



Pravara Medical Trust's,
Arts, Commerce and Science College
Shevgaon



Ayurved College Campus, Akhegaon Road, Shevgaon,
Tal-Shevgaon, Dist-Ahmednagar.

Post Graduate Department of Chemistry

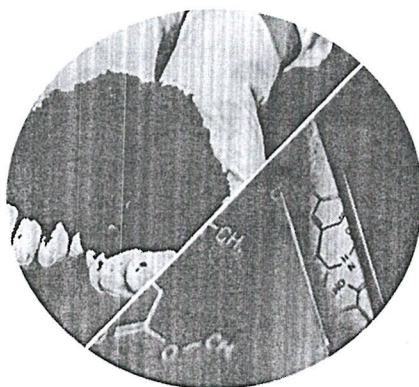
Organized

“Syllabus Framing Workshop”

On

Certificate Course: Soil and Water Analysis

22th July 2022



2022-23

Date:-20/07/2022

To,
Principal,
Pravara Medical Trust's,
Arts, Commerce and Science College,
Shevgaon.

Subject: - Give the permission for Syllabus Framing Workshop of Certificate Course on Soil and Water Analysis ...

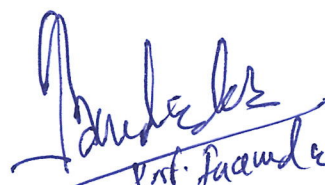
Respected Sir,

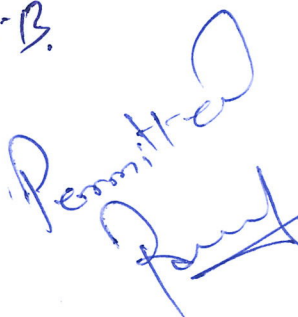
With above mentioned subject, the Post Graduate Chemistry Department has been organize Certificate course on Soil and Water Analysis for Undergraduate and Post Graduate Students. This course duration is 30 hours with theory and practical so give the permission for said course syllabus framing Workshop on 22th July 2022.

Therefore, give the permission for said Certificate Course Syllabus framing workshop.

Syllabus Framing Committee as follows:

Sr.No.	Name of Person	Designation
1	Prof. Inamdar K.B.	Head of Department (Chairman)
2	Prof. Borawake G.A.	Subject Expert (other college)
3	Prof. Shaikh S.M.	Subject Expert (other college)
4	Prof. Dahifale M.B.	Member (Representative)
5	Prof. Revadkar A.P.	Member (Representative)
6	Prof. Kardile A.B.	Coordinator (Course Coordinator)


Prof. Inamdar K.B.
(H.O.D.)

Permitted



20/07/2022
Course Coordinator
mr. Kardile A.B.

Pravara Medical Trust's



Arts, Commerce and Science College, Shevgaon

Tal: Shevgaon Dist: Ahmednagar 414502 Maharashtra, India

Tel: 02429 223031 Fax: 02429 223399 Email: pmt.acsc@gmail.com



College Code: 1481

College ID: PU/AN/Sci/136/2013

Website: www.pmtacscollege.com

Outward No.: /2022-23

Date: - 20/07/2022

To,
 Prof. Borawake G.A.
 Department of Chemistry,
 Jijamata College of Science & Arts Bhende Bk.,
 Tal-Nevasa Dist-Ahmednagar.

Subject:- About the Workshop of Syllabus Framing on "Soil and Water Analysis" Certificate course...

Dear Sir,

With above mentioned subject, Chemistry Department has been organize Academic year 2022-23 Certificate course on "Soil and Water Analysis" for Undergraduate and Post Graduate Students. This course duration is 30 hours with theory and practical.

You are nominated as a subject expert for the syllabus framing committee of the said course. Department of chemistry organizes a syllabus framing workshop of "Soil and Water Analysis" **22th July 2022.**

We request you to attend the said workshop and help us to frame syllabus.

Syllabus Framing Committee as follows:

Sr.No.	Name of Person	Designation
1	Prof. Inamdar K.B.	Head of Department (Chairman)
2	Prof. Borawake G.A.	Subject Expert (other college)
3	Prof. Shaikh S.M.	Subject Expert (other college)
4	Prof. Dahifale M.B.	Member (Representative)
5	Prof. Revadkar A.P.	Member (Representative)
6	Prof. Kardile A.B.	Coordinator (Course Coordinator)

for information:- Proposed outline of syllabus attached.

[Handwritten signature]
 Ret. Ms.



[Handwritten signature]
 Yours
 Principal

Arts, Comm. & Sci. College
 Shevgaon, Dist Ahmednagar

Pravara Medical Trust's



Arts, Commerce and Science College, Shevgaon

Tal: Shevgaon Dist: Ahmednagar 414502 Maharashtra, India

Tel: 02429 223031 Fax: 02429 223399 Email: pmt.acsc@gmail.com



College Code: 1481

College ID: PU/AN/Sci/136/2013

Website: www.pmtacscollege.com

Outward No.: /2022-23

Date: - 20/07/2022

To,
 Prof. Shaikh S.M.
 Department of Chemistry,
 New Arts, Commerce and Science College,
 Shevgaon.

**Subject:- About the Workshop of Syllabus Framing on "Soil and Water Analysis"
 Certificate course...**

Dear Sir,

With above mentioned subject, Chemistry Department has been organize Academic year 2022-23 Certificate course on "Soil and Water Analysis" for Undergraduate and Post Graduate Students. This course duration is 30 hours with theory and practical.

You are nominated as a subject expert for the syllabus framing committee of the said course. Department of chemistry organizes a syllabus framing workshop of "Soil and Water Analysis" 22th July 2022.

We request you to attend the said workshop and help us to frame syllabus.

Syllabus Framing Committee as follows:

Sr.No.	Name of Person	Designation
1	Prof. Inamdar K.B.	Head of Department (Chairman)
2	Prof. Borawake G.A.	Subject Expert (other college)
3	Prof. Shaikh S.M.	Subject Expert (other college)
4	Prof. Dahifale M.B.	Member (Representative)
5	Prof. Revadkar A.P.	Member (Representative)
6	Prof. Kardile A.B.	Coordinator (Course Coordinator)

For information :- Proposed outline of syllabus attached.

Received
Shankar



Principal
 Yours

**Arts, Comm. & Sci. College
 Shevgaon, Dist Ahmednagar**

Pravara Medical Trust's,
Arts, Commerce & Science College, Shevgaon
Tal-Shevgaon, Dist-Ahmednagar 414502.
Department of Chemistry
Certificate Course on Soil & Water Analysis

Course Details:

1. Duration of course: 45 Hours/ 90 Days
2. Eligibility: UG/PG students of science stream
3. No. of Seats: 40 Students

Teaching Methodology

Teaching Mode: Offline

Some of the following methods of delivery may be adopted:

- Lecture
- Pdf /Videos
- Demonstration Video/Experimental
- Group Discussion
- Field Visit

Course Description

This course is a study of properties, pH, components, elements, of soil and water testing, along with study of continuous and non-continuous analysis of Soil & Water.

ASSESSMENT & CERTIFICATE

Assessment:

The assessment will be done by the department. Both theory and practical examination will be conducted in offline mode.

Passing Criteria:

Minimum passing marks for Practical: 40%

Minimum passing marks for Theory: 40%

Certificate:

Successful candidate will be issued certificate by the college.



PREAMBLE

Soil and Water are essential for sustenance of life. No living being on the planet earth can survive without it. It is a prerequisite for human health and well-being as well as for the preservation of the environment. Every year millions of people die from diseases associated with the consumption of contaminated drinking water, inadequate water supply, sub-optimal or poor sanitation and hygiene and diseases related to adulterated food because of excessive of fertilizers. Diseases transmitted through water and food contaminated with chemicals is the leading cause of death among children worldwide.

This course will discuss analytical methods and theories to determine water and soil quality of different water and soil resources of Shevgaon Tahsil and factors and processes affecting the quality of soil and water. We will also discuss the approaches that may be taken to improve the quality of drinking water, soil and water conservation. The course will also cover water and soil remediation and safeguard techniques for the improvement of soil and water quality for sustainable development of our state.

The training aims at employability in the soil and water analytical lab as analyst and supervisors. The certificate will be authorized by the Principal Pravara Medical Trust's, Arts Commerce & Science College, Shevgaon. Department of Chemistry and coordinator of the program.

Aims and Objectives of the Course-

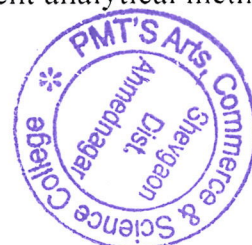
Aims:

- To provide basic knowledge of Soil and Water Analysis.
- To promote awareness for judicious use of fertilizers.
- To promote use of organic manure.
- To promote analysis of quality of water for drinking and agriculture.
- To know about status of available water from sources like well, bore-wells and dams with particular stress on quality of water of various parts of Shevgaon.
- To know effect of quality of water on human beings, live-stock and agriculture.

Objectives

Upon completion of this course, the student will be able to:

- To promote awareness amongst the students to take agriculture as industry by applying scientific measures.
- To identify water quality of different water resources using different analytical methods.
- Explain the function and importance of Soil and Water Analysis.



Scheme of Marks

Sr.No	Title of paper/practical	Maximum Marks
1	Unit-I Soil Analysis	30
2	Unit-II Water Analysis	30
3	Unit-III Practical+ Field work	40
	Total	100

The major focus of this course is on practical knowledge therefore mark weightage of practical is more than theory. The passing marks for this course will be 50% of combined theory and practical exam.

Course Requirements:

1. Describe the functions, properties, pH, components, elements, of Soil and Water sample.
2. Operate various analytical instruments Related to Soil and Water testing.

Name & Signature:

Chairperson / HOD	<i>A. Inawdar. K.B.</i>	Departmental member	1. <i>Inawdar</i>
Subject Expert	<i>Borawake G.A.</i>		2. <i>Purk</i>
(Other College)			3. <i>Shrikhan</i>
Subject Expert	<i>Shaikh S.M.</i>		4. <i>Bahifale</i>
(Other College)			5. <i>Ramal</i>
Representative	<i>Dahifale M.B.</i>		
(Science Faculty)			
Representative	<i>Revadkor A.P.</i>		
(Science Faculty)			
Coordinator	<i>Kardile A.B.</i>		6. <i>Gur</i> 22/07/2022



Date: 22/07/2022

Department of Chemistry Notification

Subject: About the syllabus for the Certificate Course...

With the above mentioned subject, as per circular of Skill Development Centre dated 27th June 2022, Department of Chemistry has decided to run a certificate course on "Certificate Course on Soil and Water Analysis" for the academic year 2022-23. For the said Certificate course Department of Chemistry organized a Workshop on Syllabus framing. The expert panel has approved the syllabus to implement for the academic year 2022-23.

Sr. No.	Name of the Expert	Designation	Sign
1	Prof. Inamdar K.B.	Chairman	
2	Prof. Borawake G.A.	Expert	
3	Prof. Shaikh S.M.	Expert	
4	Prof. Dahifale M.B.	Member	
5	Prof. Revadkar A.P.	Member	
6	Prof. Kardile A.B.	Course Coordinator	 22/07/2022

❖ Attachment: Detailed Syllabus



Syllabus of Certificate Course in Soil and Water Analysis

Unit-I: - Soil Analysis

Topic – I [3 Hours]

Definition of Soil, Concept of Lithosphere, Soil as a natural body, Soil Components: Air, Water, inorganic and organic solids.

Topic –II [2 Hours]

Formation of Soil, Types & Basic Concepts of Soils. Soil Profile & Classification.

Topic –III [6 Hours]

Physical and Chemical Properties :-

Soil Separates, Texture, Aggregation and Structure, Temperature, Colour, Properties of Soil Mixture, Pore Space, Bulk Density, Particle Density, Aeration and Drainage, Compaction, Surface area, Soil water relationships. Morphology of Colloids, Chemistry of Clays, Ionic Exchange, Acidity, Alkalinity, pH, Salinity, Reactions in Liming and Acidification.

Biological Properties of soil :-

Soil Organic Matter, C: N Relationships, N-Transformation, Soil Organisms, Sulfur Transformation. Importance of Soil Testing and Analysis

Topic-IV [4 Hours]

Sample Collection and Processing Purpose of Soil testing and analysis, selection of field, Method of Soil Sample collection Methods of soil sample processing, precautions during soil collection & processing. Preservation labelling and storage of soil samples. Preparation of Soil analysis and test report.

Unit-II: - Water Analysis

Topic-I [3 Hours]

Introduction: Water and its Quality Parameters- Chemistry of water -Water resources- Hydrological cycle-Water quality parameters and drinking standard-Physical, Chemical quality of drinking water-Biological quality of drinking water.

Topic –II [5 Hours]

Water Analysis-Water composition analysis - Hardness testing-pH-Salinity-Turbidity-TDS -Conductivity testing-Minerals-BOD, COD, DO, Coli forms-Culture identification-MPN test-Microscopy: principles and practices-Staining methods. Water borne pathogen: Types and Detection-Portability of water.



Topic –III

[3 Hours]

Water treatment -Treatment of water: Flowchart of water treatment plant, Treatment methods (Theory and Design) Physico-chemical treatments: Sedimentation, Coagulation-flocculation, Settling tanks, Disinfection systems: Chemicals- Chlorination and other disinfection methods, Reverse osmosis technologies.

Topic –IV

[4 Hours]

Practical Analytical Methods - Introduction to analytical laboratory - Safety, Equipment's and techniques used in laboratory, Determination of hardness, pH, turbidity, conductivity, DO, BOD and COD, Analysis of metals and ions, Microbiological analysis.

Unit-III: - Practical and Field work

PRACTICALS

[15 Hours]

1. Determination of pH of soil and classification as acidic or basic soils.
2. Determination of electrical conductance of soil and hence total soluble salt contents.
3. Determination of Calcium Carbonate (CaCO₃) content of soils.
4. Determination of Gypsum requirement of alkaline soils.
5. Determination of available Phosphorous from soils by Colorimetric method.
6. Determination of Potassium from soil by flame photometer.
7. Determination of Sodium from soil by flame photometer
8. Determination of Calcium from soil by flame photometer.
9. Determination of Nitrate from soil.
10. Determination of pH of water samples.
11. Determination of COD of water samples.
12. Determination of BOD of water samples.
13. Determination of TDS of water samples.
14. Determination of turbidity of water samples

Field work and preparation of field report.

References:-

1. Hydrology - Principles, analysis and Design - H. M Ragunath, New age International Publications.
2. Standard Methods for the examination of water and waste water-APHA (American Public Health Association), AWWA (American Water Works Association), WEF (Water Environmental Federation)



3. Low cost waste water treatment technologies- R. K. Trivedy and Siddharth Kaul
4. Pollution and Bioremediation- PC. Trivedi
5. An Introduction to Environmental pollution- B. K. Sharma and H. Kaur



Member
(Representative)



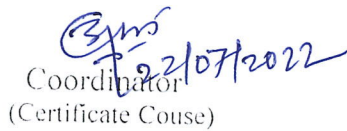
Member
(Representative)



Subject Expert
(Other College)



Subject Expert
(Other College)



Coordinator
(Certificate Course)



HoD/Chairperson
(Chairman)



Coordinator
Skill Development Centre
PMT's ACSC, Shevgaon




Principal
Arts, Comm. & Sci. College
Shevgaon, Dist Ahmednagar



Arts, Commerce and Science College, Shevgaon

Tal: Shevgaon Dist: Ahmednagar 414502 Maharashtra, India

Tel: 02429 223031 Fax: 02429 223399 Email: pmt.acsc@gmail.com



College Code: 1481

College ID: PU/AN/Sci/136/2013

Website: www.pmtacscollege.com

Outward No.: /2022-23

Date: - 22/07/2022

To,
 Prof. Borawake G.A.
 Department of Chemistry,
 Jijamata College of Science & Arts Bhende Bk.,
 Tal- Nevasa, Dist- Ahmednagar.

Subject: Thanking Letter...

Dear Sir,

With the above mentioned subject, our college has organized "Syllabus Framing Workshop of Certificate Course on Soil and Water Analysis" for the Graduate and Post Graduate Students of Chemistry Department on 22nd July 2022. We are thankful to you that you have attended the said workshop and help us to frame syllabus.

We wish you best wishes for future.

Thanking You!

*Pratibha
 Ream*



Borawake G.A.

Principal
 Arts, Comm. & Sci. College
 Shevgaon, Dist Ahmednagar



Pravara Medical Trust's,



Arts, Commerce and Science College Shevgaon
Ayurved College Campus, Tal- Shevgaon, Dist- Ahmednagar
Skill Development Centre Organized

**One Day Workshop on
Syllabus Framing for Certificate Course 2022-23**



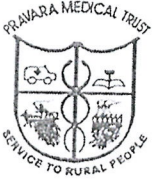
This certificate is awarded to

Prof. Borawake G.A. We appreciate your participation and rich
Contribution in designing of the syllabus for Certificate Course -Entitled Certificate
Course on Soil & Water Analysis on 22/07/2022

Co-ordinator
(Skill Development Centre)

IQAC
(Co-ordinator)

Principal



Arts, Commerce and Science College, Shevgaon

Tal: Shevgaon Dist: Ahmednagar 414502 Maharashtra, India

Tel: 02429 223031 Fax: 02429 223399 Email: pmt.acsc@gmail.com



College Code: 1481

College ID: PU/AN/Sci/136/2013

Website: www.pmtacscollege.com

Outward No.: /2022-23

Date: - 22/07/2022

To,
 Prof. Shaikh S.M.
 Department of Chemistry,
 New Arts, Commerce and Science College, Shevgaon,
 Tal- Shevgaon, Dist- A.Nagar.

Subject: Thanking Letter...

Dear Sir,

With the above mentioned subject, our college has organized "Syllabus Framing Workshop of Certificate Course on Soil and Water Analysis" for the Graduate and Post Graduate Students of Chemistry Department on 22th July 2022. We are thankful to you that you have attended the said workshop and help us to frame syllabus.

We wish you best wishes for future.

Thanking You!



Principal
 Arts, Comm. & Sci. College
 Shevgaon, Dist Ahmednagar

Received

Shahin



Pravara Medical Trust's,



Arts, Commerce and Science College Shevgaon

Ayurved College Campus, Tal- Shevgaon, Dist- Ahmednagar

Skill Development Centre Organized

**One Day Workshop on
Syllabus Framing for Certificate Course 2022-23**



This certificate is awarded to

Prof. Shaikh S.M. We appreciate your participation and rich
Contribution in designing of the syllabus for Certificate Course -Entitled Certificate
Course on Soil & water Analysis on 22/07/2022



Co-ordinator
(Skill Development Centre)



IQAC
(Co-ordinator)



Principal

Pravara Medical Trust's,
Arts, Commerce and Science College Shevgaon

Tal-Shevgaon, Dist-Ahmednagar 414502.

Post Graduate Department of Chemistry
“Certificate Course on Soil and Water Analysis”

2022-23

Syllabus Framing Workshop on Certificate course on Soil and Water Analysis
Report

Date: 22th July 2022

Time: 10:00 AM

Introduction

The **Workshop on Syllabus Framing for the Certificate Course on Soil and Water Analysis** was organized with the objective of designing a curriculum that integrates theoretical knowledge with practical applications to address environmental and agricultural challenges. The course aims to provide students with the necessary skills to analyze soil and water quality effectively, ensuring sustainability and improved productivity.

Objectives of the Workshop

- To identify the core topics necessary for a comprehensive understanding of soil and water analysis.
- To align the curriculum with contemporary research and industry standards.
- To ensure the inclusion of practical training and fieldwork for hands-on experience.
- To prepare students for real-world problem-solving in environmental and agricultural domains.

Committee Discussion Report on Certificate Course on Soil and Water Analysis Syllabus Framing Workshop

Sr. No.	Name of the Expert	Designation
1	Prof. Inamdar K.B.	Chairman & Head of Department, PMT's Arts, Commerce, and Science College, Shevgaon
2	Prof. Borawake G.A.	Expert, Jijamata College of Science and Arts, Bhende Bk.
3	Prof. Shaikh S.M.	Expert, New Arts, Commerce, and Science College, Shevgaon
4	Prof. Dahifale M.B.	Member, PMT's Arts, Commerce, and Science College, Shevgaon
5	Prof. Revadkar A.P.	Member, PMT's Arts, Commerce, and Science College, Shevgaon
6	Prof. Kardile A.B.	Course Coordinator, PMT's Arts, Commerce, and Science College, Shevgaon



Committee Communication on Syllabus Framing

The committee held a discussions and consultations to develop a comprehensive and practical syllabus for the Certificate Course in Soil and Water Analysis. Below are the details of the communication and deliberations.

The committee collectively agreed that the primary objective of the course is to equip students with essential theoretical knowledge and practical skills for analyzing soil and water, addressing environmental and agricultural challenges.

Structure of the Syllabus


- **Prof. Kabir Inamdar** emphasized the importance of structuring the syllabus into distinct units that cover theoretical concepts, practical applications, and fieldwork.
- **Prof. Ganesh Borawake** suggested incorporating recent advancements in analytical techniques and aligning the syllabus with industry standards.
- **Unit-I: Soil Analysis**
 - The committee discussed the inclusion of soil properties, chemical analysis, and the biological significance of soil. **Prof. Sahil Shaikh** recommended focusing on practical aspects like soil sample collection and processing.
- **Unit-II: Water Analysis**
 - Topics on water quality, treatment, and analytical methods were elaborated. **Prof. Amol Kardile** proposed emphasizing microbiological analysis and water treatment processes to address real-world problems.
- **Unit-III: Practical and Field Work**
 - The inclusion of hands-on experiments and field visits was unanimously supported. **Prof. Mira Dahifale** highlighted the need for advanced laboratory training.
- The evaluation process was proposed as a combination of theoretical assessments, practical tests the importance of detailed test reports for certification.


Outcomes

A draft syllabus for the Soil and Water Testing Certificate Course was prepared and Approved by the committee member.

Course Coordinator Prof. Amol Kardile Department of Chemistry extends its gratitude to the committee members, subject experts for their invaluable contributions to the success of the workshop Syllabus Framing.


COORDINATOR


HEAD
Department of Chemistry
PMT'S Arts Commerce & Science
College, Shevgaon, Dist. A'Nagar

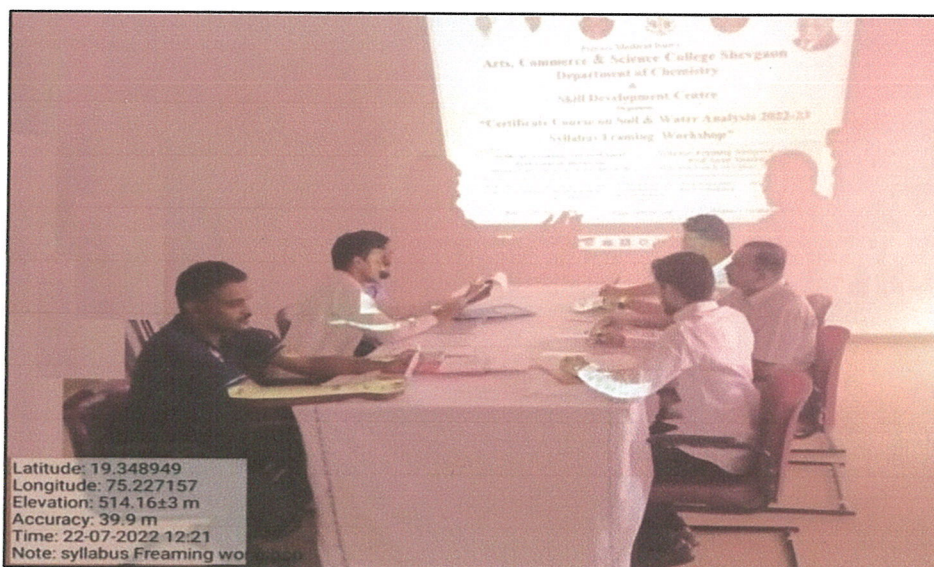
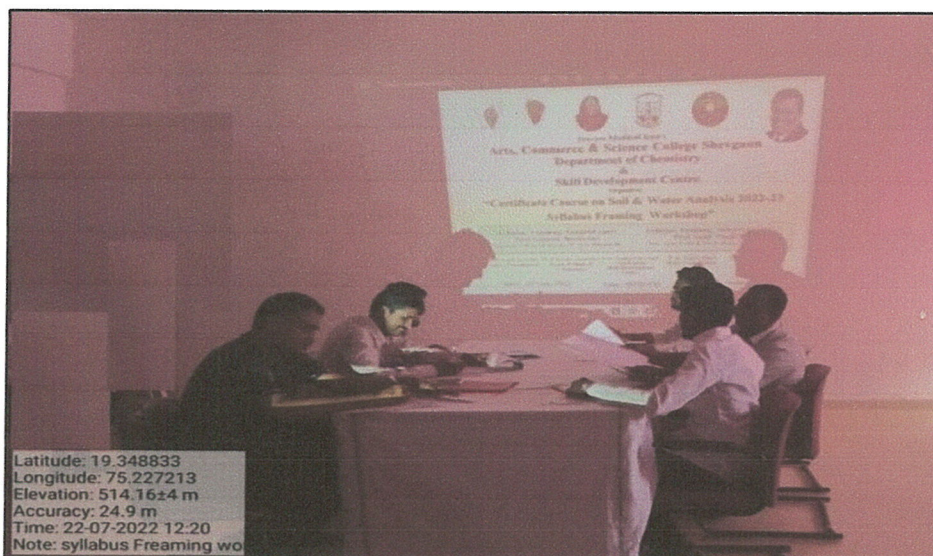

Principal
Arts, Comm. & Sci. College
Shevgaon, Dist Ahmednagar



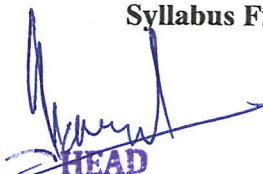
Pravara Medical Trust's,
Arts, Commerce and Science College Shevgaon
Ayurved College Campus, Akhegaon Road, Shevgaon, Tal-Shevgaon, Dist-Ahmednagar.

Post Graduate Department of Chemistry
Certificate Course on Soil and Water Analysis 2022-23


Syllabus Framing Workshop Photo



**Syllabus Framing Workshop Photo of Certificate Course on
"Soil and Water Analysis-2022"**


HEAD
Department of Chemistry
PMT'S Arts Commerce & Science
College, Shevgaon, Dist. A'Nagar




Principal
Arts, Comm. & Sci. College
Shevgaon, Dist Ahmednagar