DAULATRAM COLLEGE

GREEN AUDIT REPORT

2022-2023

PREPARED BY
EHS ALLIANCE SERVICES

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CERTIFICATE

EHS alliance

CERTIFICATE

PRESENTED TO

DAULAT RAM COLLEGE

4, Patel Marg, Daulat Ram College, Maurice Nagar, Roop Nagar, Delhi, 110007

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

GREEN AUDIT

ACADEMIC YEAR 2022-23

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

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

EHS ALLIANCE SERVICES GURGAON

SIGNATURE

23.01.2024
DATE OF AUDIT

EHS ALLIANCE SERVICES, PLOT A-72, SURYA VIHAR, GURUGRAM, 122001
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ACKNOWLEDGEMENT

EHS Alliance Services would like to thank the management of Daulat Ram College, University of Delhi for assigning this important work of Green Audit. We appreciate the co-operation to the teams for completion of assessment.

We would like to thank ***Prof. (Dr.) Sarita Nanda - Vice Principal, Audit Coordinator***, for her continuous support and guidance, without which the completion of the project would not have been possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

We are also thankful to

Ms. Rajni Sahni *Convener, IQAC*

Ms. Shristy Kasana *Co-Convener, NSS Team*

Dr. Anju Jain *Convener, Eco Club*

Last but not the least, we would like to thank ***Prof. (Dr.) Savita Roy - Principal*** for allowing us to evaluate the environmental performance of the campus.

DISCLAIMER

EHS Alliance Services Audit Team has prepared this report for Daulat Ram College based on input data submitted by the representatives of college complemented with the best judgment capacity of the expert team.

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

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

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Signature

LEAD AUDITOR

CONCEPT AND CONTEXT

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

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

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

INTRODUCTION

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

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

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

OVERVIEW OF THE COLLEGE

Daulat Ram College is a premier educational institution in Delhi founded by an educationist late Shri Daulat Ram Gupta in 1960. It is a prestigious women's college engaged in imparting liberal education to women. The college, a large constituent college of the University of Delhi, originally started as "Pramila College" at 22, Tilak Marg with thirteen members of teaching and two non-teaching staff with about 350 students. In 1964, the college shifted to its present premises in North Delhi University campus and was renamed as Daulat Ram College. The institution has since grown into a full-fledged extended college of University of Delhi. The college has acquired a strong identity and has evolved into a prestigious women's college with its own distinct culture and traditions. It imparts education towards degrees at the bachelor's level in arts, commerce and science and Masters level in arts.

The courses in science were introduced in 1968 which led to the construction of the science block and well-equipped science laboratories. The commerce and M.A. courses in many subjects, as well as new courses in B.A. (H) and B.A. (Pass) were added subsequently. Further expansion of the college took place with the introduction of B.Sc. (H) in Biochemistry, Chemistry and

Mathematics, addition of Nutrition and health Education (NHE) and Office Management and secretarial practice (OMSP) and subjects in B.A. (Pass). The college building which was constructed in the 1960s was further expanded to cater to the growing needs of the students. A new block of tutorial rooms, a modern seminar hall, new class rooms and science laboratories for Physics, NHE and Biochemistry were added. Subsequently, a computer lab open to all students with an internet facility was added. Currently the college has add-on courses in foreign languages. At present there are 19 departments with about 4200 students on rolls, about 180 teaching staff and 75 non-teaching staff. The college has a well-equipped computerized library, facility for gymnastics, table tennis, athletics and other games and holds leading positions both in academics and sports.

Recently a well equipped Conference Hall with a capacity of 200 students has been built. The college holds a leading position both in academics as well as in co-curricular activities such as dramatics, music, debates and sports. Students can participate in various societies, N.S.S., Sports and N.C.C. To help the students to cope with the new environment of the college and many other contemporary issues & problems, the Psychology Department runs a Counseling Centre. The In-House Skill Development Programmes being offered by the college equip the students to deal with daily challenges and create an identity for themselves. The highly qualified and experienced teaching faculty of the college is not just limited to classroom teaching but also in taking up various prestigious research projects from organizations like DRDO, ICSSR, UGC, University of Delhi, etc. where the students also get an opportunity to work. The college student's hostel capacity of nearly 204 students is one of the best maintained in the University of Delhi. The college boasts of a modern auditorium named Sadbhavana Bhawan is ideally suited for theatre activities with a large cast. All-in-all, the college provides a holistic experience to its students, by working on their intellectual, emotional and spiritual development.

MISSION | VISION

MISSION

The Daulat Ram College is enshrined in its motto "Salvation through knowledge" i.e to disseminate knowledge in science, commerce and liberal arts among girls to make them empowered and to enriched women capable of bringing social change.

VISION

The goals and objectives are to educate, implement, engage, inculcate and instill in them right values with modern education which will develop their personality and interpersonal skills.

Geo Location
Geo Coordinates from Google maps:
28.6881755, 77.2052532

AUDIT PARTICIPANTS

On behalf of Daulat Ram College

Name	Designation
Prof. (Dr.) Savita Roy	*Principal*
Prof. (Dr.) Sarita Nanda	*Vice Principal & Audit Coordinator*
Ms. Rajni sahni	*Convener, IQAC*
Mr. Devendra Kumar	*Member, IQAC*
Ms. Shristy Kasana	*Co-Convener, NSS Team*
Dr. Asmita Gupta	*Member, NSS, Botany and Garden Committee*
Dr. Sunita George	*Member, Garden Committee*
Prof. Priti Malhotra	*Chemistry Department*
Ms. Suranjita Roy	*Member, IQAC*
Dr. Anju Jain	*Convener, Eco Club*
Ms. Radhika Gupta	*Member, Eco Club & EVS*
Mr. S. Devan	*Caretaker*

On behalf of EHS Alliance Services

Name	Position	Qualifications
Dr. Uday Pratap	Lead Auditor	*Ph.D. , PDIS, QCI – WASH, Lead Auditor ISO 14001:2015*
Ms. Pooja Kaushik	Co-Auditor	*M.Sc., Field Expert, QCI – WASH*

EXECUTIVE SUMMARY

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

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

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

GREEN AUDIT - ANALYSIS

1.1 GENERAL INFORMATION

1. Does any Green Audit conducted earlier?

No, this is the first external audit organized by the College

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

Students
Male: 0 Female: 4686 Total: 4686
Teachers (including guest faculty)
Male: 29 Female: 143 Total: 45
Non-Teaching Staff
Male: 72 Female: 14 Total: 37
Total Strength
Male: 101 Female: 4843 Total: 4944

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

There are one hundred and eighty working days in a year.

4. Where is the campus located?

The campus is located at 4, Patel Marg, Maurice Nagar, Delhi 110007

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

Garden area	*Available*
Playground	*Available*
Kitchen	*Available*
Toilets	*Available*
Garbage Or Waste Store Yard	*Available*
Laboratory	*Available*
Canteen	*Available*
Hostel Facility	*Available*
Guest House	*Not Available*

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

Municipal dump yard	*Not in vicinity of institute*
Garbage heap	*No Garbage heaps*
Public convenience	*Public convenience is available*
Sewer line	*Approximately 1.0 KM sewer line within campus*
Stagnant water	*No stagnant water*
Open drainage	*No*
Industry – (Mention the type)	*No*
Bus / Railway Station	*Vishva Vidyalaya Metro station and bus stop*
Market / Shopping complex	*Available*

1.2 WASTE MINIMIZATION AND RECYCLING

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

Yes, Solid waste, Canteen waste, paper, plastic, horticulture, laboratory waste, e-waste, etc.

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

Biodegradable waste - 20 Kg
Non-biodegradable waste -2 Kg
Hazardous Waste - 1 Kg
Others < 1 Kg

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

Daulat Ram College is using composting for solid waste management
Rain water storage tank is there for water conservation.
Rainwater harvesting pit (25000 litres) capacity is there for better ground water recharge
Lab waste is managed through dilution process

4. Do you use recycled paper in institute?

No

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

College is spreading the awareness about recycling through different activities and campaigns to students, staff and local nearby villages

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

Not yet achieved.

1.3 GREENING THE CAMPUS

1. Is there a garden in your institute?

Yes, about 20334 sq. meter areas are developed as Gardens.

2. Do students spend time in the garden?

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

3. Total number of Plants in Campus?

Plant type with approx. count	
Full grown Trees	*115*
Small Trees	*165*
Hedge Plants	*3500*
Grass Cover sqm	*396396 sq. ft*

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

Yes, 2 staff (maali) deployed in the horticulture department

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

5 Plantation Drive is carried out annually.
The survival rate is more than 70%.

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

Yes, planters are given to the guests instead of bouquets on different occasions.

8. Is there any Plant Ownership Program?

No

1.4 WATER AND WASTEWATER MANAGEMENT

1. List uses of water in your institute

Basic use of water in campus:

Drinking – 142.58 KL/month
Gardening – 828.59 Kl/month
Kitchen and Toilets – 938.87 KL/month
Others – 54.98 KL/month
Hostel – 334.80 KL/Month
Total = 2299.82 KL/Month
The college has no water consumption records, so we have calculated as per NBC-2016 standards considering 6-hour college time.

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

The college stores water in underground and terrace tanks.

Saving Techniques

- *Avoid overflow of water-controlled valves are provided in water supply system.*
- *Close supervision of the water supply system.*

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

Entry *- Water comes from the Municipal corporation and borewell*
Exit*- From the Canteen, Toilets, Hostel, bathrooms, and Labs through covered drainage which is connected to the sewer line*

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

Basic ways:

- *Close the taps after usage*
- *Water Conservation awareness for new students*
- *Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage*

1.5 ANIMAL WELFARE

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

5 dogs, 2 Cats, 20+ butterfly species, 100+ Squirrels and 50+ Birds are found in campus. A variety of bird's species and other flora and fauna are available, so institute is doing their bit for bio diversity conservation.

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

*Yes, Daulat Ram College's **Eco club** actively organizes awareness through various campaigns and activities including seminars, poster competition, etc.*

1.6 CARBON FOOTPRINT - EMISSION & ABSORPTION

1. Electricity used per year - CO2 emission from Electricity

(electricity used per year in kWh/1000) x 0.84
= 430295/1000x0.84
= 361.45 tons

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

(LPG/PNG used per year in KG) x 2.69
=6045.73 x 2.68
=16.20 tons

3. Diesel used per year CO2 emission from HDS (Diesel)

(Diesel used per year in litres) x 2.68
= 500 x 2.99
=1.50 tons

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

There are no college-owned vehicles

Total CO2 emission per year is 379.15 tons

After considering the carbon absorption capacity of the campus, the total carbon emission is 354.79 tons.

CARBON ABSORPTION BY FLORA IN THE INSTITUTION

There are 215 full-grown trees and 480 semi-grown trees of different species, on the campus spread over 396396 sq ft.

The carbon absorption capacity of one full-grown tree 22 kg Co2 Therefore Carbon absorption capacity of 215 full-grown 215 x 22 kg Co2 = 4.73 tons of Co2.

The carbon absorption capacity of 480 semi-grown trees is 50% of that of full-grown trees. Hence the carbon absorption 480 x 6.8 kg of Co2 = 3.26 tons of Co2

There are approximately Hedge Plants 3500 of various species being raised in the gardens and grown in the areas where no buildings are built Carbon absorption of bush plants varies widely with their species. Certain bushes absorb very high level of Co2 where as some others absorb very low level of Co2. In the absence of a detailed scientific study, 200g of Co2, absorption is taken per bush (in consultation with Environmental Science specialists). Based on this, total carbon absorption of bushes is 3500 x 200 g = 0.70 ton of Co2

The lawns on the campus have buffalo grass, Mexican grass and indigenous grass species and cover a total area of 396396 sq. ft. Carbon absorption capacity of a 10 sq. ft. area of lawn is 1 g per day Therefore, carbon absorption by lawn area 396396 x 365 x 0.1 g Co2 = 14.47 tons Co2 per year.

The total carbon absorption capacity of the campus is 23.16 tons.

GREEN INITIATIVES

- The institution has functional compost pits for organic solid waste management.
- There is a ban on single-use plastic and plastic crockery in the campus.
- The college has a separate storeroom for the safe storage of electronic waste. After a certain interval of time college disposes of the E-waste to concerned agencies through the auction process.
- The college has rainwater storage tanks and a rainwater harvesting pit (25000 liters capacity) for water conservation.
- The college has installed sanitary waste disposal facilities (incinerators) as per the CPCB guidelines for the management of sanitary waste (as per Solid Waste Management Rules, 2016).
- Personal Vehicles (Students) are not allowed in the campus

- Dhara- The Eco Club of Daulat Ram College is a passionate and dedicated community of environmentally conscious students, faculty, and staff. Our mission is to foster a sustainable and eco-friendly campus, while also creating awareness and promoting environmental stewardship within the college and beyond

Garden Committee Details:

Professor Rekha Kathal	Convenor
Professor Rama Pasricha	Member
Professor Nidhi Gautam	Member
Dr. Aradhana Yadav	Member
Dr. Vidhi Chaudhary	Member
Dr. Sunita George	Member
Dr. Pratibha Kumari	Member
Dr. Meenam Bhatia	Member
Dr. Asmita Gupta	Member
Dr. Shagun Danda	Member
Dr. Kamlesh Kumari	Member
Dr. Basanta Kumar Das	Member
Dr. Priyanka Rathore	Member
Dr. Remya Krishnan	Member

RECOMMENDATIONS

- Green building guidelines for future expansion projects of the campus.
- Environmental parameters shall be included in purchase policy to achieve a cradle to grave approach for sustainability.
- College should start the use of Sprinklers gardening purpose
- Increase plantation drives in nearby villages, local bodies, NGO and Municipal Corporation in order to balance the carbon emission and absorption.
- Arrange training programmes on environmental management system and nature conservation for schools and local people.
- Involve lower hierarchy staff in environmental awareness programmes and campaigns.
- Increase in Environmental promotional activities for spreading awareness at the campus.
- To eliminate the spillage and over usage of water in washbasins, urinals and toilet push taps are highly recommended.
- Enhance recycling. This can be done by creating a group where students can recycle books, personal clothes and other materials for needy students. This can be an initiative under the green program.
- Regular workshops related to Plastic free campus, plantation drives, 3R implementation, e-waste collection, menstrual hygiene, etc. should be carried out
- Messages should be displayed at various locations to Aware the People about Energy Savings

CONCLUSION

This audit involves considerable team discussions and meetings with key staff members on a variety of environmental-related topics. The eco club of Daulat Ram College promotes the conservation of resources.

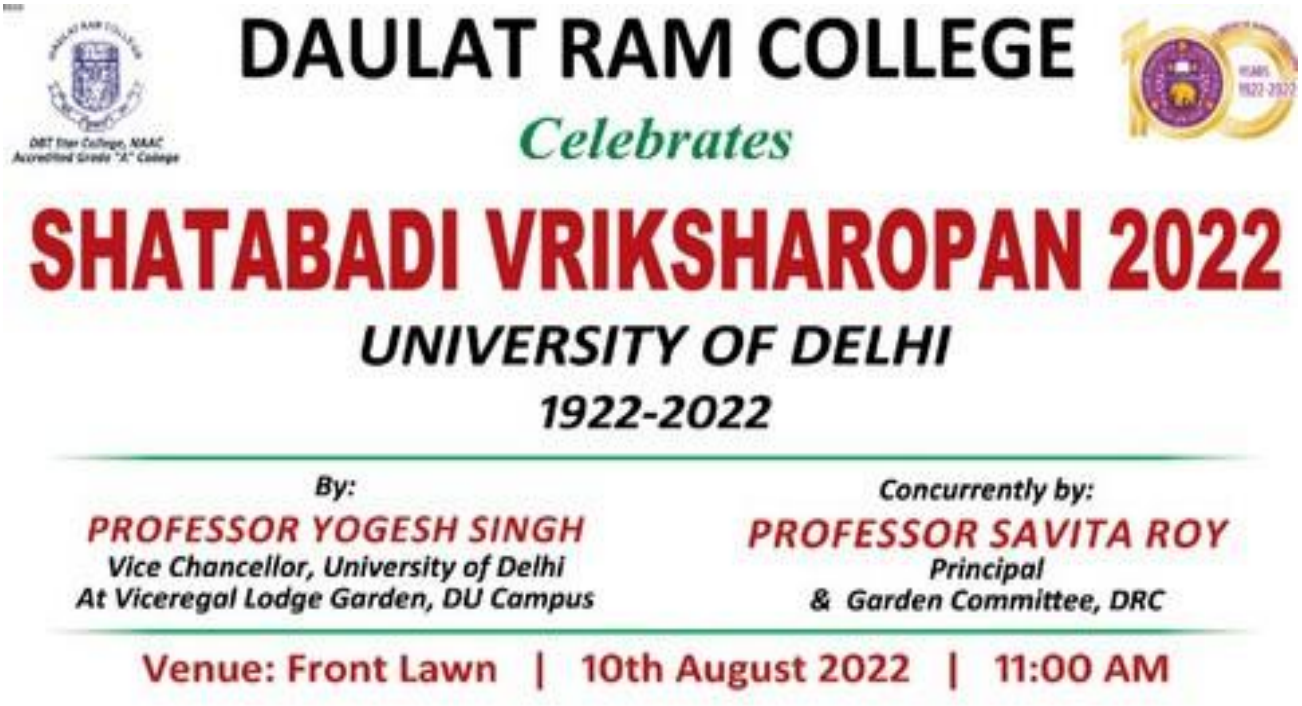
Overall, 50% of Daulat Ram College is for landscaping. The college makes a significant effort to act in an environmentally responsible manner and takes into account the environmental effects of the majority of its activities. The recommendations in this report suggests some more ways in which the college can work to improve its practices and develop into a more sustainable institution.

It's important to begin a few things, such as initiating sprinklers for irrigation and conservation awareness message display at different locations in campus. Additionally, we strongly advise to increase awareness amongst the students, staff and local societies for 3R principle and conservation of water and energy.

REFERENCE

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

ANNEXURE – ENVIRONMENT CONSCIOUSNESS PHOTOS

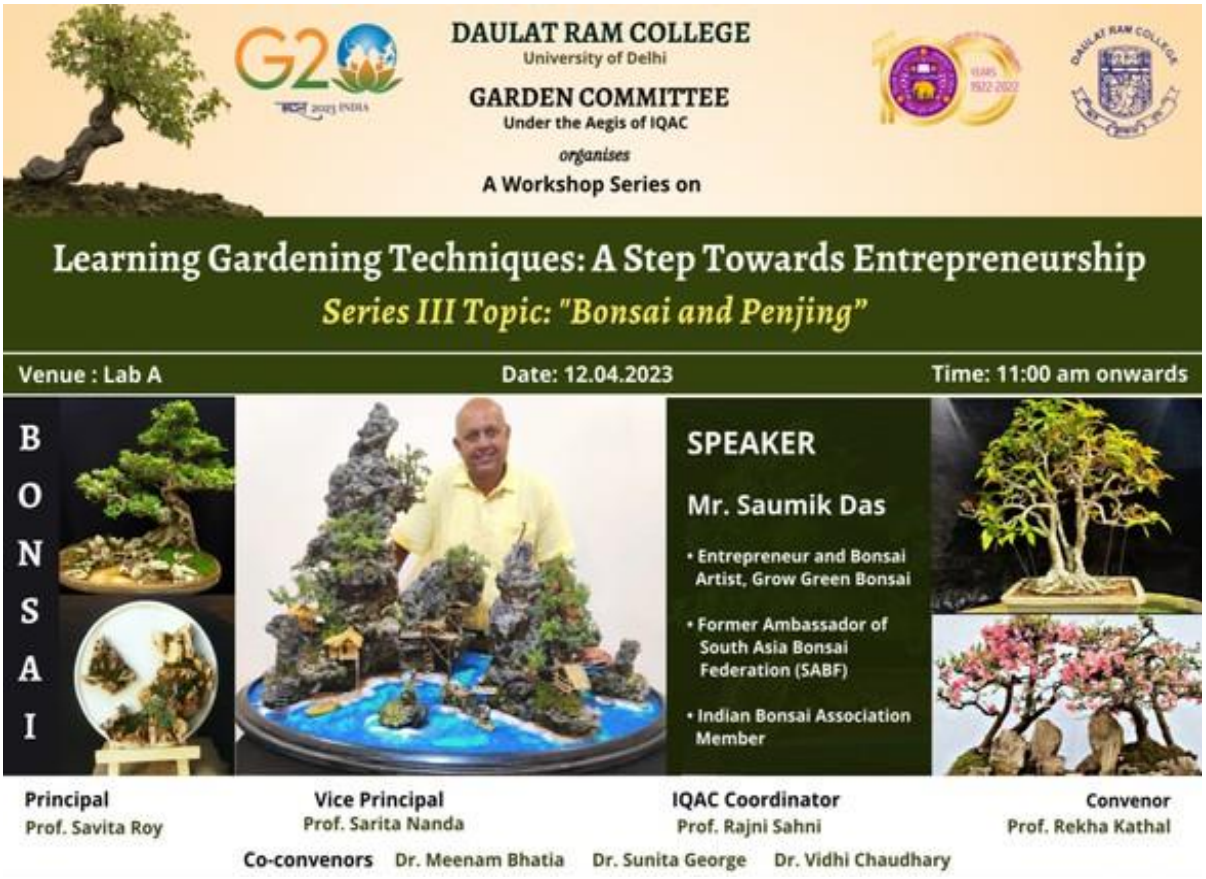


QR codes for trees and plants

BOTANY EXPERIMENTAL GARDEN

The Botany Experimental Garden falls under the Department of Botany. It is well maintained and looked after by the Garden Committee of the College. It is used for the purpose of growing the work materials for practical classes of the students of Botany and for doing the Field & Pond based Ecology Experiments.


DAULAT RAM COLLEGE
University of Delhi
Garden Committee
Under IQAC
NAAC 'A' Grade
A Star Status College
Organizes a Workshop Series on
"LEARNING GARDENING TECHNIQUES –
A STEP TOWARDS ENTREPRENEURSHIP"
TOPIC : BASIC TECHNIQUES FOR HOME GARDENING – SERIES I
Mr ISHTIYAK AHAMAD
Manager, Nature Education & Training
Give Me Trees Trust, New Delhi
Date: 14th & 15th September, 2022
Venue: Botany Lab - A
Time: 2 pm – 4 pm
Prof. Savita Roy
PRINCIPAL
Prof. Rekha Kathal
CONVENOR
Prof. Sarita Nanda
VICE PRINCIPAL
Dr Sunita George & Dr Vidhi Chaudhary
CO-CONVENORS
Prof. Rajni Sahni
IQAC COORDINATOR
Prof. Rama Pasricha
TEACHER-IN-CHARGE


DAULAT RAM COLLEGE
University of Delhi
GARDEN COMMITTEE
Under the Aegis of IQAC
organises
A Workshop Series on
Learning Gardening Techniques: A Step Towards Entrepreneurship
Series III Topic: "Bonsai and Penjing"
Venue : Lab A
Date: 12.04.2023
Time: 11:00 am onwards
BONSAI
SPEAKER
Mr. Saumik Das
• Entrepreneur and Bonsai Artist, Grow Green Bonsai
• Former Ambassador of South Asia Bonsai Federation (SABF)
• Indian Bonsai Association Member
Principal
Prof. Savita Roy
Vice Principal
Prof. Sarita Nanda
IQAC Coordinator
Prof. Rajni Sahni
Convenor
Prof. Rekha Kathal
Co-convenors Dr. Meenam Bhatia Dr. Sunita George Dr. Vidhi Chaudhary

Well ventilated building structure

Well maintained college campus

Lush green campus

Sports Ground

Library

Smart Classes

Well equiped labs

Auditorium

Cafeteria

Girl's Hostel

Energy conservation messages

Green house nursery

Plastic tanks - Reuse as pot

Plantation drive

Herbal garden

Recycle in action

Campus nursery

Composter for biodegradable waste management

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