3365 Sqm
26. COMPUTER CENTER	: 567 Sqm
27. SCIENCE BLOCK -111	: 1969 Sqm
28. SCIENCE BLOCK -11 (KALPANA CHAWLA)	: 2595 Sqm
29. MUSIC MANDIR	: 226 Sqm
30. SCIENCE BLOCK -1	: 3662 Sqm
31. ANDHRA BANK ATM	: 23 Sqm
32. HUMANITIES BLOCK	: 6245 Sqm
33. HUMANITIES BLOCK-II	: 1962 sqm
34. GUEST HOUSE	: 1342 Sqm
35. PHYSICAL SCIENCE	: 732 Sqm
36. PHARMACY	: 2931 Sqm
37. ANIMAL HOUSE	: 176 Sqm
38. SERICULTURE STAFF ROOM	
39. SERICULTURE LAB	
40. SERICULTURE LAB	: 1109 Sqm
41. SERICULTURE CLASSROOMS	
42. SERICULTURE REARING SHED	
43. VISVESWARAJAH ENGINEER COLLEGE BLOCK	: 4000 Sqm
44. CV . RAMAN ENGINEERING COLLEGE BLOCK	: 6056 Sqm
45. K.L. RAO ENGINEERING COLLEGE BLOCK	: 2000 sqm
46. ENGINEERING COLLEGE WORK SHOPS	: 213 Sqm
47. RURAL WOMEN TECHNOLOGY PARK	: 112 Sqm
48. Science block IV	: Under construction
49. Multi purpose hall	: Under construction

Total built up area of all buildings : 76092 Sqm

or : 8,18,750 Sq.Feet

REGISTRAR
SRI PADMAVATI MAHILA VISVAVIDYALAYAM,
(WOMEN'S UNIVERSITY)





राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद

विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

An Autonomous Institution of the University Grants Commission

Certificate of Accreditation

*The Executive Committee of the
National Assessment and Accreditation Council
on the recommendation of the duly appointed
Peer Team is pleased to declare the
Sri Padmavati Mahila Visuavidyalayam
Padmavathi Nagar, Tirupati, Andhra Pradesh as
Accredited
with CGPA of 3.11 on seven point scale
at A grade
valid up to September 15, 2021*

Date : September 16, 2016



DP Singh
Director



राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद
विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान
NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL
An Autonomous Institution of the University Grants Commission

Certificate of Accreditation

*The Executive Committee of the
National Assessment and Accreditation Council
is pleased to declare
Sri Padmavati Mahila Visuavidyalayam
Padmavati Nagar, Tirupati, Dist. Chittoor, Andhra Pradesh as
Accredited
with CGPA of 3.38 on four point scale
at A* grade
valid up to January 02, 2028*

Date : January 03, 2023



S. C. Sene
Director

BC(S)/138/4th Cycle/APUNGN10054



Certificate

HYM International Certifications Pvt. Ltd.

Certified that the Quality Management System of

SRI PADMAVATI MAHILA VISVAIDYALAYAM

NTR Marg, Padmavathi Nagar, Tirupati - 517 502,
Andhra Pradesh, India

has been assessed and found to be in accordance with the requirements of the quality standards

ISO 9001 : 2015

for the following scope of certification

PROVIDING EDUCATIONAL SERVICES

Further information about the scope of this certificate and applicability of ISO 9001 : 2015 requirements may be obtained by consulting the organization.

Issue Date : 22/03/2021

1st Surveillance 21/03/2022



Renewal Date : 21/03/2024

2nd Surveillance 21/03/2023



Authorised Signature

Certificate No : **Q91864141910**

HYM International Certifications Pvt. Ltd

NOTE: This Certificate is Valid From 21/03/2023 to 21/03/2024

This is an accredited certificate authorized for issue by Accreditation Service for Certifying Bodies [Europe] Limited who have assessed M/s.HYM International Certifications Pvt. Ltd. against defined criteria and in cognizance of ISO 17021:2015 "Conformity Assessment - Requirements for bodies providing audit and Certification of management Systems".

www.hymcertifications.com on for checking the validation of the Certification

Regd. Office : Plot No. 265/C, Addagutta Society, Opp. JNTU, Kukatpally, Hyderabad - 500 072, Telangana State, India.

E-mail: siva@hymcertifications.com, Website: www.hymcertifications.com

5. Compilation

The study is based on the data collected, analysed, rechecked, and confirmed through multiple modes. For the quality study, some standards/ notes have been referred to. These are listed and noted below. However, no direct references have been used anywhere. These are used as a base to analyse and study the data collected.

Specific references for study related to energy

- ➔ <https://www.energy.gov/eere/buildings/zero-energy-buildings>
- ➔ <https://www.dsaarch.com/zero-net-positive-energy>
- ➔ U.S. Energy Information Administration

RENEWAL REPORT

