Sonopant Dandekar Shikshan Mandali's

# Sonopant Dandekar Arts, V. S. Apte Commerce and M. H. Mehta Science College, Palghar.

## Department of Biotechnology

# Certificate Course in Environmental Analysis

## 2021-22

Sonopant Dandekar Shikshan Mandali's

# Sonopant Dandekar Arts, V.S. Apte Commerce & M.H. Mehta Science College, Palghar

**Department of Biotechnology**

Date: 18/11/2021

To,
The Principal
Dr. Kiran Save
Sonopant Dandekar Arts, V.S. Apte Commerce and
M.H. Mehta Science College,
Palghar.

**Subject:** Regarding the permission for conduction of Certificate Course as "Certificate Course in Environmental Analysis"

Respected Sir,

The Deparment of Biotechnology is conducting certificate course entiled **"Certificate Course in Environmental Analysis"**

**Objectives:**

1. To create awareness about a clean environment.
2. To inculcate scientific temperament among the students to understand environmental and agricultural issues.
3. Train the student to determine the quality of soil and water.
4. To create awareness about soil and wastewater treatment processes.
5. This Certificate course will help students for employability.
6. To understand land use, environmental awareness and its conservation

**Learning Outcomes: Upon completion of this course, students will be able to:**

1. Understand the impact of environmental pollution on agriculture.
2. Determine physical and chemical properties of soil and water.
3. Understand the role of soil and water in agriculture.
4. Handle basic instruments and chemical reagents used in the soil and water testing laboratory.
5. Perform various tests for analysis of soil and water.
6. Understand how to improve the quality of soil and water by using suitable treatment methods.
7. This Certificate course will help students for employability through the understanding of the use of land, environmental awareness and the ways for its conservation.

**Mode of Conduct: Online**

**Duration: - 50 Hrs.**

**Fees: Rs.300/-**

**Intake Capacity: 40 students**

**Total Marks: 100 [50 Marks Theory Exam and 50 Marks Practical Exam]**

**Eligibility: - FY / SY/ TY students interested in Environmental awareness and analysis and can be of any stream.**

The said course will be for 50hrs. At the end of the course our department will issue the certificate to the successful student.

Kindly give permission and we look forward for your kind Cooperation,

Thanking you,

Yours Sincerely,

**Course Coordinator**
**Dr. Shilpa M. Gharat**
Department of Biotechnology

# INDEX

Sonopant Dandekar Shikshan Mandali's

**SONOPANT DANDEKAR ARTS, V. S. APTE COMMERCE AND M. H. MEHTA SCIENCE COLLEGE**

Tal. Palghar, Dist. Palghar, Pin - 401 404.
Code.: (02525) 252163, Prin : 252317 • Resi.: 252316
website : www.sdsmcollege.com • Email:sdsmcollege@yahoo.com
(NAAC Reaccredated 'B' Grade)

Ref. No. :

Date : 01/09/2021

# NOTICE

## DEPARTMENT OF BIOTECHNOLOGY, S.D.S.M COLLEGE, PALGHAR

## CERTIFICATE COURSE IN ENVIRONMENTAL ANALYSIS

All the students of Senior College (Arts, Commerce, Science, and Management) are hereby informed that Department of Biotechnology is organizing a ***Certificate course on Environmental Analysis*** for all the environment enthusiasts to embrace, learn analytical skills to measure environmental factors and develop entrepreneurial skills in order to benefit in improving the agricultural resources in agricultural vicinity like Palghar.

Enrollment for the above course should be done on or before 15/09/21 the google link provided below.

Towards the payment of the course fee Rs 300/- a payment link will be provided after the completion of registration process.

After successful completion of the course, participants will receive the Certificate from college.

**Google form link for Registration:**
https://docs.google.com/forms/d/e/1FAIpQLScvHxkWOm8RDZJQNChcSOFSjC0xg-IpqDhVzINZZ0EkVqvO5w/viewform?usp=sf_link

Shilpa P.

**Dr.Shilpa.M.Gharat**
Head & Course coordinator
Dept. of Biotechnology

Head of the
Biotechnology Department
S. D. S. M. College,
Palghar (W) - 401 404.

M Deshmukh 01/09/2021

**Prof. Mahesh Deshmukh**
(IQAC coordinator)

Kiran

**Dr. Kiran .J. Save**
Principal

Principal
Sonopant Dandekar Arts College
V. S. Apte Commerce College &
M. H. Mehta Science College,
PALGHAR (W.R.)
Dist. Palghar, Pin 401 404.

## Brochure

SONOPANT DANDEKAR SHIKSHAN MANDALI'S
Sonopant Dandekar Arts, V. S. Apte Commerce and
M. H. Mehta Science College, Palghar

# Certificate Course in Environmental Analysis

## Organized by

## Shri Dahyabhai Amritlal Shah Institute of Biotechnology

**Contact : 7028152045/ 7820957044/ 7972256886/ 9422021306**

### OBJECTIVES

**This Course will give valuable guidance to the students in**

- **Acquiring knowledge of environmental factors, Governance skills and understanding the importance of environmental analysis.**

**Course Duration-50 Hrs.**
**Fees: -Rs. 300/-**
**Intake Capacity : 40 students**
**Eligibility: - FY / SY/ TY/PG students from all streams**


### HIGHLIGHTS OF THE COURSE

1. **App based learning about the environmental factors.**
2. **Learn suitability of soil and water for agriculture.**
3. **Become an Agronomist/ Environmentalist**
4. **Contribute to improving the agricultural resources around your vicinity.**
5. **Gain hands-on knowledge about supplementing organic farming.**
6. **Discover ways in which you can help your local farmers to improve overall economy.**

**Google form registration**
https://docs.google.com/forms/d/e/1FAIpQLScvHxkWOm8RDZJONChcSOFSjC0xg-IpqDhVzINZZ0EkVqvO5w/viewform?usp=sf_link

# Course Content

**Sonopant Dandekar Shikshan Mandali College, Palghar**

**Department of Biotechnology**

**Certificate Course in Environmental Analysis**

**Objectives:**

1. To create awareness about a clean environment.
2. To inculcate scientific temperament among the students to understand environmental and agricultural issues.
3. Train the student to determine the quality of soil and water.
4. To create awareness about soil and wastewater treatment processes.
5. This Certificate course will help students for employability.
6. To understand land use, environmental awareness and its conservation

**Learning Outcomes: Upon completion of this course, students will be able to:**

1. Understand the impact of environmental pollution on agriculture.
2. Determine physical and chemical properties of soil and water.
3. Understand the role of soil and water in agriculture.
4. Handle basic instruments and chemical reagents used in the soil and water testing laboratory.
5. Perform various tests for analysis of soil and water.
6. Understand how to improve the quality of soil and water by using suitable treatment methods.
7. This Certificate course will help students for employability through the understanding of the use of land , environmental awareness and the ways for its conservation.

**Duration : - 50 Hrs.**
**Fees: -Rs. 300/-**
**Intake Capacity : 40 students**
**Total Marks: 100 [50 Marks Theory Exam and 50 Marks Practical Exam]**
**Eligibility: - FY / SY/ TY students interested in Environmental awareness and analysis and can be of any stream.**

## SYLLABUS

**Syllabus**

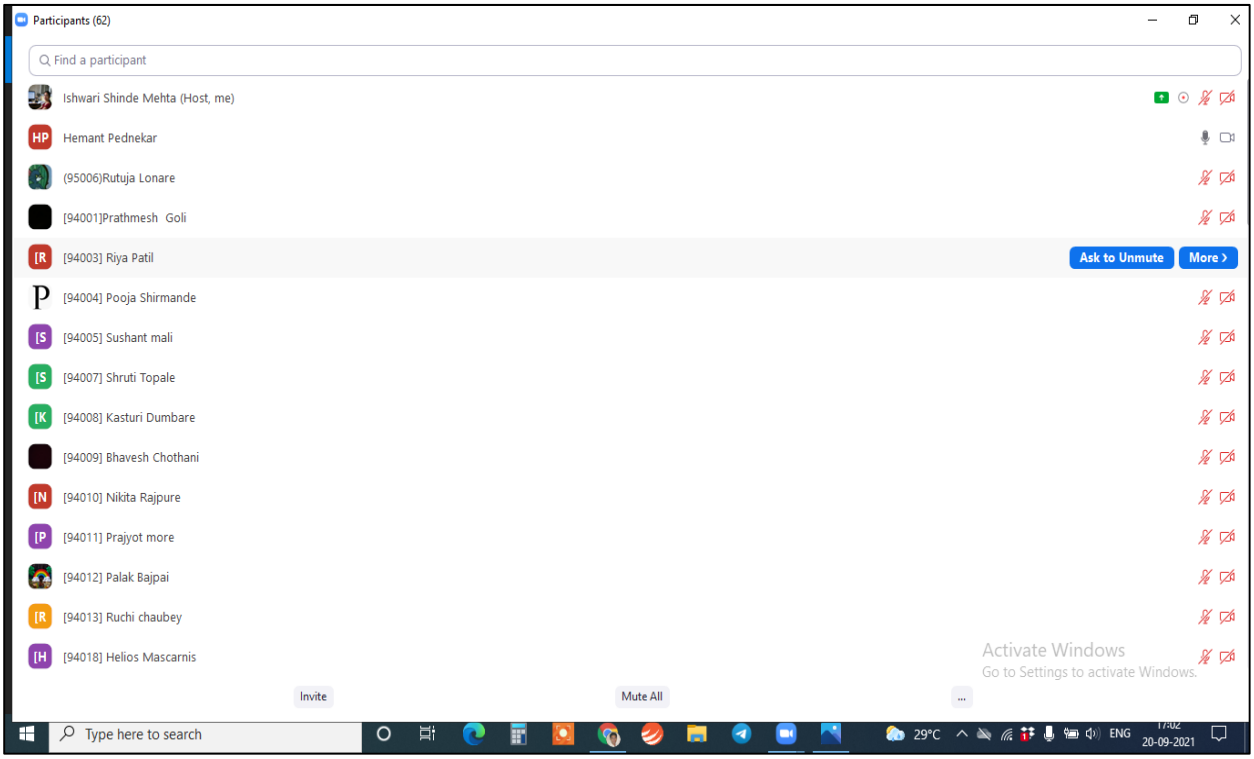
| THEORY SYLLABUS | | |
|---|---|---|
| **Sr. No.** | **Title** | **Topics** |
| 1. | **Introduction to environmental pollution** | |
| | | Environmental Pollution :Types of pollution and pollutants |
| | | Soil and water as a natural resource and their importance in Agriculture |
| | | Soil and water pollution caused by Agricultural waste and Agricultural chemicals |
| | | Objectives of soil and water analysis and Introduction to basic instruments (pH meter, digital balance, conductivity meter, colorimeter) and chemical reagents used in the soil and water testing Laboratory. |
| 2. | **Soil** | |
| | | Soil - Physical and Chemical properties of soil and components of soil. |
| | | Problematic soils- Acidic soils, Alkaline soils, Saline soils. How they affect Agriculture and aqua farming |
| | | Soil treatment |
| | | Soil testing- sampling methods and analysis of samples. |
| 3. | **Water** | |
| | | Water- Physical and chemical properties of water, Water quality parameters |
| | | Effect of hard water, saline water, polluted water on agriculture |
| | | Overview of wastewater treatment process |
| | | water testing- sampling methods and analysis of sample practicals |
| | | Water- Physical and chemical properties of water, Water quality parameters |
| | | Effect of hard water, saline water, polluted water on agriculture |
| **PRACTICAL SYLLABUS** | | |
| 1. | **Soil analysis** | |
| | | Determination of pH, Electrical Conductivity and Moisture content of Soil Sample. |

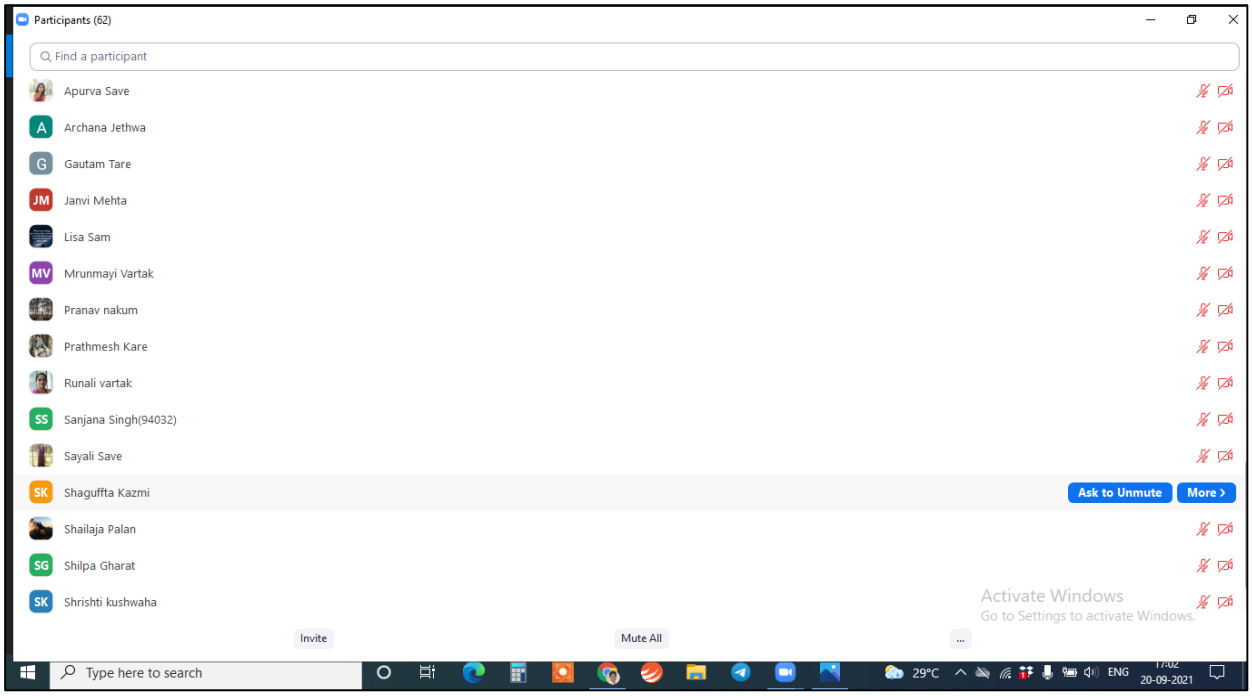
| | | |
|---|---|---|
| | | Determination of available Nitrate from Soil Sample. |
| | | App based analysis of soil. |
| | | Determination of available Phosphate from soil sample. |
| | | Determination of Organic Carbon from soil sample |
| 2. | **Water analysis** | |
| | | Determination of pH and Electrical Conductivity of water sample |
| | | Determination of Total Alkalinity and Total Acidity of Water sample |
| | | Determination of total hardness and salinity of the water sample |
| | | Determination of Dissolved oxygen of water sample |
| | | Determination of TS, TSS, TDS of water sample |

## Enrolment list

| Sr. No. | Roll No. | Name |
|---|---|---|
| 1 | 1 | Amita Mishra |
| 2 | 10 | Sayali Save |
| 3 | 11 | Janvi Mehta |
| 4 | 13 | Mansi Karde |
| 5 | 15 | Ankita Chauhan |
| 6 | 17 | Helios |
| 7 | 18 | Gautam Tare |
| 8 | 19 | Prajyot More |
| 9 | 20 | Punit Patil |
| 10 | 20 | Palak Bajpai |
| 11 | 25 | Kanya Chaudhary |
| 12 | 26 | Yogita Govari |
| 13 | 27 | Bhushan Govari |
| 14 | 30 | Pooja Yadav |

## ATTENDANCE


Participants (62)
Find a participant
Ishwari Shinde Mehta (Host, me)
Hemant Pednekar
(95006)Rutuja Lonare
[94001]Prathmesh Goli
[94003] Riya Patil
Ask to Unmute
More
[94004] Pooja Shirmande
[94005] Sushant mali
[94007] Shruti Topale
[94008] Kasturi Dumbare
[94009] Bhavesh Chothani
[94010] Nikita Rajpure
[94011] Prajyot more
[94012] Palak Bajpai
[94013] Ruchi chaubey
[94018] Helios Mascarnis
Activate Windows
Go to Settings to activate Windows.
Invite
Mute All
Type here to search
29°C
ENG
20-09-2021


Participants (62)
Find a participant
Apurva Save
Archana Jethwa
Gautam Tare
Janvi Mehta
Lisa Sam
Mrunmayi Vartak
Pranav nakum
Prathmesh Kare
Runali vartak
Sanjana Singh(94032)
Sayali Save
Shaguffta Kazmi
Ask to Unmute
More
Shailaja Palan
Shilpa Gharat
Shrishti kushwaha
Activate Windows
Go to Settings to activate Windows.
Invite
Mute All
Type here to search
29°C
ENG
20-09-2021

# Practical Attendance

**ENVIRONMENTAL ANALYSIS COURSE ATTENDENCE 2021-2022**

| SR.Nos | Full name | DATES/ NAME OF EXPERIMENTS | | | | | |
|---|---|---|---|---|---|---|---|
| | | 21/02/22 | 21/02/22 | 22/02/22 | 22/2/22 | 22/02/22 | 22/02/22 |
| | | | | Acidity | Alkalinity | pH/Moisture | conductivity |
| 1 | Amita anil Mishra | Amita.m | Amita.m | Amita.m | Amita.m | Amita.m | Amita.m |
| 2 | Aditya Subhash raut | – | – | – | – | – | – |
| 3 | Saloni patil | – | – | – | – | – | – |
| 4 | Swapnil Bandu Jadhav | – | – | – | – | – | – |
| 5 | Pradnya Ashok Shewale | – | – | – | – | – | – |
| 6 | Swapnil Bandu Jadhav | – | – | – | – | – | – |
| 7 | nicky chaudhary | – | – | – | – | – | – |
| 8 | Sushan kamalakar patil | – | – | – | – | – | – |
| 9 | Utkarsha Kiran Mhatre | – | – | – | – | – | – |
| 10 | Sayali Vinod Save | AB | AB | | | | |
| 11 | Janvi.hitesh.mehta | | | | | | |
| 12 | Rohit Devidas Kalarkar | – | – | – | – | – | – |
| 13 | Mansi Ganesh Karde | | | | | | |
| 14 | Mrunal Gaikwad | – | – | – | – | – | – |
| 15 | Chauhan Ankita Mahendra | | | | | | |
| 16 | Rutuja Lonare | – | – | – | – | – | – |
| 17 | Helios Sanjay Mascarnis | | | | | | |
| 18 | TARE GAUTAM PUNDALIK LAXMI | – | – | – | – | – | – |
| 19 | Prajyot Raju More | | | | | | |
| 20 | PUNIT NARENDRA PATIL. | | | | | | |
| 21 | Palak Mahesh Bajpai | | | | | | |
| 22 | Neha Ramchandra Waghare | – | – | – | – | – | – |
| 23 | Chitraja walanj | – | – | – | – | – | – |
| 24 | Vedant Shirke | – | – | – | – | – | – |
| 25 | Kanya Viramram Chaudhary | | | | | | |
| 26 | Yogita Narayan Govari | | | | | | |

| SR.Nos | Full name | DATES/ NAME OF EXPERIMENTS | | | | | |
|---|---|---|---|---|---|---|---|
| 27 | Bhushan Narayan Govari | | | | | | |
| 28 | Gaurav Ajay Dhumal | – | – | – | – | – | – |
| 29 | Om more | – | – | – | – | – | – |
| 30 | vijay yadav | | | | | | |
| 31 | anuradha mishra | – | – | – | – | – | – |
| | Signature of Teachers | | | | | | |

## ENVIRONMENTAL ANALYSIS COURSE ATTENDENCE 2021-2022

| SR.Nos | Full name | 23/02/22. | | DATES/ NAME OF EXPERIMENTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | TSS / TDS | Nitrate estimation | 24/02/22 D.O estimation | 25/02/22 Organic matter | 25/02/22 Phosphate | | | |
| 1 | Amita anil Mishra | Attended | Attended | Attended | Attended | Attended | | | |
| 2 | Aditya Subhash raut | — | — | — | — | — | | | |
| 3 | Saloni patil | — | — | — | — | — | | | |
| 4 | Swapnil Bandu Jadhav | — | — | — | — | — | | | |
| 5 | Pradnya Ashok Shewale | — | — | — | — | — | | | |
| 6 | Swapnil Bandu Jadhav | — | — | — | — | — | | | |
| 7 | nicky chaudhary | — | — | — | — | — | | | |
| 8 | Sushan kamalakar patil | — | — | — | — | — | | | |
| 9 | Utkarsha Kiran Mhatre | — | — | — | — | — | | | |
| 10 | Sayali Vinod Save | | | | AB | AB | | | |
| 11 | Janvi.hitesh.mehta | | | | | | | | |
| 12 | Rohit Devidas Kalarkar | — | — | — | — | — | | | |
| 13 | Mansi Ganesh Karde | | | | | | | | |
| 14 | Mrunal Gaikwad | — | — | — | — | — | | | |
| 15 | Chauhan Ankita Mahendra | | | | | | | | |
| 16 | Rutuja Lonare | — | — | — | — | — | | | |
| 17 | Helios Sanjay Mascarnis | | | | AB | AB | | | |
| 18 | TARE GAUTAM PUNDALIK LAXMI | | | | | | | | |
| 19 | Prajyot Raju More | | | | | | | | |
| 20 | PUNIT NARENDRA PATIL. | | | | | | | | |
| 21 | Palak Mahesh Bajpai | | | | | | | | |
| 22 | Neha Ramchandra Waghare | — | — | — | — | — | | | |
| 23 | Chitraja walanj | — | — | — | — | — | | | |
| 24 | Vedant Shirke | — | — | — | — | — | | | |
| 25 | Kanya Viramram Chaudhary | | | | | | | | |
| 26 | Yogita Narayan Govari | | | | | | | | |

| SR.Nos | Full name | DATES/ NAME OF EXPERIMENTS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 27 | Bhushan Narayan Govari | | | | | | | | |
| 28 | Gaurav Ajay Dhumal | — | — | — | — | — | | | |
| 29 | Om more | — | — | — | — | — | | | |
| 30 | vijay yadav | — | — | — | — | — | | | |
| 31 | anuradha mishra | — | — | — | — | — | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | Signature of Teachers | | | | | | | | |
| | | | | 24/2/22 | 25/02/22 | | | | |

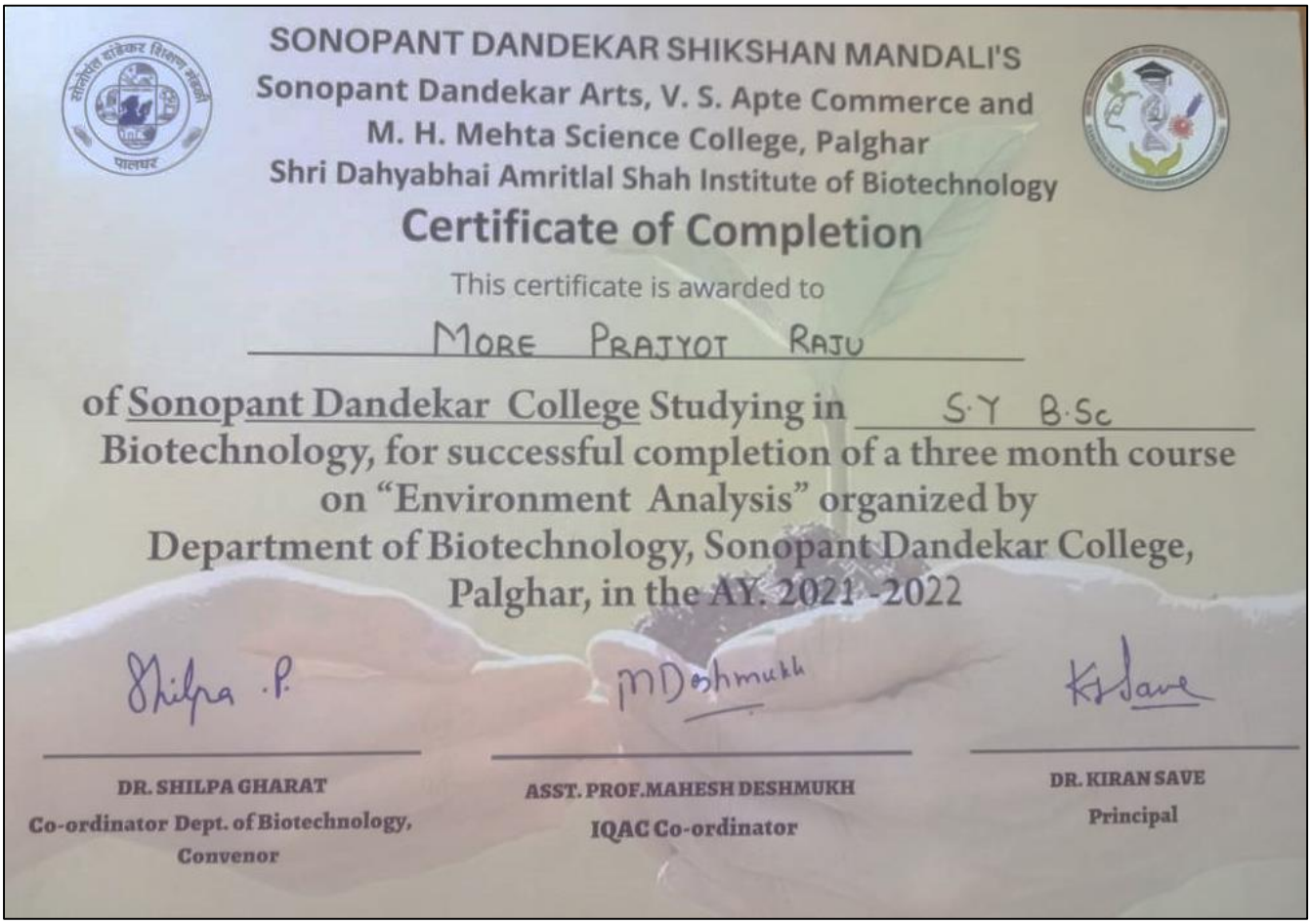
## Syllabus Completion

| Department of Biotechnology<br>Certificate Course in Environmental Analysis | | | | | |
|---|---|---|---|---|---|
| **Syllabus Completion Report Theory (Teacher wise)** | | | | | |
| **Units** | **Topic covered** | **Name of Teacher** | **Date** | ***Session hrs.*** | **Total lecture** |
| **Unit I** | *Introduction* | | | | 8 |
| **1.1** | Environmental Pollution :Types of pollution and pollutants | INM | 20/09/21 | *1* | |
| **1.2** | Soil and water as a natural resource and their importance in Agriculture | SK | 21/09/21<br>05/10/21 | *2* | |
| **1.3** | Soil and water pollution caused by Agricultural waste and Agricultural chemicals | INM | 11/10/21 | *1* | |
| **1.4** | Objectives of soil and water analysis and Introduction to basic instruments (pH meter, digital balance, conductivity meter, colorimeter) and chemical reagents used in the soil and water testing laboratory. | RJV & SK | 21/09/21<br>30/09/21<br>14/10/21<br>28/10/21 | *4* | |
| **Unit II** | **Soil** | | | | |
| **2.1** | Soil - Physical and Chemical properties of soil and components of soil. | AJ | 6/10/21<br>20/10/21 | 2 | 9 |
| **2.2** | Problematic soils- Acidic soils, Alkaline soils, Saline soils. How they affect Agriculture and aqua farming | LS | 24/09/21,<br>8/10/21 | 2 | |
| **2.3** | Soil treatment | KR | 23/09/21<br>6/10/21<br>21/10/21 | 3 | |

| | | | | | |
|---|---|---|---|---|---|
| **2.4** | Soil testing- sampling methods and analysis of samples. | AJ & LS | 22/10/21, 29/10/21 | 2 | |
| **Unit III** | Water | | | | |
| **3.1** | Water- Physical and chemical properties of water, Water quality parameters | SK | 5/10/21 | 1 | 8 |
| **3.2** | Effect of hard water, saline water, polluted water on agriculture | SMG | 22/09/21 | 1 | |
| **3.3** | Overview of wastewater treatment process | AHS | 4/10/21, 18/10/21, 25/10/21, | 3 | |
| **3.4** | water testing- sampling methods and analysis of sample practicals | SPP | 22/09/21, 28/09/21, 12/10/21 | 3 | |
| **Syllabus Completion Report Practical (Teacher wise)** | | | | | |
| **Units** | **Topic covered** | **Name of Teacher** | **Date** | **Total lecture** | |
| **Practical I- Soil analysis** | | | | | |
| **4.1** | Determination of pH, Electrical Conductivity and Moisture content of Soil Sample. | RJV | 22/02/22 | 12 | |
| **4.2** | Determination of available Nitrate from Soil Sample. | INM | 23/02/22 | | |
| **4.3** | App based analysis of soil. | LS | 21/02/22 | | |
| **4.4** | Determination of available Phosphate from soil sample. | AJ/HC | 25/02/22 | | |
| **4.5** | Determination of Organic Carbon from soil sample | AHS | 25/02/22 | | |
| **Practical II- Water analysis** | | | | | |
| **5.1** | Determination of pH and Electrical Conductivity of water sample | RJV | 22/02/22 | 13 | |
| **5.2** | Determination of Total Alkalinity and Total Acidity of Water sample | SMG | 22/02/22 | | |

| | | | | | |
|---|---|---|---|---|---|
| **5.3** | Determination of total hardness and salinity of the water sample | KR & LS | 21/02/22 | | |
| **5.4** | Determination of Dissolved oxygen of water sample | SPP | 24/2/22 | | |
| **5.5** | Determination of TS, TSS, TDS of water sample | SK | 23/2/22 | | |

## Certificates



SONOPANT DANDEKAR SHIKSHAN MANDALI'S
Sonopant Dandekar Arts, V. S. Apte Commerce and
M. H. Mehta Science College, Palghar
Shri Dahyabhai Amritlal Shah Institute of Biotechnology

**Certificate of Completion**

This certificate is awarded to

MORE PRAJYOT RAJU

of Sonopant Dandekar College Studying in S.Y B.Sc Biotechnology, for successful completion of a three month course on "Environment Analysis" organized by Department of Biotechnology, Sonopant Dandekar College, Palghar, in the AY. 2021 -2022

| DR. SHILPA GHARAT | ASST. PROF.MAHESH DESHMUKH | DR. KIRAN SAVE |
|---|---|---|
| Co-ordinator Dept. of Biotechnology, Convenor | IQAC Co-ordinator | Principal |

# Report

**Department of Biotechnology**

**Objectives:** The objectives of the course were to:

1. Create awareness about a clean environment.
2. Inculcate scientific temperament among students to understand environmental and agricultural issues.
3. Train students to determine the quality of soil and water.
4. Create awareness about soil and wastewater treatment processes.
5. Enhance students' employability.
6. Foster an understanding of land use, environmental awareness, and conservation.

**Learning Outcomes:** Upon completion of the course, students were able to:

1. Understand the impact of environmental pollution on agriculture.
2. Determine the physical and chemical properties of soil and water.
3. Understand the role of soil and water in agriculture.
4. Handle basic instruments and chemical reagents used in soil and water testing laboratories.
5. Perform various tests for the analysis of soil and water.
6. Improve the quality of soil and water using suitable treatment methods.
7. Enhance employability through understanding land use, environmental awareness, and conservation methods.

**Course Details:**

- **Duration:** The course lasted 50 hours.
- **Fees:** The fee for the course was Rs. 300.
- **Intake Capacity:** The course could accommodate 40 students.
- **Total Marks:** The course had a total of 100 marks, divided into 50 marks for a theory exam and 50 marks for a practical exam.
- **Eligibility:** The course was open to FY, SY, and TY students from any stream who were interested in environmental awareness and analysis.

**Course Structure:**

- **Theoretical Component:** The theoretical part of the course covered fundamental concepts of environmental science, the impact of pollution on agriculture, and the principles of soil and water quality assessment.
- **Practical Component:** The practical component included hands-on training in the use of laboratory instruments and chemical reagents for testing soil and water. Students conducted various tests to analyze soil pH, nutrient content, water hardness, and contamination levels.
- **Fieldwork:** Field visits to agricultural lands and wastewater treatment plants were organized to give students practical exposure to real-world environmental analysis and treatment processes.

- **Assignments and Projects:** Students completed assignments and projects focused on soil and water quality assessment, treatment methods, and conservation strategies. These projects encouraged students to apply theoretical knowledge to practical problems.

**Impact and Feedback:**

- **Student Feedback:** Students appreciated the practical approach of the course, particularly the hands-on training and fieldwork components. They reported a better understanding of environmental issues and felt more confident in their ability to conduct environmental analyses.
- **Employability:** Many students noted that the course significantly enhanced their employability by providing them with practical skills and a deeper understanding of environmental conservation. Some students secured internships and job opportunities in environmental analysis and agricultural sectors.

This course was designed to provide comprehensive training in environmental analysis, equipping students with the knowledge and skills necessary for assessing and improving soil and water quality. It also aimed to enhance students' employability by providing practical experience and understanding of environmental conservation methods. Through theoretical learning, practical training, and fieldwork, students gained a holistic understanding of environmental issues and their solutions.