



Tirumala Tirupati Devasthanams  
శ్రీ వేంకటేశ్వర కళాశాల  
**Sri Venkateswara College**  
(University of Delhi)  
NAAC Grade A+

**SRI VENKATESWARA COLLEGE  
(UNIVERSITY OF DELHI)**

**EVENT REPORT**

<b>NAME OF THE EVENT: TRAINING WORKSHOP FOR LABORATORY PROGRAM</b>			
<b>DATE</b>	<b>DEPARTMENT</b>	<b>COMMITTEE/SOCIETY</b>	<b>COORDINATORS' NAME</b>
17-19 <sup>th</sup> January 24 and 23 <sup>rd</sup> -24 <sup>th</sup> January 24	Biochemistry Botany Chemistry Electronics Zoology	IQAC	Prof. Swarn Singh Prof. Sharada Pasricha Prof. Vartika Mathur
<b>TIME</b>	<b>VENUE</b>	<b>NUMBER OF PARTICIPANTS</b>	<b>NATURE: Outdoor/Indoor; online/offline/hybrid</b>
10:00 AM-3:00PM	New Seminar Hall, Durgabai Deshmukh Block, SVC Science Labs	38	Offline
<b>FINANCIAL SUPPORT/ASSISTANCE (if any):</b>	IQAC		

**BRIEF INFORMATION ABOUT THE ACTIVITY**

<b>TOPIC/SUBJECT OF THE ACTIVITY</b>	Training Workshop for Newly Appointed Laboratory Staff
<b>OBJECTIVES</b>	To introduce newly inducted laboratory staff to various Laboratory, ICT and other protocols that are used by them every day
<b>METHODOLOGY</b>	<ul style="list-style-type: none"><li>• The event started with Welcome address by Prof. Swarn Singh.</li><li>• Prof. K. C. Singh, Off. Principal, SVC addressed the newly appointed staff members and welcomed them to SVC.</li></ul>

	<ul style="list-style-type: none"> <li>The inaugural session was followed by Subject-specific sessions which were conducted in the respective department laboratories</li> </ul>
<b>INVITED SPEAKERS WITH AFFLIATION DETAILS (IF ANY)</b>	<ul style="list-style-type: none"> <li>Shri Arvind Giri, Assistant Registrar, University of Delhi</li> <li>Dr. Nidhi Gupta, AIIMS, New Delhi</li> <li>Mr. Neeraj Bajaj, Branch Manager, Oriental Science Apparatus Workshop</li> <li>Mr. Mithun Das, M/S Silicom Electronics Pvt. Ltd.</li> <li>Faculty members were the Resource persons in the subject-specific sessions</li> </ul>
<b>OUTCOMES</b>	<ul style="list-style-type: none"> <li>The Orientation Program helped the newly appointed faculty members understand the college and its functioning. They were abridged about the role of IQAC and other college committees. It was particularly relevant for those who have come from other universities/ organizations.</li> </ul>

**PROOFS & DOCUMENTS ATTACHED (Tick mark the proofs attached):**

1 Notice & Letters ✓	2 Number of Participants & Name of participants ✓	3 Video clip	4 Photos ✓	5 Feedback Form & analysis
6 News clip with details	7 Sample Copy of the Certificate	8 Posters/ Invites ✓	9 Event report Attested by Event Coordinator & IQAC Coordinator ✓	10 Any other document

IQAC Document No: IQAC/SVC/Lab Staff Training2023- 2024/IQAC/12	Criterion No: II, VI
Departmental file no. IQAC/2023-2024/	IQAC file No: SVC/2023-24

NAME OF TEACHER & SIGNATURE	NAME OF HEAD/ COMMITTEE INCHARGE & SIGNATURE	IQAC COORDINATOR (SEAL & SIGNATURE)
Prof. Sharada Pasricha Prof. Vartika Mathur	Prof. K. C. Singh	Prof. Swarn Singh

For Reference

Criterion I	Curricular Aspects (planning & Implementation)	Criterion V	Student Support & Progression
Criterion II	Teaching Learning & Evaluation	Criterion VI	Governance
Criterion III	Research, Innovations & Extension	Criterion VII	Institutional Values & Best Practices
Criterion IV	Learning Resources and Infrastructure		

## Session-wise Report Department of Biochemistry

17<sup>th</sup> Jan. 2024 - Session 1

### **“Lab Safety” and “Dos and Don’ts” in the Lab Preparation and Storage of Reagents used in the Biochemistry lab**

(By Dr Nandita Narayanasamy & Dr Lakshay Malhotra) Venue: Biochemistry



#### Lab

The theoretical basis for different symbols of lab safety, like hazardous, flammable, and corrosive chemicals, was introduced. How to use and handle different types of chemicals based on their physical and chemical properties, lab safety protocols on when there is any acid or alkali spillage and how to clean them. Suppose there is a fire accident; how do you act upon it and use different types of fire extinguishers (A, B and C)? They have been taught how to prepare solutions and calculations (molarity, normality, and dilutions). They calculated



and prepared two different sodium chloride solutions (stock solution) and diluted them further (working solution). Additionally, they were taught how to store

prepared solutions at appropriate temperatures and conditions (room temperature, cold temperature, and light-sensitive conditions). They were instructed to wash different glassware.

17<sup>th</sup> Jan. 2024 Session 2

### **Handling a Spectrophotometer and quantitative biochemical assays.**

(By Dr. Meenakshi Kuhar & Dr. Ravindra Varma) Venue: Biochemistry Lab



### Handling of spectrophotometer and quantitative biochemical assays.

The spectrophotometer's principle, working and applications have been introduced to them. They estimated the protein concentration using the biuret method. They had seen different cuvettes used for UV-Vis spectroscopy. They took the optical density (O.D) values of the protein standard solutions and determined the unknown protein concentrations by plotting a standard Bovine Serum Albumin (BSA) graph.

18<sup>th</sup> Jan 2024 Session 1.

**Purification of biomolecules by Chromatography and Storage/regeneration of Matrix**  
(By Dr Anju Kaicker and Dr Kameshwar Sharma YVR) Venue: Biochemistry Lab



**Purification of biomolecules by Chromatography and storage/regeneration of matrix.**

The biophysical or biochemical chromatography technique is a versatile technique used to purify biomolecules, especially proteins, which were introduced, and the principle working and application of different types of chromatography were discussed. Additional steps about chromatography, columns used in chromatography, different types of matrixes used, column

packing, washing, matrix regeneration, and matrix storage in appropriate conditions were discussed. The lab staff separated cobalt chloride and dextran blue using gel filtration.

19<sup>th</sup> Jan 2024 Session 1.

**Clinical & Tissue-based experiments and disposal of biological samples**  
(Dr Nandita Narayanasamy and Dr Sarika Yadav) Venue: Biochemistry Lab



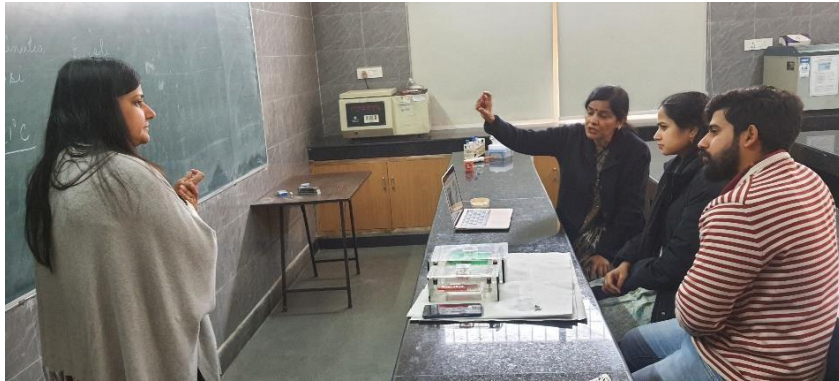
Clinical & Tissue-based experiments and disposal of biological samples

The staff were taught how experiments were performed using blood and tissues; they drew the blood using a lancet and prepared a blood smear. They learnt the differences between plasma and serum. They are taught how to dispose of the vacutainers, needles, and lancets. They are taught if tissue is used for the experiments, how to dispose of the plastic ware and how to dispose of unused tissue.

19<sup>th</sup> Jan 2024 Session 2.



**Session on DNA-based experiments and culture preparation**  
(By Dr Shalini Sen & Dr Nimisha Sinha) Venue: Biochemistry Lab



### DNA-based experiments and culture preparation.

Bacterial growth is taught, where LB media is used to grow *E. coli*. Further from the *E. coli* grown, the isolation of Genomic DNA and plasmid from *E. coli* has been introduced. They were taught the differences between DNA and RNA and their differences in stability due to their chemical composition.

23<sup>rd</sup> Jan 2024 Session 1.

### **Microscope handling and Maintenance**

(By Dr Vandana Malhotra, Dr Sidhartha Tarila and Dr Lakshay Malhotra) Venue: Biochemistry Lab







### Microscopy handling and maintenance.

The staff had been introduced to the microscope and its applications. We have demonstrated different parts of the compound microscope and how to use, clean, and maintain the microscopes. They have experimented with staining and visualization of buccal cavity smear using two different stains (fast green and acetocarmine). Fast green and acetocarmine stains protein and Nucleic Acids, respectively. They were acquainted with the microscope and observed the buccal cavity cells at 10, 40, and 100X magnifications.

23<sup>rd</sup> Jan 2024 Session 2.

### **Microbiology-based experiments and media preparation.**

(By Dr Sidhartha Taritla and Dr Lakshay Malhotra) Venue: Biochemistry Lab



### Microbiology-based experiments and media preparation.

The different culture media used in the lab were taught to grow and maintain the microorganisms (Bacteria and Fungi) and insects (Drosophila). They are taught about sterilisation techniques (Physical and chemical methods) and decontamination. We have demonstrated using and maintaining different instruments (autoclave, laminar airflow hood, hot air oven). They have been taught how to clean and decontaminate once the experiment is done. When there was any spillage of the microbial culture, they were introduced to add diluted sodium hypochlorite solution (bleach) before washing. They have been taught from media preparation to decontaminating and discarding the microbial waste to a non-hazardous state.

24<sup>th</sup> Jan 2024 Session 1.

### **General maintenance of biochemistry/ Biotechnology lab, and Stock entry; purchase and storage of chemicals. Followed by discussion, Suggestions and feedback.**

(By Dr Dalip) Venue: Biochemistry Lab

### General maintenance of biochemistry/ biotechnology lab and stock entry; purchase and storage of chemicals.

The set of chemicals the lab has should be appropriately recorded and maintained by entering it into a register with all the information regarding the nature of the chemical and the storage





**Sri Venkateswara College**  
**University of Delhi**

**One Week Training Workshop for Laboratory Staff – 2024**  
**17<sup>th</sup> - 24<sup>th</sup> January, 2024**

**Attendance Sheet**

Department of Biochemistry and Biotechnology											
S.No	Name of the Participant	17 <sup>th</sup> January		18 <sup>th</sup> January		19 <sup>th</sup> January		23 <sup>rd</sup> January		24 <sup>th</sup> January	
		Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening
1.	Mr. Lalit										
2.	Ms. Payal Kumari										
3.	Mr. K Madhusudan										

temperature. Track the required chemicals placed and keep the appropriate stock whenever necessary.

## Session-wise Report Department of Botany

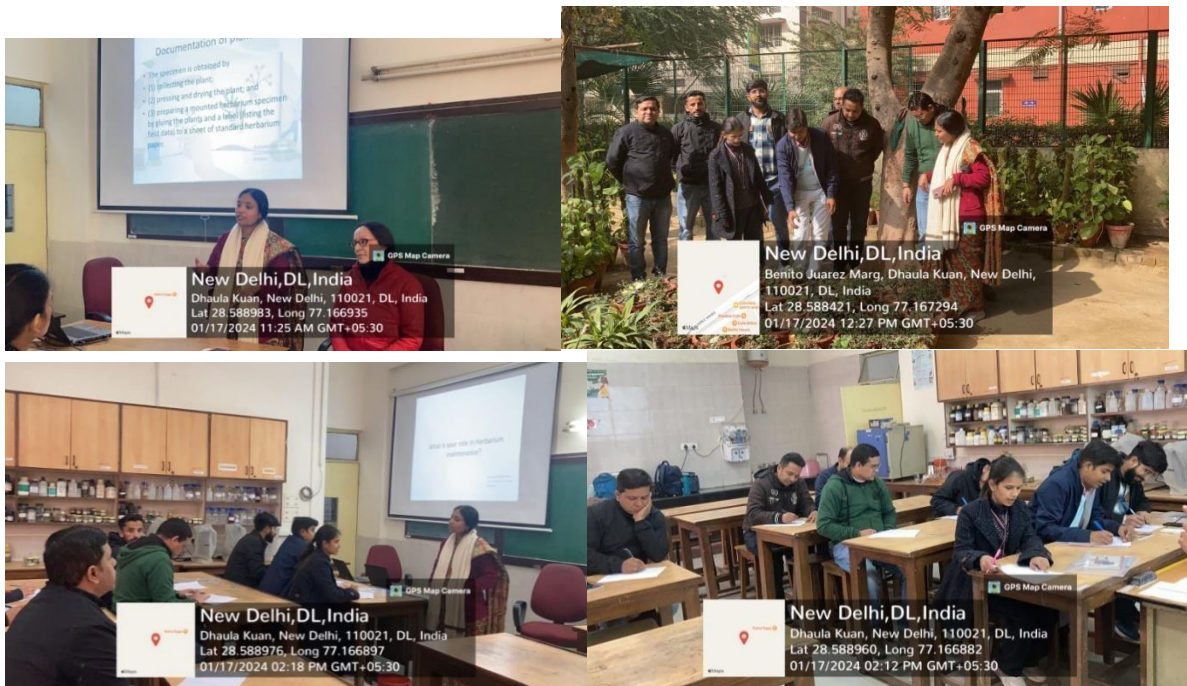
**17.01.2024**

**Resource Person:** Dr. Prajna Muthabathula, Assistant Professor, Department of Botany, Sri Venkateswara College, University of Delhi.

Two sessions were carried out in the morning for lab staff of Botany.

From 11:00AM to 12:00PM was a session on “**Preparation of Herbarium and its maintenance**” where detailed presentation was given explaining the whole procedure of Herbarium preparation and maintenance.

From 12:00PM to 01:00PM was a session called “**Know your Plants**” – which included learning about the plants that are required for general botany practicals through a presentation followed by tour of Botanical Garden and college campus to identify the plant species. During tour the plants were described for their characteristic features for easy identification in future. Later from 02:00PM to 03:00PM an assessment session was conducted where questions were asked on both the sessions conducted previously in both written and interactive discussion mode.



19<sup>th</sup> Jan 2023

Resource Persons: Dr. Manoj Thakur and Dr. Aditi Kothari Chhajer

During today's session, our primary focus centered around the preparation of EDTA, a vital chemical solution renowned for its chelating properties that effectively sequester divalent/monovalent ions. This process holds particular significance in deactivating nucleases, thereby preventing interference of endo-/exonucleases with the isolation of genomic DNA from cauliflower buds. The session kicked off with a comprehensive exploration of mathematical calculations, covering concepts such as molarity, normality, concentrations based on weight (w/w) and volume (w/v), percent solutions, and osmolarity. Transitioning from theory to practice, we initiated the preparation of a 0.5 M EDTA solution, highlighting the pivotal role of a pH meter in optimizing the pH level. Initially, the observed pH of the solution stood at approximately 4.0. Through the strategic addition of NaOH pellets at 25 degrees Celsius, we successfully raised the pH to the target value of 8.0. Throughout this phase, the trainees attentively observed the dissolution of the EDTA solute, resulting in a clear solution as the pH gradually increased.

Moving on to the evaluation and interactive segment, the trainees actively participated in solving numerical problems based on the introduced concepts. Their impressive understanding of the subject matter demonstrated the effectiveness of this hands-on activity in providing practical insights applicable to everyday Botany experiments. This session effectively bridged the gap between theoretical knowledge and its real-world application, fostering a deeper comprehension of essential concepts in the field. As the culmination of the session, the trainees were instructed to proceed with the autoclaving of the prepared EDTA solution, marking the conclusion of today's practical and instructive laboratory session.



23<sup>rd</sup> January 2024

The fourth day of “Training workshop for laboratory staff” commenced with the session on “Learning about Fixation methods and preparation of stains” in the Botany Honours lab at 10:00 a.m. The botany department laboratory staff was familiarized with the concept of fixation and the different kinds of fixatives (Carnoy’s fluid, FAA, FPA), their preparation and importance especially during excursions. The second session started at 11:30 a.m. with an interaction on the basic Laboratory handling and maintenance. The discussion continued on a very important aspect of laboratory safety and knowing the MSDS (Material safety data sheet) of various kinds of chemicals used on a daily basis in the lab. The laboratory staff was familiarized with the various symbols (corrosive, flammable, carcinogen, toxic, etc.) mentioned on the reagent bottles for the safety of all those working in the lab. The session culminated with a fun cum learning module on “Know your apparatus” which the participants very enthusiastically attended. The day ended with an engaging quiz contest and a fruitful discussion on the various concepts learned during the sessions.



## Session-wise Report Department of Chemistry

### Day-1

**Date-**17-01-2024

**Laboratory Session 1 Topic:** Lab Set Up and Lab ethics

**Resource Person:** Prof. Sarita Passey (Zakir Husain College, DU) Dr. Vinita Kapoor

**Session In Charge:** Dr. Vinita Kapoor, Dr. Rekha Yadav, Dr. Ravindra Upadhyay

Prof. Sarita Passey, Professor, Department of Chemistry, Zakir Husain College gave a brief presentation on lab ethics, laboratory do's and don'ts, lab safety, clothing and accessories and general conduct in the science laboratory like duties before, during and after the Lab. She also explained the participants how to deal with the common laboratory accidents and handling of broken apparatus.



**Laboratory Session 2 Topic:** Getting Familiar- Identification and Handling

**Resource Person:** Prof. Sharda Pasricha, Dr. R J Naik

**Session In Charge:** Prof. Sharda Pasricha and Dr R J Naik

The second session of the day was taken up by Prof Sharda Pasricha and Dr R.J. Naik where they familiarise the participants with the various apparatus used in the laboratory in day-to-day basis. The participant was briefed about the handling of the glassware's like- pipettes, Micropipettes, graduated pipettes, Burette, measuring cylinder, standard Flask, Funnel, separating Funnel (BAW), Desiccator, titration flask, conical flask, iodine flask, Bodmel, thermometers etc. Also, the storage of chemicals- "What to Keep Where" was discussed with the lab staff. The session was followed by a fun activity "Treasure Hunt" where the lab staff



were divided into various groups and they were asked to collect the apparatus mentioned in their respective slips.



## Day-2

**Date-**18-01-2024

**Laboratory Session 1 Topic:** Preparation of Solutions- Common Session

**Resource Person:** Dr. Manisha Jain, Acharya Narendra Dev College, DU

**Session In Charge:** Dr. Rangarajan TM and Dr. Murali Mohan

The Day 2-Session 1 of the training workshop for laboratory staff was conducted by Dr. Manisha Jain, Associate Professor of Chemistry at ANDC College, University of Delhi. The day 2 session was the common session where the laboratory staff of Department of Botany, Chemistry, Zoology and Biochemistry participated. Dr. Manisha provided participants with a comprehensive overview of the significance of solution preparation in the laboratory, emphasizing the essential requirements for creating both standard and approximate solutions. She also introduced to the participants about the weighing balance, standard flask, winchester bottles and best practices to be followed for preparing the standard solutions. The session was concluded with Vote of Thanks by Dr Murali Mohan.



**Laboratory Session 2 Topic:** Making solutions in groups of four - Common Session

**Resource Person :** Dr. Shefali Shukla & Dr. R J Naik

**Session In Charge:** Dr. Shefali Shukla & Dr. R J Naik

The second session of the day was conducted in Chemistry lab 2. At the outset Dr Shefali Shukla and Dr. R J Naik, from Chemistry Department, SVC gave the instructions for solution preparation with various concentration in term of Molarity, Normality, and Weight by Volume. The participants were told about the various sources of error during solution preparation. The participants, in group of four, performed the activity of preparing 5% glucose solution, N/40 Mohr's solution and 1M HCl. Her session was followed by a Q&A session with participants.



Session 2 ended with a formal summing up of the session and a Vote of thanks delivered by Dr. R J Naik from Dept of Chemistry, Sri Venkateswara College, University of Delhi.

**Day-3**

**Date-**19-01-2024

**Laboratory Session 1 Topic:** Instrumentation

**Resource Persons:** Dr. Pragya Gahlot, Dr. Vinita Kapoor

**Session Incharge:** Dr. Pragya Gahlot, Dr. Vinita Kapoor, Dr. Ravindra Upadhayay

Dr Pragya Gahlot, Assistant Professor, Department of Chemistry, addressed the session on "Instrumentation". She started his lecture with the introduction of various analytical instruments in the Chemistry laboratory. Dr. Vinita Kapoor and Dr. Pragya Gahlot demonstrated the general handling, maintenance, and working of PH meters, conductometers, colorimeters, and spectrophotometers. The session in-charge also took up all queries from participants along with the discussion.



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**Laboratory Session 2 Topic:** Group Activity- Calibrate Balance, PH meter calibrated, Conductivity calibration

**Session In Charge:** Dr. Pragya Gahlot, Dr. Vinita Kapoor, Dr. Ravindra Upadhyay

The Second Session of the day was the activity session conducted in Chemistry Lab 2. At the outset, Dr. Vinita Kapoor delivered the basic instruction, and in the presence of the session in charge, the participants were distributed in groups of three. All the groups were told to prepare the buffer solutions and do the calibration of the pH Metre.



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**Day-4**

**Laboratory Session-1**

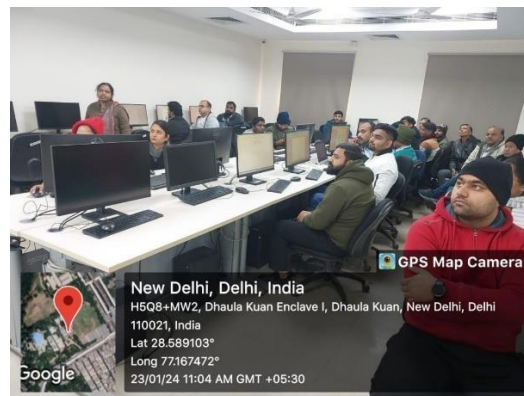
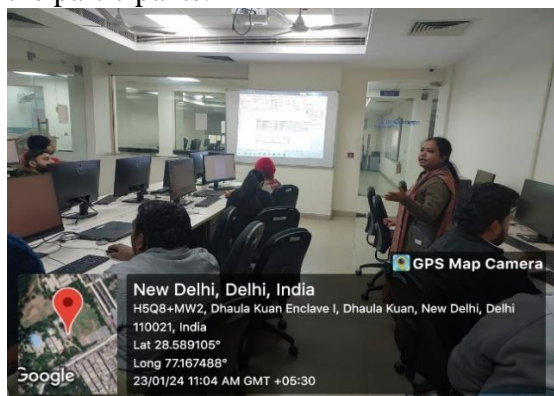
**Date-23-01-2024**

**Topic: ICT and Lab up-keeping (Hands-on) and Activity**

**Resource Persons: Dr. Rekha Yadav and Dr Rakhi Narang**

**Session In charge: Dr. Rekha Yadav, Dr. Rakhi Narang**

Dr. Rekha Yadav, Assistant Professor, Department of Chemistry gave a brief presentation on ICT tools and Lab up-keeping activities. The session began with a discussion on how to create and customize table and nesting of tables. Further she discussed use of Microsoft Word for applications in chemistry and electronics. Based on the instruction delivered, participants were told to do the activities like listing of the items in chemistry lab, making time table in a word format, making labels etc. The session concluded with a very interactive Q & A session with the participants.



## Laboratory Session 2 Topic: ICT and Lab up-keeping (Hands-on) and activity based on budget

**Session In Charge:** Dr. Rakhi Narang and Dr. Rekha Yadav

The last session of the day was conducted by Dr. Rakhi Narang, Assistant Professor, Department of Electronics. Beginning with a brief introduction of MS-EXCEL and its importance in data handling, Dr. Rakhi Narang introduced the use of simple functions like sum, average, product, division, max, min, text functions and various ways of formatting the entered data. The topic-related activity was also given to the participants.



## Day-5

### Laboratory Session-1

**Date-**24-01-2024

**Session 1 Topic:** Using Google drive-for academic data and Activity

**Session In Charge:** Dr. Rekha Yadav and Dr. Rakhi Narang

**Resource Person:** Dr. Rekha Yadav

At the outset, Dr. Rekha Yadav, Assistant Professor, Department of Chemistry gave a brief introduction of Google Drive and how to use Google Drive to create, backup, manage, and find files. She also explained the usage of essential Google Drive apps like Google Docs and Google Sheets. After the half an hour introductory session, the session in charge took up all queries

from participants and perform the hand on activity's related to the academic data handling through google drive.

**Laboratory Session 2 Topic: Lab Safety**

**Resource Person:** Dr. Vinita Kapoor

**Session Incharge:** Dr. Vinita Kapoor, Dr. Murali Mohan, Dr. Chandrashekhar Tekuri

The session starts with the introduction of lab safety techniques by Dr. K. Murali Mohan Achari. Dr. Vinita Kapoor explained how to read a required laboratory reagent bottle and safety labels. The session continued with the safety precautions for handling sodium and mercury metals, using first aid kit and gloves usage. The session concluded with vote of thanks by Dr. Chandra Sekhar Tekuri.



**Session-wise Report  
Department of Electronics**

**TRAINING WORKSHOP FOR LABORATORY STAFF – EVENT REPORT**  
**DEPARTMENT OF ELECTRONICS**

**Day 1: January 17,2024**

<b>Time</b>	<b>Topic of Presentation</b>	<b>Resource Person</b>		<b>Venue</b>
<b>11.00 – 12.00 noon</b>	Circuit design using breadboard and IC Testing	Dr Rakhi Narang		Electronic Lab (Room no 261)
Break				
<b>2.00 – 3.00 pm</b>	Hands-on Session	Dr Rakhi Narang		Electronic Lab (Room no 261)

The first session focussed on familiarizing the participants with various active and passive electronic components like resistor, capacitor, diode, transistor, and potentiometer etc. which are commonly used in the experiments. Knowledge of component behaviour, specifications, and limitations ensures the creation of circuits that meet desired performance criteria.

Next, temporary circuit designing using a breadboard was explained. In addition to this, several ICs are used in different experiments. It is imperative to check the IC before using it in any circuit. So, the working of an IC tester equipment was explained to the participants.

A worksheet was provided to the participants for the hands-on session to practice circuit design, measuring the component values manually and using the multimeter along with troubleshooting.





Worksheet : Day 1

Date: 17<sup>th</sup> January 2024

Session: Evening

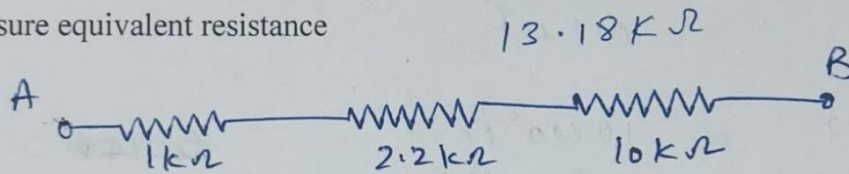
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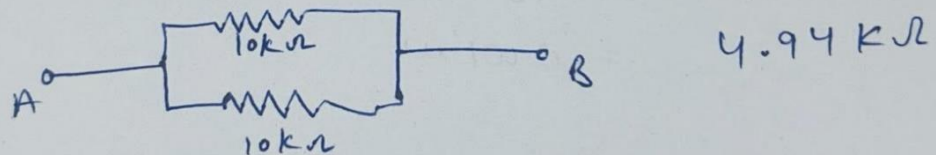
1. Calculate the resistance value for 3 different resistors using color coding and verify using multimeter.

2. Calculate the value of two ceramic capacitors and verify through multimeter.

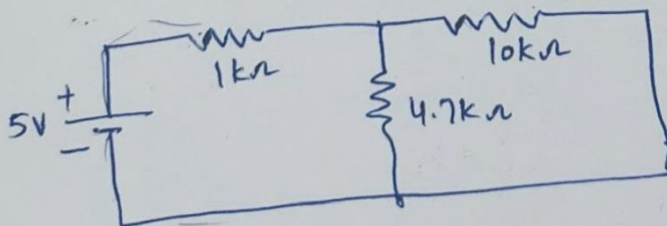
3. Measure equivalent resistance



4. Measure equivalent resistance



5. Make this circuit on breadboard.



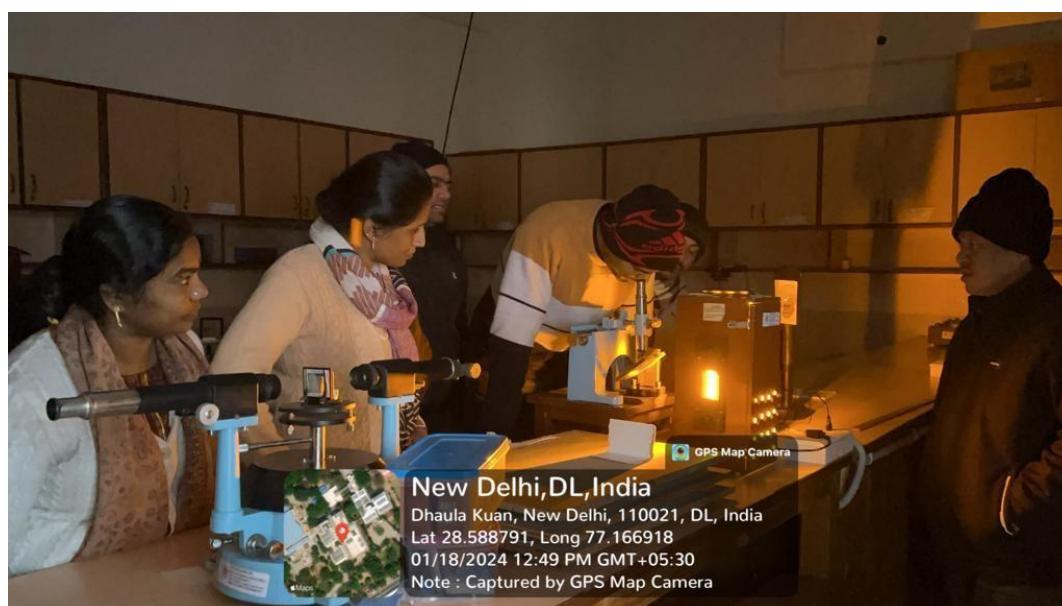
6. Test IC: 741 , 7400 and 7447 using IC Tester.

**Day 2: January 18,2024**



Time	Topic of Presentation	Resource Persons		Venue
10.00 – 11.00 am	Calibration of Light and Optical Instruments- Diffraction Gratings, Travelling Microscopes, Polarimeters and Laser	Mr. Neeraj Bajaj, Oriental Science Apparatus Workshop		Electronic Lab (Room no 261)
Break				
2.00 – 3.00 pm	Testing and Measurement using power supply and Function Generator	Dr Hina Yadav		Electronic Lab (Room no 261)

To calibrate, maintain and repair Spectrometer and LASER in optics lab. How to prepare set-up of optics experiment and follow safety guidelines while performing experiments. Also explained the usage of polarimeter and newton rings set-up. In afternoon session Demonstration of Power supplies and function generator was shown.





**Day 3: January 19,2024**

<b>Time</b>	<b>Topic of Presentation</b>	<b>Resource Persons</b>		<b>Venue</b>
<b>10.00 – 11.00 am</b>	Testing and Measurement using CRO	Dr Rakhi Narang		Electronic Lab (Room no 261)
<b>11.00 – 12.00 noon</b>	Repair and Maintenance of instruments	Engineer from Sciencetech Instruments		Electronic Lab (Room no 261)
Break				
<b>2.00 – 3.00 pm</b>	Hands-on session on Soldering	P.N. Rao		Electronic Lab (Room no 261)

The participants were given demonstration about how to handle testing and measurement set up comprising of power supply, function generator and oscilloscopes (both analog and DSO). Practical exercise involving waveform interpretation, and measurement through CRO and troubleshooting scenarios to enhance proficiency was provided.

This was followed by a demonstration and repair/maintenance session by a Sales and application engineer-Mr. Mithun Das from Silicom Electronics Pvt. Ltd.

### **CRO Worksheet**

**AIM:** To observe sine, square, and triangular waveforms on the C.R.O. and to measure amplitude and frequency of the waveforms.

**Introduction:**

C.R.O. (Cathode Ray Oscilloscope) is an instrument used to observe the various signal waveforms. Signals are displayed in the time domain i.e. variation in amplitude of the signal with respect to time is plotted on the CRO screen. X-axis represents time and Y-axis represents amplitude. It is used to measure amplitude, frequency and phase of the waveforms. It is also used to observe shape of the waveform.

Digital storage oscilloscope (DSO) display voltage and frequency directly on the LCD and does not require any calculations. It can also store waveform for further analysis.

**Procedure:**

1. Connect function generator output at the input of C.R.O. at channel 1 or at channel 2
2. Adjust Time /Div knob to get sufficient time period displacement of the wave on the CRO screen.
3. With fine tuning of time/Div make the waveform steady on screen.
4. Keep volt/div knob such that waveform is visible on the screen without clipping
5. Measure P-P reading along y-axis. This reading multiplied with volt/div gives peak to peak amplitude of the ac i/p wave.
6. Measure horizontal division of one complete cycle. This division multiplied by time/div gives time period of the i/p wave.
7. Calculate frequency using formula  $f = 1/T$ .
8. Take trace of waveforms of sine, square, and triangular signal.

Function	Vertical Division (a)	Volt/div (b)	Amplitude (p-p) $V=a*b$	Horizontal Div (c)	Time/div (d)	Time T $=c*d$	Freq. F=1/T
Sine wave							
Square Wave							
Triangular Wave							

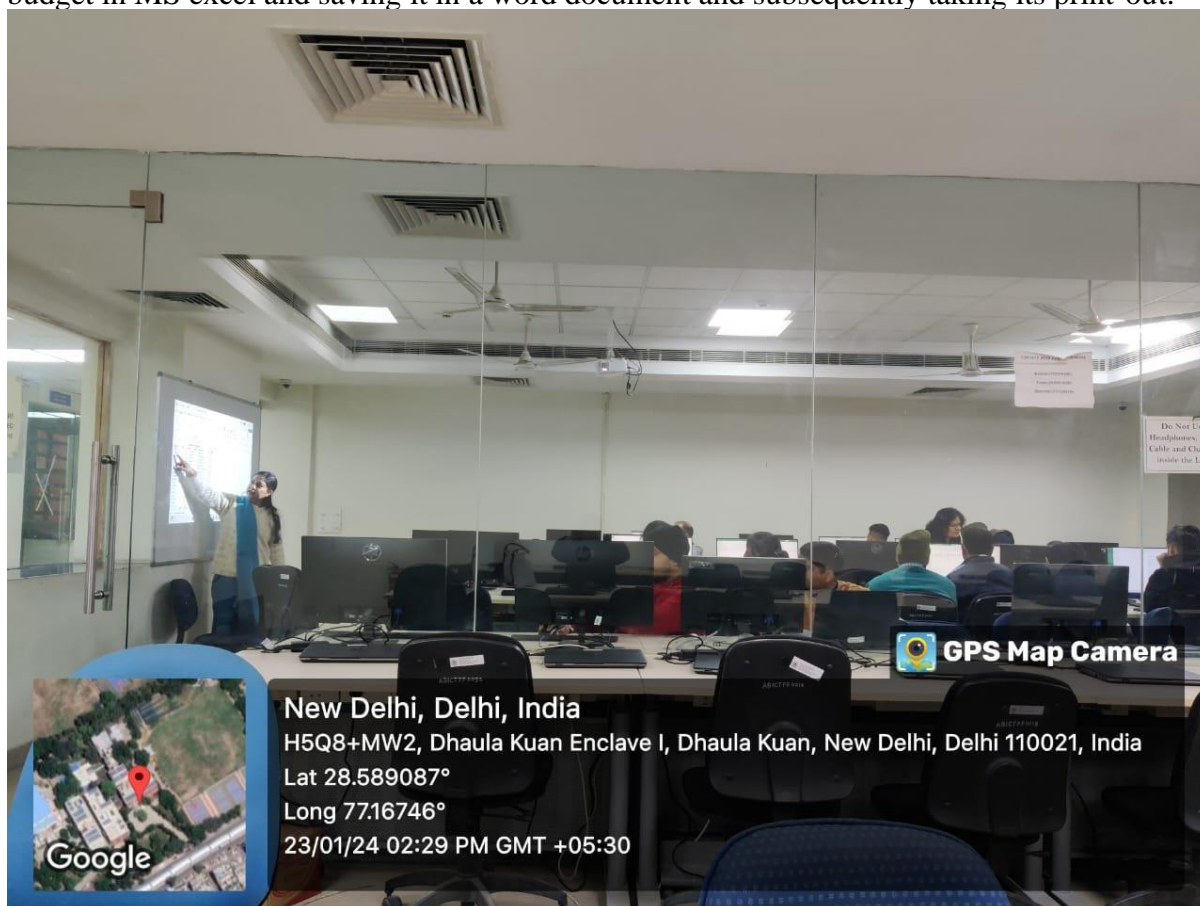




**Day 4: January 23,2024**

<b>Time</b>	<b>Topic of Presentation</b>	<b>Resource Persons</b>	<b>Venue</b>
<b>10.30 – 11.30 am</b>	<b>ICT and Lab up-keeping (Hands-on) and Activity: Nesting of folders and Word</b>	Dr. Rekha Yadav and Dr Rakhi Narang	ICT Lab
Break			
<b>2.00 – 3.00 pm</b>	<b>ICT and Lab up-keeping Cont. (Hands-on) and Activity: Based on Budget</b>	Dr. Rekha Yadav and Dr Rakhi Narang	Electronic Lab (Room no 261)

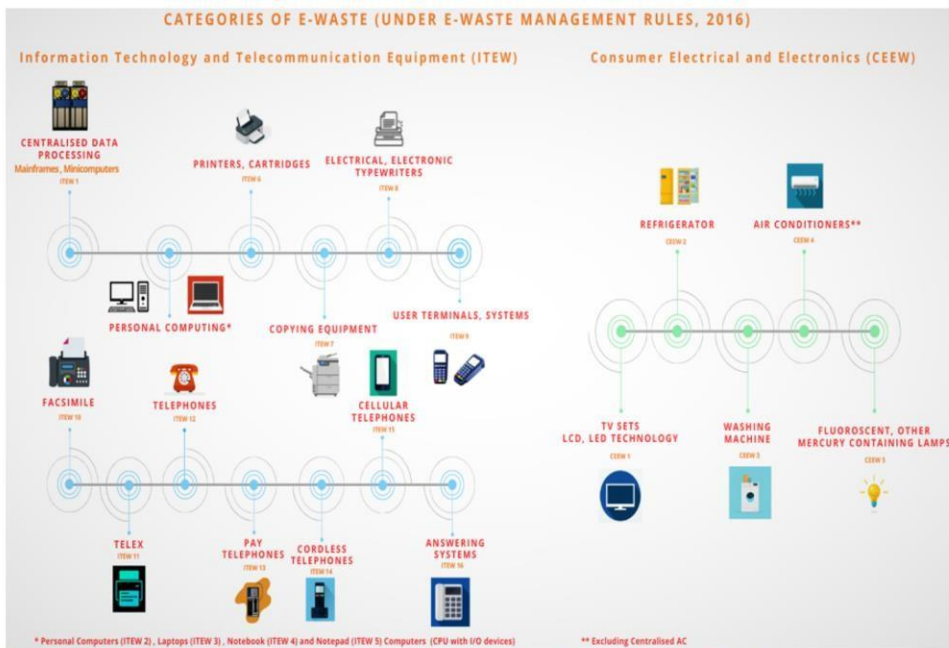
A session on usage of ICT tools like the Microsoft Word and Excel for documentation, record keeping, and accounting was conducted for the participants from Electronics, Physics and Chemistry department. The various tools and utilities available in Microsoft excel such as creating a data-base for students or equipment, creating account statements using equations and formulas were explained. The participants were also given a hands-on exercise for making a budget in MS excel and saving it in a word document and subsequently taking its print-out.



**Day 5: January 24,2024**

Time	Topic of Presentation	Resource Persons	Venue
10.30 – 11.30 am	E-waste awareness, management and disposal	Dr Rakhi Narang	ICT Lab

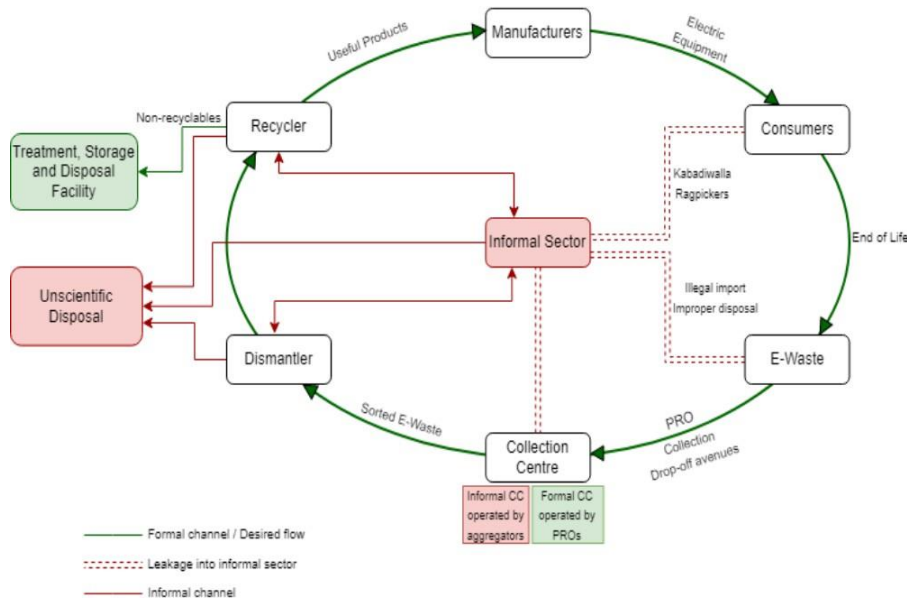
The participants of Electronics and Physics department were introduced to various categories of E-waste, which are usually generated on daily basis in the laboratories and their harmful effects on the environment if not properly disposed of. The various steps through which the proper disposal or recycling can be done for the E-waste was also explained.



The estimated e-waste generation in India was nearly 0.77 MMT in 2018-2019 and about 1.02 MMT in 2019-20 (CPCB, 2020).

**Figure 1: Different categories of e-waste under E-Waste (Management) Rules, 2016**

Source: (MoEFCC, 2016)



**Flow of E-waste in India**

## Session-wise Report Department of Zoology

A one week lab staff training workshop was held by Zoology Department from 17<sup>th</sup> January 2024 to 24<sup>th</sup> January 2024. It was attended by eight members of the lab staff of zoology department.

### Day 1 (17<sup>th</sup> January 2024)

The week-long workshop kicked off with a joint inaugural session for laboratory staff across all science departments, setting the tone for the event. Professor Vartika Mathur from the Department of Zoology at Sri Venkateswara College led an insightful discussion on "Work Ethics and Management of the Zoology Laboratory." She adopted an interactive approach, prompting participants to share each other's attributes and emphasizing the importance of fostering a friendly atmosphere for effective laboratory and departmental operations.

Subsequently, Mr. Mukesh Kumar, a seasoned Senior Technical Assistant from the Department of Zoology at the University of Delhi, conducted a session on "Maintenance of Chemicals, Glassware, and Stock Registers." Drawing from his extensive experience, he offered valuable guidance on laboratory upkeep, patiently addressing participant queries. Professor Vartika Mathur acknowledged his contributions with a token of appreciation.

Afternoon sessions commenced with Dr. Nidhi Gupta, a Senior Resident from the Department of Biochemistry at AIIMS, leading an engaging session on Instrumentation. She provided hands-on training on the technical aspects and operation of instruments such as spectrophotometers, pH meters, and autoclaves, among others. Laboratory staff eagerly absorbed insights on instrument calibration and usage.

All sessions took place in the Zoology Honours lab, ensuring a focused learning environment for participants.







### Day 2 (18<sup>th</sup> January 2024)

On second day of the workshop, a common session and hands on training for laboratory personnel of all the participating science departments was conducted by Chemistry department wherein hands on training of Preparation of Chemicals, Buffers and Stock solutions was provided.

### Day 3 (19<sup>th</sup> January 2024)

The day's initial session was led by Dr. Richa Misra, an Assistant Professor from the Department of Zoology at SVC, who conducted a training session on fundamental ICT tools for laboratory staff in the ICT lab. Following this session, staff members acquired practical expertise in various tasks, including utilizing official emails, generating Google Meet links, updating the department page on the college website, collaborating on Google Drive folders, and working with Google Docs, Google Sheets, and Google Lens. Additionally, they learned how to create a YouTube channel for disseminating Zoology Practical information.

Subsequently, Dr. Namita Nayyar, also an Assistant Professor from the Department of Zoology, facilitated a hands-on session on Microscopy, elucidating concepts of resolution and magnification. Participants gained insight into the essential structural components of both compound and dissecting microscopes, including various lenses, stages, and techniques for coarse and fine tuning and focusing. Emphasis was placed on proper maintenance and lens cleaning.

After lunch, Dr. P Jayaraj, another Assistant Professor from the Department of Zoology at SVC, conducted a session on Zoological Museum upkeep, maintenance, and biosafety. This session aimed to equip laboratory staff with the necessary knowledge of safety protocols and procedures concerning zoological specimens, including specimen handling, personal protective equipment (PPE) usage, and emergency response. The training covered proper techniques for handling, mounting, and preserving specimens, alongside collection management practices such as cataloging and labeling.

The latter part of Dr. P Jayaraj's session focused on introducing microtomy techniques and providing hands-on training in microtomy procedures. Participants gained proficiency in identifying and resolving common issues encountered during microtomy processes.



#### Day 4 (23<sup>rd</sup> January 2024)

The day kicked off with a session on Laboratory Safety and Good Laboratory Practices led by Dr. Sumit Raj, Assistant Professor in the Department of Zoology at SVC. Dr. Raj emphasized the crucial nature of adhering to all GLP protocols, covering aspects such as resource management, characterization, regulations, results, and quality assurance. Topics covered included general laboratory safety, biosafety measures (including first aid protocols), safety signage, chemical classifications, proper chemical handling and storage (including labeling, quality assessment, expiration dates, and usage precautions), hazardous waste disposal, laboratory waste management, and types of glassware.

Following this, Dr. Mohita Bhagat, also an Assistant Professor in the Department of Zoology at SVC, conducted a session on Instrumentation. Participants learned about various types of solutions and the associated measurements and calculations. They were instructed on unit conversions, volume measurements, weight calculations, molarity, normality, percentage solutions, stock solutions, and buffers.

In the latter part of the session, laboratory staff received instruction on Laminar Air Flow, preparation of culture media, bacterial cultures, the use of a shaker incubator, identification of tools such as the haemocytometer, WBC and RBC pipettes, haemoglobinometer, and precautions for pricking procedures.



#### Day 5 (24<sup>th</sup> January 2024)

The workshop commenced with a session on biotechnological techniques led by Ms. Preeti Khandelwal, Assistant Professor in the Department of Zoology at SVC. Participants received hands-on training and instruction on Plasmid and DNA Isolation, Agarose Gel Electrophoresis, TBE Preparation, Gel Apparatus setup, Ethidium Bromide Preparation, and various types of Stains.

Following this, Mr. V. Parthasarathi, Senior Laboratory Assistant in the Department of Zoology at SVC, conducted a session on General Lab Maintenance. Drawing from his

extensive experience, he provided insights into maintaining lab records, equipment, glassware, chemicals, and other essential aspects.

Subsequently, an online exam was administered to assess participants' comprehension and skills acquired during the technical and practical sessions.

After lunch, attendees gathered for a concluding valedictory session, during which they shared their workshop experiences and received certificates of participation.





Sri Venkateswara College  
University of Delhi

One Week Training Workshop for Laboratory Staff – 2024,  
17<sup>th</sup> - 24<sup>th</sup> January, 2024  
Attendance Sheet

Department of Zoology												
S.No	Name of the Participant	17 <sup>th</sup> January		18 <sup>th</sup> January		19 <sup>th</sup> January		23 <sup>rd</sup> January		24 <sup>th</sup> January		
		Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening	
1	Mohit Kumar	Mohit	Mohit			Mohit	Mohit	Mohit	Mohit	Mohit	Mohit	
2	Mr. Sonu	Sonu	Sonu	Sonu	Sonu	Sonu	Sonu	Sonu	Sonu	Sonu	Sonu	
3	Mr. Sachin Sharma	Sachin	Sachin	Sachin	Sachin	Sachin	Sachin	Sachin	Sachin	Sachin	Sachin	
4	Mr. Arvind Singh Rawat	Arvind	Arvind	Arvind	Arvind	Arvind	Arvind	Arvind	Arvind	Arvind	Arvind	
5	Mr. Tarun Mohan	Tarun	Tarun	Tarun	Tarun	Tarun	Tarun	Tarun	Tarun	Tarun	Tarun	
6	Ms. Nidhi Gulia	Nidhi	Nidhi	Nidhi	Nidhi	Nidhi	Nidhi	Nidhi	Nidhi	Nidhi	Nidhi	
7	Ms. Pooja Sharma	Pooja	Pooja	Pooja	Pooja	Pooja	Pooja	Pooja	Pooja	Pooja	Pooja	

## ATTENDANCE SHEET: Inaugural Session

SRI VENKATESWARA COLLEGE						
UNIVERSITY OF DELHI						
LABORATORY STAFF TRAINING WORKSHOP-2024						
17-19, & 23-24 JANUARY, 2024						
Name	Department	Designation	Age	Gender	Category	Signature
Arun Sharma	Botany	Laboratory Assistant	35	Male	UR	<i>[Signature]</i>
Rakesh Singh	Botany	Laboratory Attendant	33	Male	Pwd	21/21
Anil Kumar	Botany	Laboratory Attendant	34	Male	OBC	<i>[Signature]</i>
Sandeep <del>Luthra</del> <i>Luheera</i>	Botany	Laboratory Attendant	41	Male	SC	<i>[Signature]</i>
Shilpi	Botany	Lab attendant	23	Female	UR	<i>[Signature]</i>
Ravish	Botany	Lab attendant	26	Male	UR	RAVISH
Rinku	Botany	Laboratory attendant	22	Male	EWS	Rinku
Lalit	Biochemistry	Laboratory attendant	23	Male	UR	<i>[Signature]</i>
Payal Kumari	Biochemistry	Laboratory attendant	25	Female	OBC	<i>[Signature]</i>
Baljeet	Chemistry	Lab Attendant	32	Male	OBC	Baljeet
Anjna Bansal	Chemistry	Lab Attendant	44	Female	UR	Angna
Nikhil Kumar	Chemistry	Lab Attendant	22	Male	EWS	<i>[Signature]</i>
Vishal Bhardwaj	Chemistry	Lab Attendant	21	Male	UR	<i>[Signature]</i>
Tarsem	Chemistry	Lab Attendant	27	Male	UR	TARSEM
Ramnivas	Chemistry	Lab Attendant	46	Male	SC	<i>[Signature]</i>
Ashish Giri	Chemistry	Lab Assistant	25	Male	UR	<i>[Signature]</i>
Yogender	Chemistry	Lab Attendant	28	Male	OBC	<i>[Signature]</i>
Sachin	Chemistry	Lab Attendant	31	Male	OBC	Sachin
Jatin	Chemistry	Lab Attendant	20	Male	UR	Jatin
Chanderpal Singh	Chemistry	Lab Attendant	40	Male	UR	<i>[Signature]</i>
Neetu	Chemistry	Lab Attendant	39	Female	ST	Neetu
Kummari manimala	Electronics	Lab Attendant	28	Female	UR	<i>[Signature]</i>
Ashish Kumar	Electronics	Lab Attendant	29	Male	UR	Ashish
Mohit Kumar	Zoology	Laboratory Attendant	28	Male	SC	Mohit
Sonu	Zoology	Lab attendant	27	Male	General	Sonu
Sachin Sharma	Zoology	Lab Attendant	22	Male	General	Sachin
Arvind Singh Rawat	Zoology	Laboratory Attendant	39	Male	General	<i>[Signature]</i>
Tarun Mohan	Zoology	Laboratory Attendant	32	Male	OBC	<i>[Signature]</i>
Nidhi gulia	Zoology	Laboratory Assistant	33	Female	General	<i>[Signature]</i>
Pooja sharma	Zoology	Lab attendant	38	Female	General	<i>[Signature]</i>

\*

Manish Mehra *Stats* Lab Attendant 39 Male EWS/UR *Manish*  
 A. Jagannath *Lab Assistant* Electronics *Ajay*

Name	Deptt.	Post	Age	G.	cat.	Sign
S. K. Tiwari	Physics	Lab. Asst	56	m	un	
K. M. Bafi	"	"	52	m	un	
S. B. Thakur	"	"	56	m	un	
Anandam	"	"	31	m	SC	
Jayshree	"	Lab. Asst. 23		m	SC	
Rajesh Indur	Bio-Tech	Lab. Asst. 43		m	ST	



SRI VENKATESWARA COLLEGE (University of Delhi)

## PROGRAMME SCHEDULE OF TRAINING WORKSHOP FOR LABORATORY STAFF

DATE/DAY	TIME	DEPARTMENT		
		DEPARTMENT OF BOTANY	DEPARTMENT OF CHEMISTRY	DEPARTMENT OF ELECTRONICS
		TOPIC OF PRESENTATION & RESOURCE PERSONS	TOPIC OF PRESENTATION & RESOURCE PERSONS	TOPIC OF PRESENTATION & RESOURCE PERSONS
Day 1 17/01/2024	10:00 – 10:30 AM	<b>INAUGURATION (VENUE: SEMINAR HALL)</b>		
	10:30 – 11:00 AM	<b>Herbarium preparation</b> (By Prajna Muthabathula & Dr Sunita Yadav) VENUE: Botany Honours Lab	<b>Lab set up and Lab ethics</b> (By Dr. Sarita Passey & Dr Vinita Kapoor) Venue: Instrument Lab Chemistry	<b>Circuit Design using breadboard and IC Testing</b> (By Rakhi Narang) VENUE: Electronic Lab (Room no 261)
	11:00 AM Onwards	<b>Garden tour for the identification of plants</b> (By Prajna Muthabathula & Dr Sunita Yadav) VENUE: College Campus	<b>Getting Familiar – Identification and Handling</b> (By Dr Vibha Saxena, Dr. Sharda Pasricha & Dr R. J. Naik) Venue: Chemistry Lab 2	
	1:30 – 2:00 PM	<b>BREAK</b>		
	2:00 – 3:00 PM	<b>Evaluation and assessment activity</b> (By Dr Prajna Muthabathula & Dr Sunita Yadav) VENUE: Botany Honours Lab	<b>Treasure Hunt</b> Venue: Chemistry Lab 2	<b>Hands on Session</b> (By Rakhi Narang) VENUE: Electronic Lab (Room no 261)
Day 2 18/01/2024	10:00 – 11:30 AM	<b>Preparation of Solutions- Common Session</b> (By Dr. Manisha Jain, ANDC College, DU) Venue: Chemistry Lab 2		<b>Testing and Measurement using power supply and Function Generator</b> (By Dr Hina Yadav) VENUE: Electronic Lab (R.no 261)
	11:30 Onwards	<b>BREAK</b>		
	2:00 – 3:00 PM	<b>Making solutions in groups of three</b> (By Dr. Shefali Shukla & Dr. R J Naik) Venue: Instrument Lab Chemistry		<b>Hands on Session</b> (By Dr Hina Yadav) VENUE: Ele Lab (Rno 261)
Day 3 19/01/2024	10:00 – 11:00 AM	<b>Prepare of EDTA and optimisation of its pH for use in the isolation of DNA.</b> (By Dr. Manoj Thakur & Dr. Aditi Kothari Chhajer) VENUE: Botany Honours Lab	<b>Instrumentation</b> (By Dr. Pragya Gahlot, Dr. Vinita Kapoor) Venue: Instrument Lab Chemistry	<b>Testing and Measurement using CRO</b> (By Dr Rakhi Narang) VENUE: Electronic Lab (Room no 261)
	11:00 – 12:00 Noon			<b>Repair and Maintenance of Instruments</b> (By Engineer from Sciencetech Instruments) VENUE: Electronic Lab (Room no 261)
	12:00 Noon Onwards	<b>BREAK</b>		
	2:00 PM Onwards	<b>Evaluation and assessment activity</b> (By Dr. Manoj Thakur & Dr. Aditi Kothari Chhajer) VENUE: Botany Honours Lab	<b>Group Activity- Calibrate Balance, pH meter calibrated, Conductivity calibration</b> (By Dr. Pragya Gahlot, Dr. Vinita Kapoor, Dr. R. Upadhyay) Venue: Chemistry Lab 2	<b>Hands on Session on Soldering</b> (By P. N. Rao) VENUE: Electronic Lab (Room no 261)
Day 4 23/01/2024	10:00 – 11:30 AM	<b>Learning about Fixation methods and preparation of stains</b> (By Dr Sunita Yadav & Dr Prajna Muthabathula) VENUE: Botany Honours Lab	<b>ICT and Lab up-keeping (Hands-on) and Activity: Nesting of folders and Word</b> (By Dr. Rekha Yadav and Dr Rakhi Narang) Venue: ICT Lab	<b>Caliberation of Light and Optical Instruments- Diffraction Gratings, Travelling Microscopes, Polarimeters and Laser</b> (By ..) VENUE: Electronic Lab (Room no 261)
	11:30 – 1:00 PM	<b>Know your apparatus</b> (By Dr Sunita Yadav & Dr Prajna Muthabathula) VENUE: Botany Honours Lab		
	1:00 PM Onwards	<b>BREAK</b>		
	2:00 – 3:00 PM	<b>Evaluation and assessment activity</b> (By Dr Sunita Yadav & Dr Prajna Muthabathula) VENUE: Botany Honours Lab	<b>ICT and Lab up-keeping Cont. (Hands-on) and Activity: Based on Budget</b> (By Dr. Rekha Yadav and Dr Rakhi Narang) Venue: ICT Lab	<b>Hands on Session</b> (By..) VENUE: Electronic Lab (Room no 261)
Day 5 24/01/2024	10:00 – 10:30 AM	<b>Handling of Instruments like Colorimeter, Autoclave, Laminar flow and Microscopes.</b> (By Dr. Aditi Kothari Chhajer) VENUE: Botany Honours Lab	<b>Using Google Drive for Academic Data and Activity: Uploading and Sharing Documents</b> (By Rekha Yadav) Venue: ICT Lab	<b>ICT based Training session E-waste awareness, management and disposal</b> (By Dr Rakhi Narang and Dr Rekha Yadav)
	10:30 – 11:30 AM		<b>Lab Safety</b> (By Dr Vineta Kapoor) Venue: ICT Lab	VENUE: ICT Lab
	2:00 – 4:00 PM	<b>VALEDICTORY SESSION VENUE: Room No 158</b>		





**SRI VENKATESWARA COLLEGE (University of Delhi)**

DATE/DAY	TIME	DEPARTMENT	
		DEPARTMENT OF ZOOLOGY	DEPARTMENT OF BIOCHEMISTRY
		TOPIC OF PRESENTATION & RESOURCE PERSONS	TOPIC OF PRESENTATION & RESOURCE PERSONS
Day 1 17/01/2024	10:00 – 10:30 AM	<b>INAUGURATION (VENUE: SEMINAR HALL)</b>	
	10:30 – 11:00 AM	<b>Work Ethics and Management of Zoology Laboratory</b> (By Dr. Vartika Mathur) Venue: Zoology Hons. Lab	<b>“Lab Safety” and “Dos and Don’ts” in the Lab Preparation and storage of Reagents used in Biochemistry lab</b> (By Dr Nandita Narayanasamy & Dr Lakshay Malhotra) Venue: Biochemistry Lab
	11:00 AM Onwards	<b>Maintenance of Chemicals, Glassware and Stock Register</b> (By Mr. Mukesh Kumar) Venue: Zoology Hons. Lab	
	1:30 – 2:00 PM	<b>BREAK</b>	
	2:00 – 3:00 PM	<b>Instrumentation I</b> (By Dr. Nidhi Gupta, AIIMS) Venue: Zoology Hons. Lab	<b>Handling a Spectrophotometer and quantitative biochemical assays.</b> (By Dr. Meenakshi Kuhar & Dr. Ravindra Varma) Venue: Biochemistry Lab
Day 2 18/01/2024	10:00 – 11:30 AM	<b>Preparation of Solutions- Common Session</b> (By Dr. Manisha Jain, ANDC College, DU) Venue: Chemistry Lab 2	
	11:30 Onwards	<b>BREAK</b>	
	2:00 – 3:00 PM	<b>Making solutions in groups of three</b> (By Dr. Shefali Shukla & Dr. R J Naik) Venue: Instrument Lab Chemistry	<b>Purification of biomolecules by Chromatography and Storage/regeneration of Matrix</b> (By Dr Anju Kaicker and Dr Kameshwar Sharma YVR) Venue: Biochemistry Lab
Day 3 19/01/2024	10:00 – 11:00 AM	<b>ICT Tools</b> (By Dr. Richa Mishra) Venue: ICT Lab	<b>Clinical &amp; tissue-based experiments and disposal of biological samples</b> (By Dr. Nandita Narayanasamy & Dr Sarika Yadav) Venue: Biochemistry Lab
	11:00 – 12:00 Noon	<b>Microscopy</b> (By Dr. Namita Nayyar) Venue: Zoology Hons. Lab	
	12:00 noon Onwards	<b>BREAK</b>	
	2:00 PM Onwards	<b>Museum and Specimen Maintenance</b> (By P Jayaraj) Venue: Zoology Hons. Lab and Zoology Museum	<b>Session on DNA based experiments and culture preparation</b> (By Dr. Shalini Sen & Dr Nimisha Sinha) Venue: Biochemistry Lab
Day 4 23/01/2024	10:00 – 11:30 AM	<b>Lab Safety and Good Lab Practices</b> (By Dr. Sumit Raj) Venue: Zoology Hons. Lab	<b>Microscope handling and Maintenance</b> (By Dr Vandana Malhotra, Dr Sidhartha Tarila and Dr Lakshay Malhotra) Venue: Biochemistry Lab
	11:30 – 1:00 PM		
	1:00 PM Onwards	<b>BREAK</b>	
	2:00 – 3:00 PM	<b>Instrumentation II</b> (By Dr Mohita Bhagat) Venue: Zoology Hons. Lab	<b>Microbiology based Experiments and media preparation</b> (By Dr Sidhartha Taritla and Dr Lakshay Malhotra) Venue: Biochemistry Lab
Day 5 24/01/2024	10:00 – 11:30 AM	<b>Biotechnological Techniques</b> (By Dr Preeti Khandelwal) Venue: Zoology General Lab	<b>General maintenance of biochemistry/ Biotechnology lab, and Stock entry; purchase and storage of chemicals. Followed by discussion, Suggestions and feedback</b> (By Dr Dalip) Venue: Biochemistry Lab
	11:30 – 12:00 Noon	<b>General Lab Maintenance</b> (By Mr V Parthasarathi) Venue: Zoology General Lab	
	12:00 – 1:00 PM	<b>Assessment and Evaluation</b> Venue: Zoology General Lab	
	2:00 PM Onwards	<b>VALEDICTORY SESSION VENUE: Room No 158</b>	



Tirumala Tirupati Devasthanams

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**Sri Venkateswara College**  
(University of Delhi)

NAAC Grade A+

## **CERTIFICATE**

This is to certify that the training workshop\_for laboratory staff was successfully conducted on the 17-19<sup>th</sup>, 23<sup>rd</sup> and 24<sup>th</sup> of January 2024 by the IQAC in the offline mode, and its event report has been submitted to IQAC for records.

Event In-Charge

IQAC Coordinator

Principal