

“Education for Knowledge, Science and Culture”

-Shikshanmaharshi Dr. Bapuji Salunkhe

Shri. Swami Vivekanand Shikshan Sanstha's  
**Vivekanand College, Kolhapur (Autonomous)**

**Department of Zoology**

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**STUDENT EXCHANGE**

(25<sup>th</sup> January, 2023)

(Under Lead College Activity)



**Academic Year: 2022-2023**

“Education for Knowledge, Science and Culture”

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Shri Swami Vivekanand Shikshan Sanstha's  
**VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)**  
DEPARTMENT OF ZOOLOGY  
Academic Year 2022-2023

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**Dr. G. K. Sontakke**  
Head,  
Department of Zoology  
Vivekanand College,  
Kolhapur (Autonomous)

Shri Prince Shivaji Maratha Boarding House's

**THE NEW COLLEGE, KOLHAPUR**

(NAAC 'A+' Reaccredited & Affiliated to Shivaji University, Kolhapur)

Prin. Dr. V.M. Patil

Phone: 2621187 (O)

M.A., M.Phil., Ph.D

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Ref. No. NCK/ 3777/2022-23

Date: 2- Jan 2023

To,  
The Head,  
Department of Zoology,  
Vivekanand College, Kolhapur (Autonomous)

**INVITATION**  
**One-Day Workshop On**  
**'Instrument Handling'**

(Under Shivaji University, Kolhapur, lead College Scheme: D.R.K. College of  
Commerce, Kolhapur)

We are pleased to invite you to a workshop on '**Instrument Handling**' under the  
lead college scheme of Shivaji University. The workshop will be held on **25th**  
**January 2023** at 9.00 a.m. at The New College, Kolhapur.

**Objectives of the workshop:**

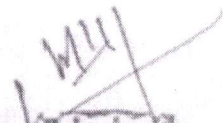
- To develop skills in handling laboratory instruments useful in basic research.
- To develop research aptitude.

**Note:**

We invite 5 students and 1 teacher from your college for the workshop.

Breakfast and lunch will be provided. No TA/DA will be provided.

Please feel free on the contact no. 9168746585 / 9860086816 for confirmation of  
registration on or before 23rd January 2023.

  
Principal  
The New College, Kolhapur



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Shri Swami Vivekanand Shikshan Sanstha's  
**Vivekanand College, Kolhapur (Autonomous)**  
**Department of Zoology**  
**Academic Year 2022-23**

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Date: 23/01/2023

**NOTICE**

It is informed to all students of B.Sc. III that Department of Zoology, The New College, Kolhapur has organised one day workshop on Instrument handling under Shivaji university lead college scheme and D.R.K college of commerce, Kolhapur on 25<sup>th</sup> January 2023. Interested students for this workshop should give their name to department today. This workshop will provides breakthrough knowledge of instrument handling and its applications.

  
**Dr. G. K. Sontakke**  
Head,  
Department of Zoology  
Vivekanand College,  
Kolhapur (Autonomous)

**PERMISSION LETTER**

Department of Zoology,  
Vivekanand College, Kolhapur  
(Autonomous)

**Date: 24/01/2023**

To,  
**The Principal,**  
Vivekanand College, Kolhapur (Autonomous)

**Subject:** Regarding to participate in One Day Workshop on **“Instrument Handling”**

**Respected Sir,**

With reference to the above-mentioned subject, I would like to inform you that Department of Zoology, New College, Kolhapur organized a One Day Workshop on “Instrument Handling” under Shivaji University Lead College Scheme and D.R.K College of Commerce, Kolhapur to be held on 25th January, 2023. Sir, I would like to seek your permission to participate with faculty and students as per the attached list in the above-said workshop. So, I request you to grant permission for the same and oblige.

Thanking You

Yours Faithfully

  
**Dr. Gajanan Kashinath Sontakke**  
Head,  
Department of Zoology  
Vivekanand College,  
Kolhapur (Autonomous)

*Allowed*  
*PK*  
*24.1.2023*

**Enclosure:**

- 1. Brochure
- 2. List of teaching faculty and students

**List of Teaching faculty and students**

Sr No	Name	Designation
1.	Dr. G. K. Sontakke	Assistant Professor and Head
2.	Ms. Najnin Patel	Assistant Professor
3.	Ms. Mane Payal Ashok	B.Sc III-Student
4.	Ms. Sutar Vaishnavi Rajendra	B.Sc III-Student
5.	Ms. Gije Nandini Ravindra	B.Sc III-Student
6.	Ms. Darekar Vishakha Vishwanath	B.Sc III-Student
7.	Mr. Khot Darshankumar Sarjerao	B.Sc III-Student

**Dr. G. K. Sontakke**  
Head,  
Department of Zoology  
Vivekanand College,  
Kolhapur (Autonomous)

Jr. College Recog. No. H.S.C./1074/R-1/DT. 8-8-1978  
Jr. College Code No. 23-09-002  
Jr. College U.Dise No. 27341301006

“ज्ञान, विज्ञान आणि सुरास्कार यांसाठी शिक्षण प्रसार”  
शिक्षणमहर्षी डॉ. बापूजी साठुंबे

Estd. : June 1964



**Shri Swami Vivekanand Shikshan Sanstha's  
VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)**

2130, 'E' Tarabai Park, Kolhapur, Tal. Karveer, Dist. Kolhapur-416003

Affiliated to Shivaji University, Kolhapur (M.S.)

NAAC Reaccredited : "A" (CGPA 3.24)

College with Potential for Excellence by U.G.C., New Delhi

"Star College" by D.B.T. Govt. of India

ISO 9001 : 2015



(स्वायत्त) कोल्हापूर

PH. : 0231-2658612, 2658840 Fax : 0231-2658840 Resi. : 0231-2653962 Website : www.vivekanandcollege.org E-mail : info@vivekanandcollege.org

Rec. No. Vck 2321/2022-23

Dt: 24.1.2023

To,

The Principal,

New College, Kolhapur.

**Subject:** Regarding participating in one day workshop on “Instrument Handling”

**Respected Sir,**

With reference to above cited subject, Department of Zoology deputing 5 students and Two teaching faculty to attend One Day Workshop on “Instrument Handling” organized by Department of Zoology, under Shivaji University Lead College Scheme and D. R. K. College of Commerce, Kolhapur organized on 25<sup>th</sup> January, 2023 at your college.

I request you to do the needful and allow our teaching faculty and students to participate in above said workshop.

Thanking you.

Yours faithfully,

For AK Bhilgaole

HEAD  
DEPARTMENT OF ZOOLOGY  
THE NEW COLLEGE, KOLHAPUR

HEAD  
DEPARTMENT OF ZOOLOGY  
THE NEW COLLEGE, KOLHAPUR

R.R.K.  
Dr. R. R. Kumbhar  
PRINCIPAL  
Vivekanand College  
Kolhapur

**Enclosure:** List of teaching faculty and students

### List of Teaching faculty and students

Sr No	Name	Designation
1.	Dr. G. K. Sontakke	Assistant Professor and Head
2.	Ms. Najnin Patel	Assistant Professor
3.	Ms. Mane Payal Ashok	B.Sc III-Student
4.	Ms. Sutar Vaishnavi Rajendra	B.Sc III-Student
5.	Ms. Gije Nandini Ravindra	B.Sc III-Student
6.	Ms. Darekar Vishakha Vishwanath	B.Sc III-Student
7.	Mr. Khot Darshankumar Sarjerao	B.Sc III-Student

*Gitar.*  
**Dr. G. K. Sontakke**  
 Head,  
 Department of Zoology  
 Vivekanand College,  
 Kolhapur (Autonomous)

*R.R.*  
**Dr. R. R. Kumbhar**  
 PRINCIPAL  
 Vivekanand College  
 Kolhapur





Shri Prince Shivaji Maratha Boarding House's  
**The New College, Kolhapur**

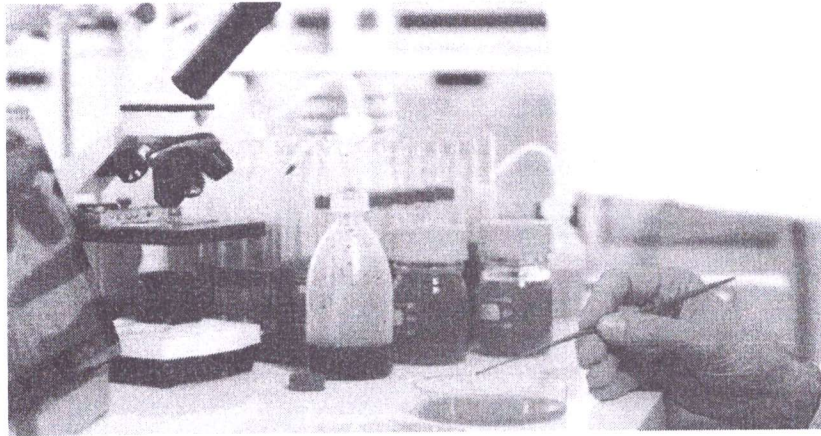


A workshop Organized by

**Department of Zoology**

Under Shivaji University Lead College Scheme, D.R.K. College of Commerce,  
Kolhapur Cluster on

**One Day workshop on Instrument  
Handling**



**Wednesday 25th January 2023**

**Venue: The New College, Kolhapur**

### **About Workshop:**

Department of Zoology, The New College Kolhapur arranged a 'One Day Workshop' on Instrument handling for undergraduate students. This workshop inculcates knowledge and handling of laboratory equipment. This workshop will provide breakthrough knowledge of instrumentation, handling, and applications of basic laboratory instruments.

### **List of instruments added in the workshop:**

1. Centrifugation
2. Microscope: Compound, Stereo, Trinocular, Digital Eyepiece.
3. Autoclave
4. Spectrophotometer, colorimeter
5. Laminar airflow
6. Hot air oven
7. Micropipette, Magnetic stirrer, Cyclomixture

### **Objectives of the workshop:**

- To develop skills in handling laboratory instruments useful in basic research.
- To develop research aptitude.

### **Key Note Speaker :**

#### **1. Dr. A. A. Deshmukh**

Head of Department, Department of Zoology, Shivaji University, Kolhapur



2. **Dr. M. V. Walavekar**

Professor, Department of Zoology, Shivaji University, Kolhapur

3. **Dr. K. A. Gajare**

Professor, Department of Zoology,

The New College, Kolhapur

**Registration will available on the spot at the venue from 9.00 am to 10. am**

**Dr. K. A. Gajare**

Coordinator

**Dr. V. M Patil**

Principal

**PROGRAMME SCHEDULE**

<b>Session</b>	<b>Details</b>	<b>Time</b>
	Registration & Breakfast and Tea for participants	09:00 am to 10.00 am
Morning Session	<b>Inaugural Function:</b> Introductory Speech: <b>Dr. K. A. Gajare</b> Presidential Talk: <b>Hon. Prin. Dr. V.M. Patil</b>	10:00 am to 11.00 am
Morning Session	Chief Guest & Speaker 1: <b>Dr. A. A. Deshmukh</b> Head of Department, Department of Zoology, Shivaji University, Kolhapur	11:00 am to 11.45 pm

Afternoon Session	Speaker 2: <b>Dr. M. V. Walavekar</b> Professor, Department of Zoology, Shivaji University, Kolhapur	11.45 pm to 12.30 pm
Afternoon Session	Instruments Handling and demonstration	12.30 pm to 1.30
	Lunch break	1.30 pm to 2.30 pm
Afternoon Session	Resource person: 3. <b>Dr. K. A. Gajare</b> Professor, Department of Zoology, The New College, Kolhapur	2:30 pm to 3:15 pm
	Instruments Handling and demonstration	3:30 to 4:00 pm
Tea Break (4:00 to 4:15)		
Evening Session	Valedictory function	4:15 to 4.45 pm
	Distribution of Certificates	5.00 pm



Shri Prince Shivaji Maratha Boarding House's  
The New College, Kolhapur  
Department of Zoology

## ONE-DAY WORKSHOP ON INSTRUMENT HANDLING

Under Shivaji University Lead College Scheme, D. R. K. College of Commerce, Kolhapur Cluster.

Wednesday, 25<sup>th</sup> January, 2023

### Hands-Out

#### 1. AUTOCCLAVE

**Principle-** Autoclaving is a moist heat sterilization method, wherein saturated steam is generated under pressure in order to kill microorganisms. Sterilization is conducted at a temperature of 121°C and pressure of 15 psi/lbs for 15 minutes.

**Applications-**

- Regulated medical waste that might contain bacteria, viruses, and other biological materials is recommended to be inactivated by autoclaving before disposal.
- In medical labs, autoclaves are used to sterilize medical equipment, glassware, surgical equipment, and medical wastes.
- Autoclaves are used for the sterilization of culture media, autoclavable containers, plastic tubes, and pipette tips.

#### 2. LAMINAR AIR FLOW

**Principle-** Laminar airflow has a continuous displacement of air that passes through a HEPA (High-Efficiency Particulate Air---0.3 micrometers ( $\mu\text{m}$ ) in diameter) Filter that removes the particulate from the air. The flow of air generates a positive pressure in the work area which prevents the entry of any air-borne microbes.

**Applications-**

- UV sterilization is done by UV lamp
- Laboratories processes like media plate preparation and culture of organisms can be performed inside the cabinet.

#### 3. HOT AIR OVEN

Hot air ovens use extremely high temperatures over several hours to destroy microorganisms and bacterial spores. The ovens use conduction to sterilize items by heating the outside surfaces of the items which then absorbs the heat and moves it toward the center of the item.

**Applications-**

- Used to sterilize heat-stable glass objects like flasks, Petri plates, test tubes
- Used for sterilizing metal items such as scissors, forceps, spatula, and scalpels.
- Used to kill spores as well as vegetative forms of all microorganisms
- Samples lacking of moisture like powders and oils can be sterilized by hot air.

#### 4. CENTRIFUGE

The centrifugation technique uses a centrifugal force to separate particles suspended in a liquid medium. Under the influence of gravitational force, substances separate according to their density based on their sedimentation coefficient. The particles with high density settle at low RPM while the particles with low density require high RPM.

## 8.MICROPIPETTE

The air displacement micropipettes work on the common air displacement principle. A plunger is depressed by the thumb and as it is released, the liquid is drawn into a disposable tip. When the plunger is pressed again, the liquid is dispensed.

### **Applications**

- **Preparing solutions and reagents:** Pipettes are often used to measure and dispense specific volumes of liquid to make solutions or prepare reagents for experiments.
- **Diluting samples:** Pipettes are used to accurately measure and dispense a specific volume of a sample and then add an appropriate volume of solvent to create a dilute solution.
- **Mixing samples:** Pipettes are used to transfer small volumes of liquid from one container to another, which is useful for mixing samples before analysis.
- **Transferring samples:** Pipettes are used to transfer small volumes of liquid from one container to another, which is useful for preparing samples for analysis or storage.
- **Measuring and dispensing small volumes:** Pipettes are often used to measure and dispense small volumes of liquid, particularly in applications such as PCR, ELISA, and other types of the assay.

## 9.SPECTROPHOTOMETER & COLORIMETER:

### **Principle:**

Beer Lambert's law principle states that the amount of light absorbed by a color solution is directly proportional to the concentration of the solution and the length of a light path through the solution.

The main difference between a colorimeter & spectrophotometer is,

A colorimeter is used to check the absorbance level of colored solution and offers a specific wavelength of light. For that different filters are available.

Spectrophotometers are far more powerful than colorimeters. It is provided with a prism. So, any wavelength of insertion light in a visible spectrum can be set in this instrument. This provides more accuracy and reproducibility in the measuring.

### **Application:**

- Detect concentration of colored and colorless compounds.
- Detection of concentration of substances.
- Detection of impurities in solution.
- Detection of functional groups, protein characterization, and molecular weight determination.

## 10.SIMPLE MICROSCOPE

A dissecting microscope is used to dissect small organisms or organs, e.g., embryo dissection. Its special utility is to observe such materials where high magnification is not needed.

## 11.COMPOUND MICROSCOPE

A compound microscope is used for viewing samples at high magnification(40-1000x) and resolution. It combined the effect of two sets of lenses; the ocular lens (in the eyepiece) and the objective lenses (close to the sample).

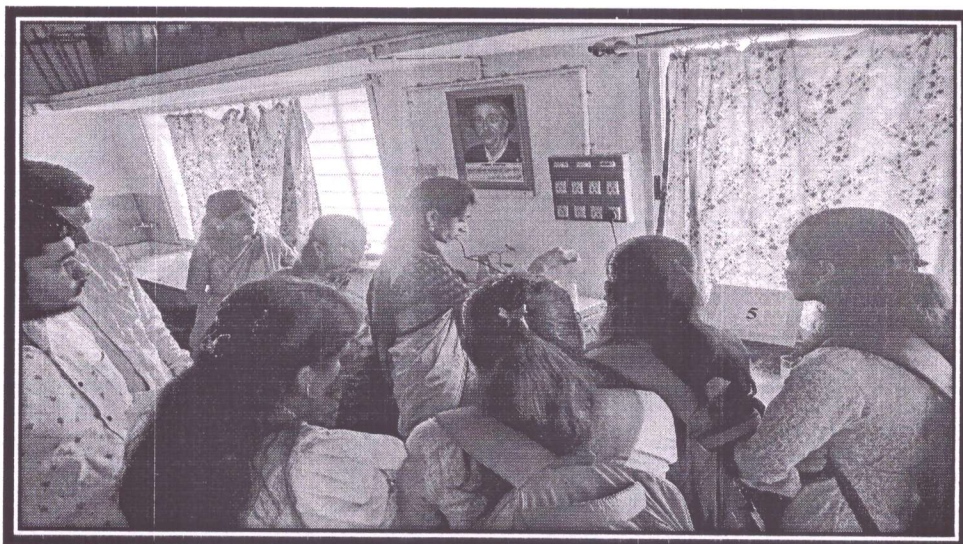


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**Department of Zoology**  
**Academic Year 2022-23**



**Photos: Student Exchange Activity Under Lead College Scheme**

  
Dr. G. K. Sontakke

Head,  
Department of Zoology