



Shri Shivaji Education Society, Amravati's
Shri Shivaji Science & Arts College
Chikhli, Dist. Buldana



NAAC Reaccredited with B++ Grade (CGPA-2.82)

We Educate, Inspire and Empower

Department of Chemistry

Cordially invite you to join

ONLINE 6 DAYS CERTIFICATE COURSE

On

Soil and Water Analysis

02 May - 07 May 2022

CHIEF ORGANIZER



Dr. Omraj S. Deshmukh
Principal



Prof. S. L. Kumbhare
Head
Department of Chemistry



Mr. S. V. Dautpure
Course Co-ordinator

About Institution

The college is established in 1967 . Dr. Panjabrao Deshmukh & Dalitmitra Pandharinath Patil come together under the banner of Shri Shivaji Education Society, Amravati. It has upgraded itself with introduction of Arts and Commerce stream at UG & PG level. The research programs Ph.D. are added in Science, Arts & Commerce. Other than research facility YCMOU centre, NCC & NSS Units are also available. Also new subject Home Economics is added at degree level. UGC Sponsored career Oriented Program & NSQF courses are key courses running to develop skill in students.

Objective of the course

1. To develop basic understanding regarding soil testing in the students.
2. To introduce them with macro and micro nutrients for soil.
3. To enhance their skills about water analysis.

Learning Outcome

As a result of participating in the certificate course on “soil and water analysis” students as well as farmers will be able to learn and understands how to test soil and water sample an get the knowledge to determine various parameters including pH, alkalinity etc.

Theory Syllabus

Module I

Importance of soil testing and analysis, Sample Collection and processing, selection of field, Method of soil sample collection and processing, Precautions during soil collection and processing. Preservation labeling and Storage of soil sample.

Module II

Brief study of instruments: pH meter, Conductivity meter, UV- Spectrophotometer, Use of soil testing kit and mobile soil testing van (Calibration, instrumentation, applications only). Determination of nutrient content (NPK) of soil sample.

Module III

Importance of water testing and analysis, sources of water, Reason for depletion of underground water, rain water harvesting, hard and soft water, Hardness of water, carbonate and non carbonate hardness.

Module IV

Methods of expressing hardness, Estimation of total hardness of water by EDTA method involving total carbonate and non-carbonate hardness, Softening of water.

Module V

Ion exchange method and reverse osmosis method, Purification (Sedimentation, Filtration and Sterilization), Disadvantages of using hard water in boiler. Determination of COD & BOD of water sample. Determination of micronutrients of soil sample.

Practical Syllabus

Part-I: Soil Analysis

1. Determination of pH of soil sample using pH meter.
2. Determination of electrical conductivity of soil sample,
3. Determination of salinity of soil sample.

Part-I: Water Analysis

1. Determination of total hardness of water sample.
2. Determination of pH of water sample using pH meter.
3. Determination of alkalinity of water sample.
4. Determination of electrical conductivity of water sample.

Course Structure

Course Name:- Soil and Water Analysis

Number of Modules: 05

Number of Theory (Hours) : 15

Number of Practical (Hours) : 15

Examination Scheme

Internal Marks : 20

Theory Marks : 60

Practical Marks : 20

Total Marks : 100

Eligibility : XII science/any graduate and post graduate students as well as interested farmers can apply for a certificate course.

Course Fee : Not Applicable.

Important Instruction's

- Registration is mandatory for enroll for this course.
- Lectures will be conducted on zoom /google meet platform.
- For the successful completion course it is mandatory for each participant to submit assignments on Google Classroom.
- At the end of course exam will be conducted. Each participant should score a minimum of 40% in total to avail course completion certificate.

Registration link:

<https://forms.gle/c5AcJgwZxXDE8APi7>

WhatsApp group link: <https://chat.whatsapp.com/G2hPf7unuO53ORVcxIm6xm>

SHRI SHIVAJI SCIENCE AND ARTS COLLEGE

Chikhli, Dist-Buldana.(Maharashtra)

Department of Chemistry

Soil and Water Analysis Online/offline Certificate Course Schedule-2022

Date	Time	Resource Person/Expert	Topic	Theory(Hrs)	Practical(Hrs)
02-05-2022	10:30 -11:30am	Inaugural Function		1	
	12:00-1:00 pm	Prof.S.S.Kale	Module-III(Offline)	1	
	1:00-2:00 pm	Prof.T.S.Shrirame	Module-IV(Online)	1	
	2:00 -3:00 pm	LUNCH BREAK			
	3:00 - 5:00 pm	Dr.S.R.Patil	Determination of Total hardness of water sample(offline)		2
03-05-2022	11:30-12:30 pm	Prof.S.S.Kale	Module-III(offline)	1	
	12:30-2:30 pm	Prof.T.S.Shrirame	Detmination of Salinity of soil sample(online)		2
	2:30 -3:00 pm	LUNCH BREAK			
	3:00 - 5:00 pm	Dr.S.R.Patil	Determination of Micronutrients content of soil sample(Online)		2
04-05-2022	11:30-12:30 pm	Prof.T.S.Shrirame	Module-IV(Online)	1	
	12:30-2:30 pm	Prof.S.L.Kumbhare	Determination of electrical conductivity of soil sample(Offline)		2
	2:30 -3:00 pm	LUNCH BREAK			
	3:00 - 5:00 pm	Prof.S.S.Kale	Detmination of PH of water sample using PH meter(Offline)		2
05-05-2022	12:00-1:00 pm	Dr.G.D.Thorat	Module-I(Offline)	1	
	1:00-3:00 pm	Prof.S.V.Dautpure	Determination of COD and BOD of Water Sample(Online)		2
	3:00-3:30 pm	LUNCH BREAK			
	3:30 - 5:30 pm	Prof.S.S.Kale	Detmination of alkalinity of water sample(Offline)		2
06-05-2022	12:00-1:00 pm	Prof.S.L.Kumbhare	Module-II(Online)	1	
	1:00-2:00 pm	Dr.S.R.Patil	module-V(Offline)	1	
	2:00-3:00 pm	Dr.G.D.Thorat	Module -I(Offline)	1	
	2:30 -3:00 pm	LUNCH BREAK			
	3:30 - 5:30 pm	Prof.S.S.Kale	Detmination of electrical conductivity of water sample(Offline)		2
07-05-2022	11:30-12:30 pm	S.V.Dautpure	Module-V Soil Analysis(Online)	1	
	12:30-2:30 pm	Prof.T.S.Shrirame	Determination of nutrient content(NPK) of soil sample(Online)		2
	2:30 -3:00 pm	LUNCH BREAK			
	3:00 - 5:00 pm	Prof.S.L.Kumbhare	Detmination of PH of Soil Sample by using PH Meter(Offline)		2
	5:00 PM	Valedictory Function and Certificate Distribution			
			Total-30 Hrs.	10	20
<div> <div>Course Co-ordinator Prof.S.V.Dautpure</div> <div>HOD Prof.S.L.Kumbhare</div> <div>Principal Dr.O.S.Deshmukh</div> </div>					

Online Registration form for Certificate course on Soil and water Analysis-2022						
Date and Time	Email of Participants	Name of Student	Name of College	Affiliated University	Class	Mobile Number (WhatsApp)
2022/04/30 5:12:04 PM GMT+5:30	mangulkarmehga9@gmail.com	Megha Vishnu Mangulkar	Shri Shivaji science and art collage chikhli dist Buldhana	Sant Gadge Baba Amravati university	Bsc 2 nd year	7020421458
2022/04/30 5:13:13 PM GMT+5:30	rohinak949@gmail.com	Roheena parvin firoz khan	Shri. Shivaji Science & Art's College Chikhli	Sant Gadge Baba Amravati university	Bsc-1st year (sem-2)	7499262097
2022/04/30 5:15:01 PM GMT+5:30	radhikadasture@gmail.com	Radhika Milind Dasture	Shree Shivaji Science And Art's College Chikhli	Amravati University	B.Sc. II year	8550987971
2022/04/30 5:17:18 PM GMT+5:30	dipikagaikwad2003@gmail.com	Dipika Sanjay Gaikwad	Shri Shivaji Science and Art College Chikhli	Sant Gadge Baba Amravati University, Amravati	B. Sc. Year	9359060261
2022/04/30 5:19:39 PM GMT+5:30	gaytrihoge111@gmail.com	Ku. Gayatri Raju Hoge.	Shri Shivaji Science and Art's College, Chikhali	Amaravati	B.Sc 3rd year	9373096413
2022/04/30 5:26:57 PM GMT+5:30	punamthutte@gmail.com	Punam ashok thutte	Shree shivaji science and aart college chikhali	Amravati	Bsc 1st year	8767293841
2022/04/30 5:34:14 PM GMT+5:30	gauripoojachavare04092003@gmail.com	Gauripooja Sanjay Chavare	Shri. Shivaji Sci & Arts College Chikhali.	Sant Gadge Baba Amravati University	B.Sc I	9665453854
2022/04/30 6:21:37 PM GMT+5:30	sakshianwani1811@gmail.com	Sakshi Manoj Anwani	Shri shivaji science and arts college chikhli	Sant Gadgebaba amravati university	Bsc1styear(bio)	8237994114
2022/04/30 6:22:17 PM GMT+5:30	nidhisonune2810@gmail.com	Nidhi Dilip Sonune	Shri.Shivaji science & arts college chikhli	Sant Gadge baba Amravati University	Bsc 1	7822990078
2022/04/30 6:30:33 PM GMT+5:30	bhagwankawale001@gmail.com	Bhagwan Uddhav Kawale	Shri Shivaji Science and Arts College Chikhli	Sant Gadge Baba University Amaravati	B sc first year Bio sem-2	8265067889
2022/04/30 6:43:00 PM GMT+5:30	nivedijaybhay@gmail.com	Nivedi Madhukar Jaybhay	Shri shivaji science and arts college chikhli	Sant gadge Baba Amravati University	BSC first year	7248953344
2022/04/30 6:46:29 PM GMT+5:30	nivedijaybhay@gmail.com	Nivedi Madhukar Jaybhay	Shri shivaji science and arts college chikhli	Sant gadge Baba Amravati University	Bsc 1st year	7248953344
2022/04/30 6:52:52 PM GMT+5:30	srushtishelke26@gmail.com	Srushti Dilip Shelke	Shri Shivaji Science and Arts College Chikhli.	Sant Gadge Baba Amravati University, Amravati.	B.Sc 2nd year	9921264312
2022/04/30 6:59:47 PM GMT+5:30	ruchashelke0924@gmail.com	Rucha dnyaneshwar shelke	Shri shivaji arts and science college chikhli	Amaravati	Bsc 3rd year sem 6	9767192991
2022/04/30 7:21:27 PM GMT+5:30	vaishnaviatole604@gmail.com	Vaishnavi Shivdas Atole	Shree Shivaji art and science college, chikhli	Amravati	Bsc 1year	8793166737
2022/04/30 7:32:23 PM GMT+5:30	tabbussummaseera@gmail.com	Masira Tabassum Sayyad Salim	Shri shivaji science and arts college, chikhli	Sant gadge baba Amravti University	B.Sc 2nd year	8624890174
2022/04/30 8:38:55 PM GMT+5:30	rahulparaskar2001@gmail.com	Rahul Dipak Paraskar	Shri Shivaji Science and Arts collage chikhali	Amravati	Bsc 2	9689196295
2022/04/30 8:43:30 PM GMT+5:30	prernakarwande5@gmail.com	Prerna Vitthal Karwande	Shri Shivay Science and Art College Chikhali	Sant Gadge Baba University, Amravati	B Sc II year	9960581650
2022/04/30 8:45:20 PM GMT+5:30	gauribholane02@gmail.com	Gauri Rajendra Bholane	Shri Shivaji Science and Arts College Chikhli	Sant Gadge Baba Amravati University	B.Sc. 2nd Year	9096867495
2022/04/30 8:46:23 PM GMT+5:30	prernakarwande5@gmail.com	Prerna Vitthal Karwande	Shri Shivaji Science and Art College Chikhali	Sant Gadge Baba University Amravati	B.Sc II year	9960581650
2022/04/30 8:47:00 PM GMT+5:30	gauribholane02@gmail.com	Gauri Rajendra Bholane	Shri Shivaji Science and Arts College Chikhli	Sant Gadge Baba Amravati University	B.Sc. 2nd Year	9096867495
2022/04/30 8:47:34 PM GMT+5:30	payaldeshmane09@gmail.com	Payal sanjay deshmane	Shri Shivaji science and arts college chikhli	.	Bsc2 year	8261811520
2022/04/30 8:48:20 PM GMT+5:30	misalshubhangi2002@gmail.com	Shubhangi shivaji Misal	Shri shivaji science and art college of chikhali	Amravati	Bsc 2nd year (Bio)	8381025023
2022/04/30 8:48:29 PM GMT+5:30	lr502182@gmail.com	Lakhan Rathod	Shri shivaji science and arts college chikhli	Amaravati	B. Sc 1	9579235517
2022/04/30 8:57:05 PM GMT+5:30	archanapadghan22@gmail.com	Archana Sanjay Padghan	Shri Shivaji Science And arts college Chikhli	Amravati	BSC Second year	9579901964
2022/04/30 9:00:30 PM GMT+5:30	vrushalisolanke8308@gmail.com	Vrushali Ramesh solanke	Shree Shivaji science and Art's college chikhli	Sant gadget baba University amravati	BSC 2year	8308006356
2022/04/30 9:41:44 PM GMT+5:30	rutujavdalal@gmail.com	Ku. Rutuja Vijay Dalal	Shri Shivaji Science and Arts College Chikhali	Amravati	B.Sc. 2 nd year	9156676094
2022/04/30 9:55:46 PM GMT+5:30	hinakausarkhan02@gmail.com	Hina Kausar Rauf Khan	Shri Shivaji Science and arts college, chikhli	Amravati	BSC 2nd year	9325788387
2022/04/30 10:48:04 PM GMT+5:30	abhaynikhadelonar@gmail.com	Abhay kailas Nikhade	Shri Shivaji science and art senior college chikhali	Amravati	B.sc 2nd year	9373730740
2022/04/30 10:50:54 PM GMT+5:30	abhaynikhadelonar@gmail.com	Abhay kailas Nikhade	Shri Shivaji science and art senior college chikhali	Amravati	B.sc 2nd year	9373730740
2022/04/30 11:10:13 PM GMT+5:30	bhushanvkale2002@gmail.com	Bhushan Vinayak Kale	Shri shivaji science and arts college chikhli Dist-Buldana	Sant Gadge Baba Amravati University	B.Sc.- II (sem- IV)	8485092699
2022/05/01 9:32:05 AM GMT+5:30	atulshe002@gmail.com	Atul Nandrao Shedge	Shree Shivaji Science And Art College Chikhali	Amravati	B sc 1st	9373389957
2022/05/01 5:58:53 PM GMT+5:30	divya.belokar05@gmail.com	divya pravin belokar	shivji shivaji science and arts college chikhli	amravat i	bsc 2year sem 4	8010899561
2022/05/01 6:50:33 PM GMT+5:30	sanjanaarakh@gmail.com	Sanjana Sanjeev Arakh	Shri Shivaji Science & Arts College Chikhli	Shri Shivaji Science & Arts College Chikhli	BSC 1st year	7057767433
2022/05/01 9:33:38 PM GMT+5:30	priyankabhutekar95@gmail.com	Priyanka shrikrushna bhutekar	Shri Shivaji arts and science college chikhali	Amravati	Bsc I (math)	9579613695
2022/05/01 9:39:45 PM GMT+5:30	pawarbhagwan90@gmail.com	Rutuja Bhagwan Pawar	Shri Shivaji science and arts college Chikhli	Amravati	B.Sc 1st year	9356602255
2022/05/01 9:39:57 PM GMT+5:30	sakshikarhade9@gmail.com	Sakshi Dattatray Karhade	Shri shivaji Art And Science college chikhli	Sant gadge baba amravati university	B. Sc 1 year	9699400115
2022/05/01 9:47:20 PM GMT+5:30	prachita030103@gmail.com	Prachita pandharinath Suradkar	Shri shivaji science and arts college Chikali dist Buldhana	Sant Gadge Baba university	Bsc microbiology 1st year semester 2nd	8830564779
2022/05/01 9:51:02 PM GMT+5:30	priyankabhutekar95@gmail.com	Priyanka shrikrushna bhutekar	Shri Shivaji arts and science college chikhali	Amravati	Bsc I (math)	9579613695
2022/05/01 9:55:39 PM GMT+5:30	priyankabhutekar95@gmail.com	Priyanka shrikrushna bhutekar	Shri Shivaji arts and science college chikhali	Amravati	Bsc I (math)	9579613694
2022/05/01 9:58:48 PM GMT+5:30	siddhukathole2003@gmail.com	Siddheshwar sanjay kathole	Shri shivaji art and science college, chikhali	SGBAU	B.Sc-1(math)	8262986944
2022/05/01 10:13:34 PM GMT+5:30	tabishshaikh071@gmail.com	Tabish shaikh	Shri shivaji science and art college chikli dist.buldana	Amravati	B.Sc 1 year	7385653857
2022/05/01 10:35:48 PM GMT+5:30	tabishshaikh071@gmail.com	Tabish shaikh	Shri shivaji science and art college chikhli dist.buldana	Amravati	B Sc 1st year	7385653857
2022/05/02 9:32:55 AM GMT+5:30	suradkarsagar00@gmail.com	Sagar dnyaneshwar suradkar	Shri shivaji science and arts collage chikhali	Amravati	Bs.1st Math	8551906939
2022/05/02 9:33:18 AM GMT+5:30	saadmsq7@gmail.com	Mohammad saad shaikh sajid	Shri shivaji college chikhli	Amravati University	BSC 1st year	7350752429
2022/05/02 9:51:28 AM GMT+5:30	pranjalgawai0@gmail.com	Pranjali Sudhakar Gawai	Shri Shivaji science and art college chikhli	Amravati	Bsc math 2 year	9022612732
2022/05/02 10:36:20 AM GMT+5:30	gaikwadashu7999@gmail.com	Ashwini Abhimanyu Gaikwad	Shri. Shivaji Sci & Arts College Chikhali	Sant Gadge Baba Amravati University	Bsc I	9923083512
2022/05/02 10:39:37 AM GMT+5:30	vfolane077@gmail.com	Mohini Vishnu Folane	Shri Shivaji Sci & Arts College Chikhli	Sant Gadge Baba Amravati University	Bsc I	9922042732
2022/05/02 10:48:39 AM GMT+5:30	997970861schavan2003@gmail.com	Sujit raju chavan	Shri shivaji science and art college chikhli	Amravati	Bsc I year	9970970861
2022/05/02 10:54:10 AM GMT+5:30	dhundale031002@gmail.com	Vaishnavi Sunil Dhundale	Shri shivaji science and art college . Chikhali	Amravati	B.Sc 1st year	9146833123
2022/05/02 10:55:46 AM GMT+5:30	pranalirindhe1609@gmail.com	Pranali pramod Rindhe	Shri Shivaji science and art collage. Chikhali	Amravati	B.Sc 1 year	8669794360
2022/05/02 10:56:53 AM GMT+5:30	truptinikas@gmail.com	Trupti keshav nikas	Shri shivaji science and art college chikhali	Aamravati	B. Sc 1 yr	9529456026
2022/05/02 10:57:42 AM GMT+5:30	dhundale031002@gmail.com	Vaishnavi Sunil Dhundale	Shri shivaji science and art college . Chikhali	Amravati	B.Sc	9146833123
2022/05/02 10:59:24 AM GMT+5:30	kiranpangole03@gmail.com	Kiran vijay pangole	Shree Shivaji arts and science College chikhali	Sant Gadgebaba Amravati University	Bsc I	7498484812
2022/05/02 10:59:28 AM GMT+5:30	suradkarsagar00@gmail.com	Sagar dnyaneshwar suradkar	Shri shivaji science and arts collage chikhali	Amravati	Bs.1st math	8551906939
2022/05/02 10:59:32 AM GMT+5:30	9970970861schavan2003@gmail.com	Sujit raju chavan	Shri shivaji college chikhli	Amravati	Bsc I year	9970970861
2022/05/02 11:00:32 AM GMT+5:30	khandagaletajal5@gmail.com	Tejal Aniruddha Khandagale	Shri shivaji sr. Science &arts college chikhli	Sant gadge baba amravati university	Bsc 1	9322138465
2022/05/02 11:01:06 AM GMT+5:30	priyankabhutekar95@gmail.com	Priyanka shrikrushna bhutekar	Shri Shivaji science and arat college chikhali	Amravati	Bsc I math	9579366195
2022/05/02 11:01:16 AM GMT+5:30	sakshikarhade9@gmail.com	Sakshi Dattatray karhade	Shri shivaji Art And Science college chikhli	Sant gadge baba Amravati university	B.Sc 1 year	9699400115

2022/05/02 11:03:35 AM GMT+5:30	bhagyashripshinde17@gmail.com	Bhagyashri pradip shinde	Shri shivaji science and Arts College chikhli	Aamravti	B.sc 1yr	8767427279
2022/05/02 11:06:18 AM GMT+5:30	udaykale987@gmail.com	Uday shivaji kale	Shri shivaji science and arts college chikhli	Amravati	Bsc 2 year	9881632658
2022/05/02 11:06:19 AM GMT+5:30	bhagyashripshinde17@gmail.com	Bhagyashri pradip shinde	Shri shivaji science and Arts College chikhli	Aamravti	B.sc 1yr	8767427279
2022/05/02 11:09:29 AM GMT+5:30	gaikwadgopal845@gmail.com	Gopal Vijay Gaikwad	Shri Shivaji science and art college chikhli	Amravati	B.sc 2nd year	9307821583
2022/05/02 11:10:20 AM GMT+5:30	ajaytheng0404@gmail.com	Ajay Gajanan theng	Shri Shivaji sci and art college	Amravati	Bsc 1 2nd sem	7058409913
2022/05/02 11:13:36 AM GMT+5:30	akshayparihar4359@gmail.com	Akshay Gajanan Parihar	Shri Shivaji sci & art college Chikhali	Amravati	B.SC 1 St year 2 nd sem	9322148913
2022/05/02 11:38:53 AM GMT+5:30	jadhaosandhaya7@gmail.com	Shravani Gajanan Jadhao	Shri shivaji science and arts college chikhli	Sant gadgebaba amravati, Amravati	B.Sc 2nd sem 4th	8999820305
2022/05/02 11:52:20 AM GMT+5:30	pawarbhagwan90@gmail.com	Rutuja Bhagwan Pawar	Shri Shivaji science and arts college Chikhli	Aamravti	B.Sc.1st year	9356602255
2022/05/02 11:54:15 AM GMT+5:30	pawarbhagwan90@gmail.com	Rutuja Bhagwan Pawar	Shri Shivaji science and arts college Chikhli	Amaravati	B.Sc.1st year	9356602255
2022/05/02 11:55:33 AM GMT+5:30	gayatri020103@gmail.com	Gayatri Narayan Deshmukh	Shri Shivaji Science and Arts college, Chikhali.	Sant Gadge Baba Amravati University, Amravati	B.Sc II	8483896696
2022/05/02 11:57:23 AM GMT+5:30	gayatri020103@gmail.com	Gayatri Narayan Deshmukh	Shri Shivaji Science and Arts college, Chikhali.	Sant Gadge Baba Amravati University, Amravati.	B.Sc II	8483896696
2022/05/02 12:19:15 PM GMT+5:30	vaishnavichopade79@gmail.com	Vaishnavi sudhakar chopade	Shri Shivaji science and arts colleges chikhali	Amaravati	Bsc2year	7498235872
2022/05/02 12:46:52 PM GMT+5:30	rutujadeshmukh744@gmail.com	Rutuja Bajirao Deshmukh	Shri Shivaji Science and Arts College, Chikhli	Sant Gadge Baba Amravati University	BSc-III (semVI)	7448003052
2022/05/02 12:50:55 PM GMT+5:30	kanchantambekar2001@gmail.com	Kanchan Kailas Tambekar	Shri Shivaji Arts and science College chikhli	Sant gadage baba amravati University	Bsc 3 rd year	8080194320
2022/05/02 12:52:56 PM GMT+5:30	sakshi98chavan@gmail.com	Sakshi sunil chavan	Shri shivaji science and arts college chikhli	Sant Gadgebaba Amravati University	Bsc III year	9623913201
2022/05/02 12:55:33 PM GMT+5:30	adideshmukh2002@gmail.com	Aditya Deshmukh	Shree shivaji science and art college	Amravati	Bsc 1st year	7559367667
2022/05/02 12:57:12 PM GMT+5:30	anuragkhawle0@gmail.com	Prathamesh Pradip Joshi	Shri Shivaji Science and commerce college Chikhli	Amravati	Bsc1st year	9922170828
2022/05/02 12:59:02 PM GMT+5:30	kharatkartik88@gmail.com	Kartik sanjay kharat	Shri shivaji senior college chikhali	Sant gadge Baba University amravti	Bsc 1 sem2	8668819618
2022/05/02 12:59:22 PM GMT+5:30	adideshmukh2002@gmail.com	Aditya Deshmukh	Shree shivaji science and art college	Amravati	Bsc 1st year	7559367667
2022/05/02 1:04:52 PM GMT+5:30	poojatodekar2002@gmail.com	Ku . Pooja Mahadev Todekar	Shri Shivaji science and arts college chikhli	Amravati University	B.Sc. II nd year (sem IV)	8208883875
2022/05/02 1:08:02 PM GMT+5:30	shhbmangle939@gmail.com	Shubham Wamanrao Ingle	Shri Shivaji Science &Art's College, Chikhali	Santa Gadge Baba university Amravati	Bsc II (Sem IV)	9960644201
2022/05/02 1:09:47 PM GMT+5:30	fulzadevijaya830@gmail.com	Vijaya Santosh Fulzade	Shri shivaji Science And Arts College Chikhali dist buldhana	Sant .Gadage baba Amravati University	Bsc 2nd	7841098984
2022/05/02 1:11:55 PM GMT+5:30	punamsolanki260602@gmail.com	Punam Jagannath Solanki	Shri Shivaji Science And Art's College Chikhli	Amravati	Bsc 2nd Year	9370204256
2022/05/02 1:15:55 PM GMT+5:30	jadhaosandhaya7@gmail.com	Shravani Gajanan Jadhao	Shri shivaji science and arts college chikhli	Sant gadgebaba amravati University , Amravati	B.sc 2 nd sem 4th	8999820305
2022/05/02 1:34:09 PM GMT+5:30	dholeswati410@gmail.com	Swati dilip dhole	Shri shivaji science & arts college chikhli	Sant Gaadghe baba amravati university	Bsc 1st year bio	7720083559
2022/05/02 2:29:43 PM GMT+5:30	pridevkar093@gmail.com	Priti Gajanan Deshmukh a	Shri shivaji art and science college chikhli	Sant gadge baba amravati university	B. Sc 1 yer	9921655075
2022/05/02 4:29:05 PM GMT+5:30	dishaparihar097@gmail.com	Disha Sadashiv parihar	Shri shivaji science and arts college	Santgadage baba university amravati	BSc 1st	7038493382
2022/05/02 7:37:16 PM GMT+5:30	waghmareshubham386@gmail.com	Shubham manoj waghmare	Shri Shivaji Science & Arts College, Chikhli, Dist. Buldana	Amravati's	B.SC 1 sem 2	7666856016
2022/05/02 8:56:54 PM GMT+5:30	ramkrushnaambhore7@gmail.com	Shivani Ramkrushna Ambhore	Shri shivaji Arts and Science college chikhli	Sant gadge baba university amravati	Bsc 1 year	9921941908
2022/05/04 10:47:58 AM GMT+5:30	punamthutte@gmail.com	Punam ashok thutte	Shree shivaji science and aart college chikhali	Amravati	Bsc 1st year	8767293841
2022/05/05 12:47:31 PM GMT+5:30	pankajdhavale2222@gmail.com	Pankaj Ganesh Dhavale	Shri shivaji science and art collage chikhli	Amaravati	Bsc 1	9970174921
2022/05/05 12:48:03 PM GMT+5:30	ganeshbhalekar900@gmail.com	Ganesh Samadhan Bhalekar	Shri shivaji vidyalay	Amravati	Bsc.1st yr	9359195942
2022/05/06 12:03:57 PM GMT+5:30	fulzadevijaya830@gmail.com	Vijaya Santosh Fulzade	Shri Shivaji Science and Arts College Chikhli	Sant Gadge Baba Amravati University	B.Sc. 2nd Year	7841098984
2022/05/06 12:08:14 PM GMT+5:30	didolkarvaishnavi1709@gmail.com	Vaishnavi Dhananjay Didolkar	Shri Shivaji science and arts college Chikhli	Sant Gadge Baba Amravati University	Bsc II (Bio)	8421702388
2022/05/06 12:11:03 PM GMT+5:30	aishuraut2000@gmail.com	Aishwarya Rameshwar Raut	Shri Shivaji Science Art's college chikhli	Sant gadge baba Amravati University	Bsc 2 yr	7666459362
2022/05/06 12:14:02 PM GMT+5:30	gauribholane02@gmail.com	Gauri Rajendra Bholane	Shri Shivaji Science and Arts College Chikhli	Sant Gadge Baba Amravati University	B.Sc. 2nd Year	9096867495
2022/05/07 5:22:49 AM GMT+5:30	pankajdhavale2222@gmail.com	Pankaj Ganesh Dhavale	Shri shivaji science and art collage chikhli	Amaravati	Bsc 1	9970174921
2022/05/07 12:42:16 PM GMT+5:30	pawarbhagwan90@gmail.com	Rutuja Bhagwan Pawar	Shri Shivaji science and arts college Chikhli	Amaravati	B.Sc.1st year	9356602255
2022/05/09 10:34:02 AM GMT+5:30	rutujavdalal@gmail.com	Rutuja Vijay Dalal	Shri Shivaji Science and Arts College Chikhali	Amravati	B Sc.2nd year	9156676094
2022/05/09 10:46:14 AM GMT+5:30	payaldeshmane09@gmail.com	Payal sanjay deshmane	Shri shivaji college chikhli	.	Bsc 2 year bio 4 sem	8261181520
2022/05/09 11:22:44 AM GMT+5:30	amrutak267@gmail.com	Amruta Ananta Khondkar	Shri shivaji Science & Arts college, chikhli	Amravati	B. Sc. 1st year	9175546270

Shri. Shivaji Education Society Amravati's
SHRI.SHIVAJI SCIENCE & ARTS COLLEGE, CHIKHLI.
Online Certificate Course on

Soil and Water Analysis

Determination of Potability of Water, TDS, COD and BOD of Water Sample

By

PROF. SANDIP V. DAUTPURE



CONTENTS

Water Testing Parameter

- ❖ **Water quality parameters
and drinking water standards**
- ❖ **Total Dissolved Solids (TDS)**
- ❖ **Total and Fecal Coliform Bacteria**
- ❖ **Reverse Osmosis**

Environmental Water Pollution Parameter

- ❖ **Biochemical oxygen demand (BOD)**
- ❖ **Chemical oxygen demand (COD)**

WATER QUALITY PARAMETERS

- ▶ Physical parameters
- ▶ Chemical
- ▶ Biological

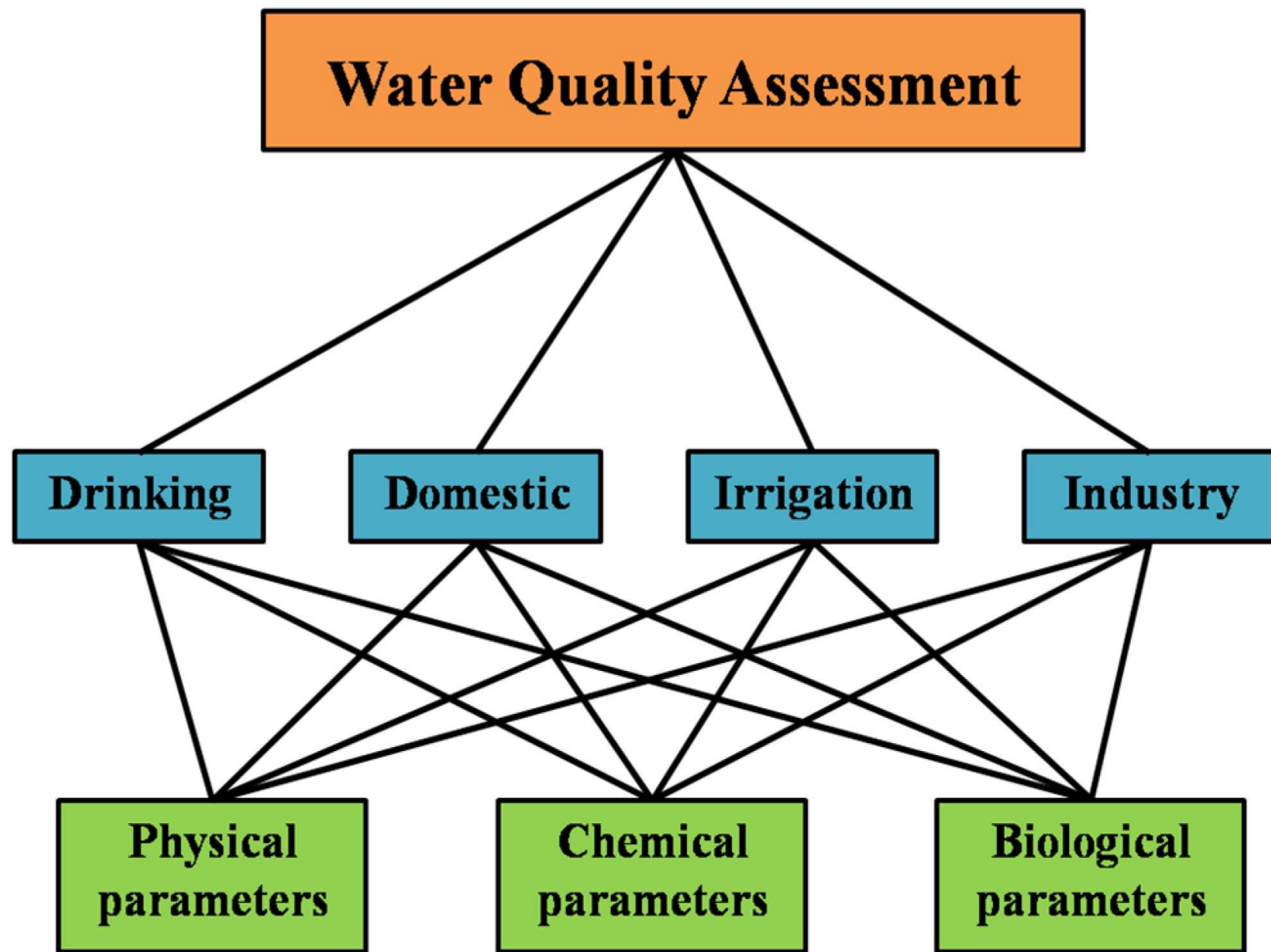
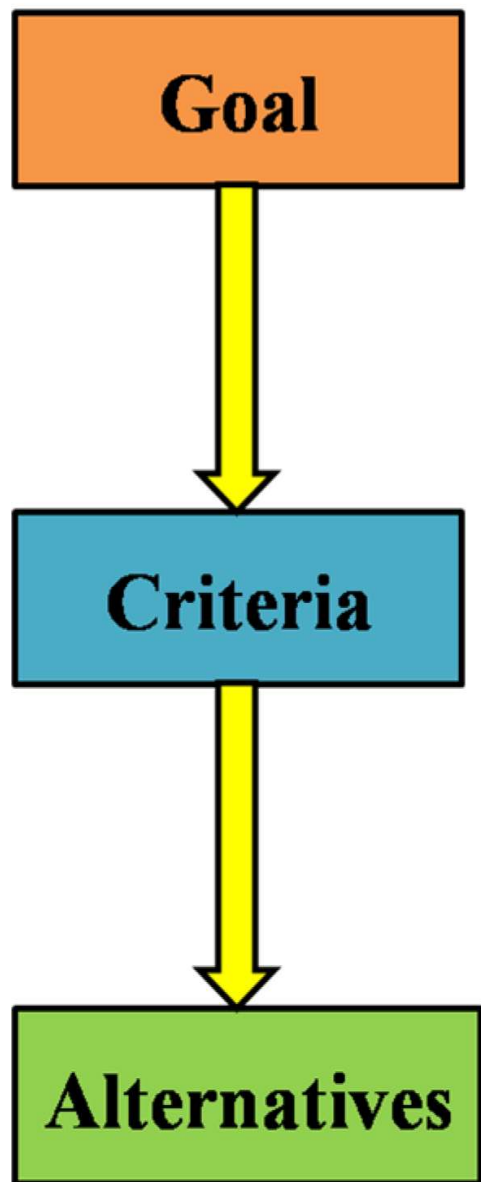


WATER QUALITY STANDARD

Indian Standard
Drinking Water - Specification
IS 10500 : 1991

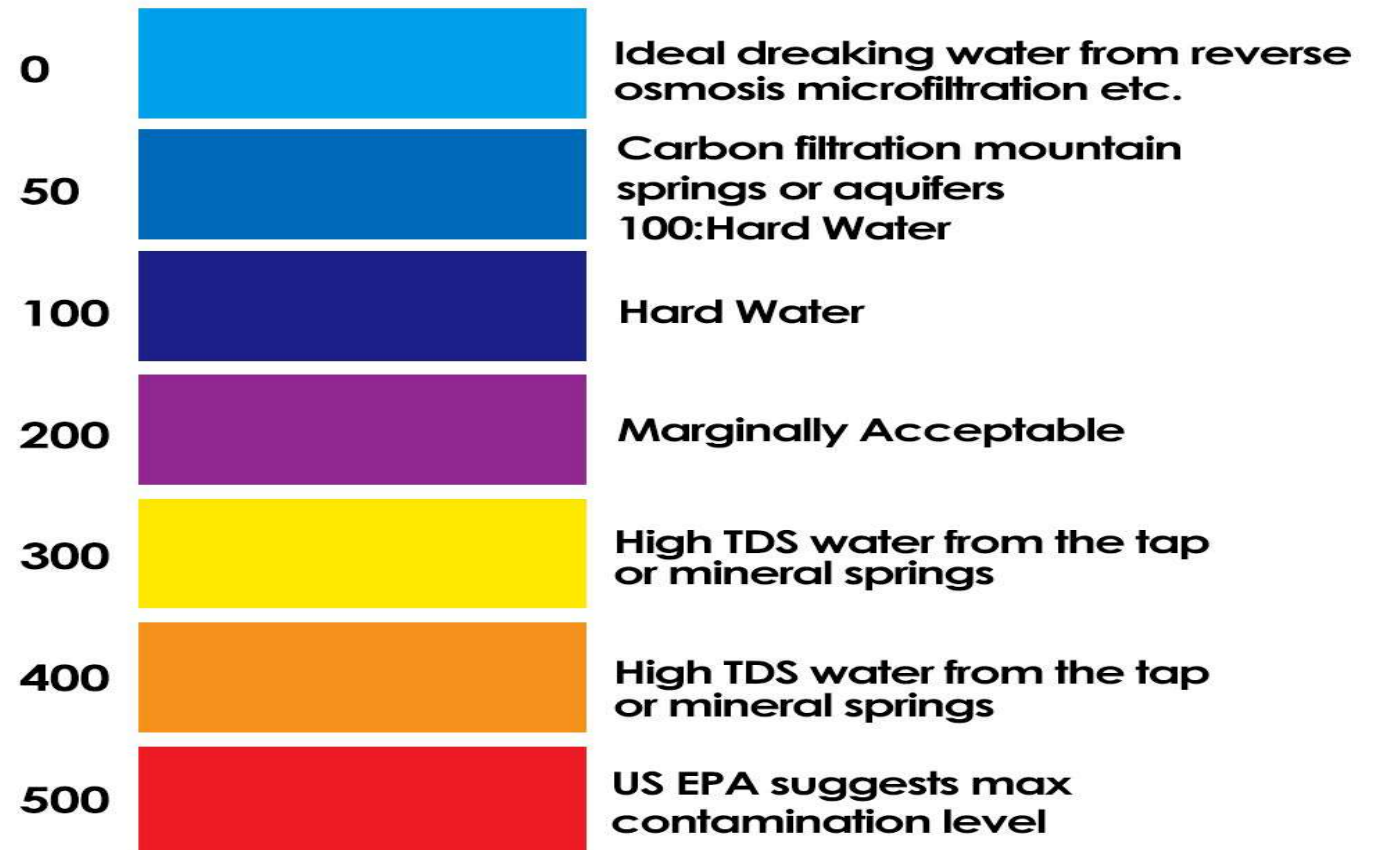


Test parameters	Acceptable limits*	Permissible limits*
Colour, Maximum Hazen units	5	15
Odour	Agreeable	Agreeable
pH value	6.5 – 8.5 Low pH: corrosion, metallic taste High pH: plain/bitter taste	No relaxation
Maximum total dissolved solids (TDS)	500 (mg/l)	2000(mg/l)
Taste	Agreeable	Agreeable
Turbidity	1	5



TDS IN PPM

Total Dissolved Solids in Parts Per Million



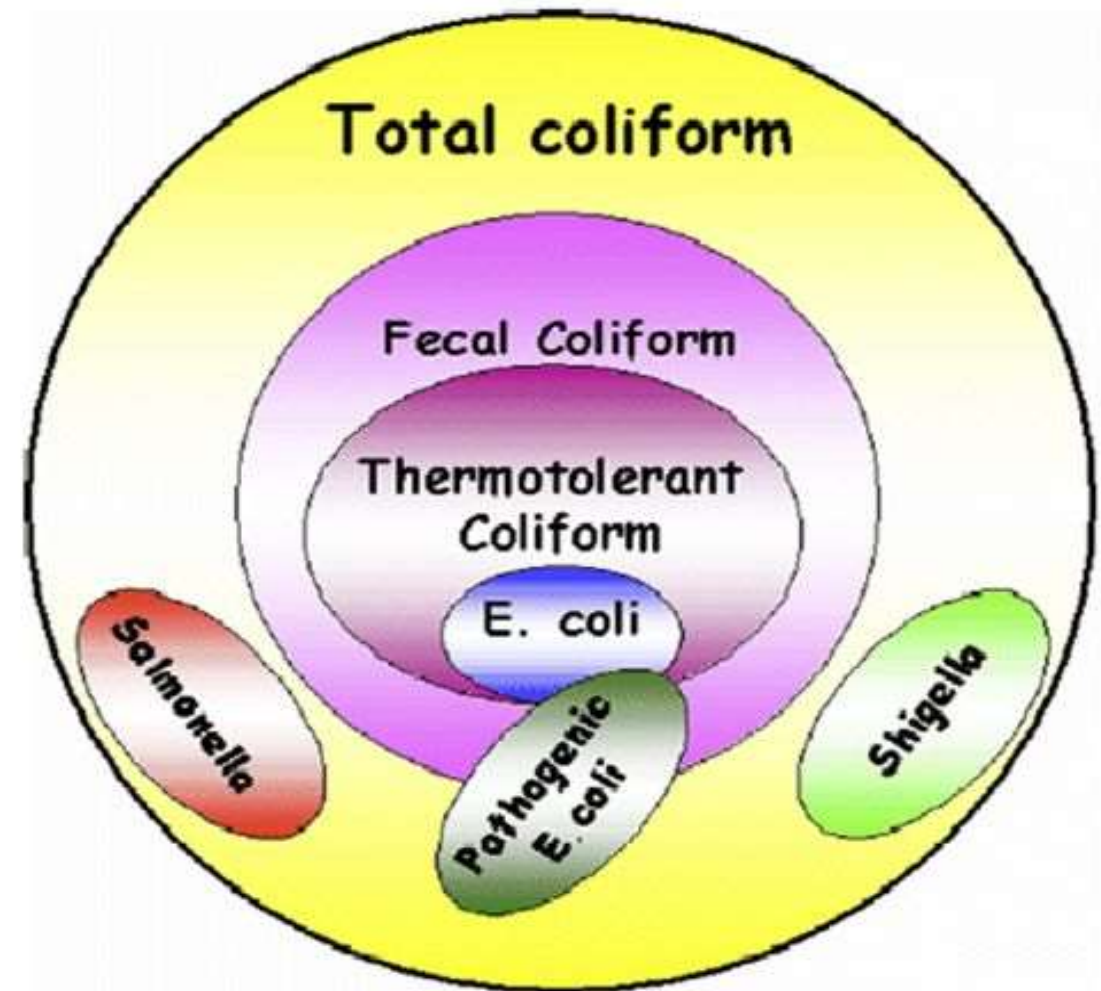
DIGITAL TDS METER

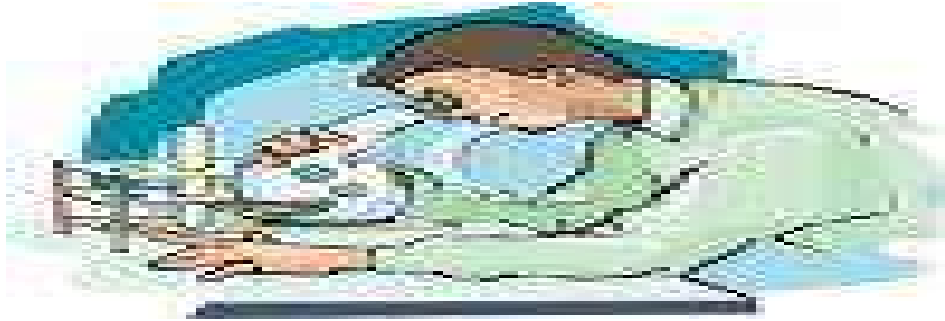




Fecal Coliform Bacteria

- are a sub-group of total coliform bacteria
- appear in great quantities in the intestines and feces of people and animals
- fecal coliform in a drinking water sample means that there is a **greater risk that other dangerous pathogens are present**



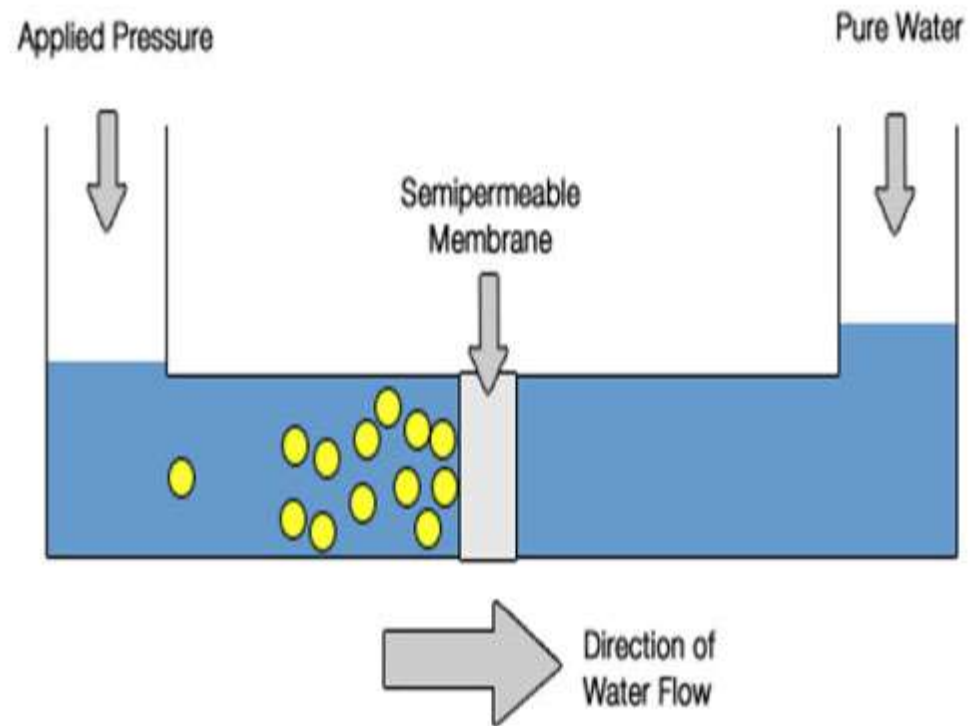


❖ **Swimming in waters with high levels of fecal coliform bacteria increases the chance of developing illness like fever, nausea or stomach cramps from pathogens entering the body through the mouth, nose, ears, or cuts in the skin**

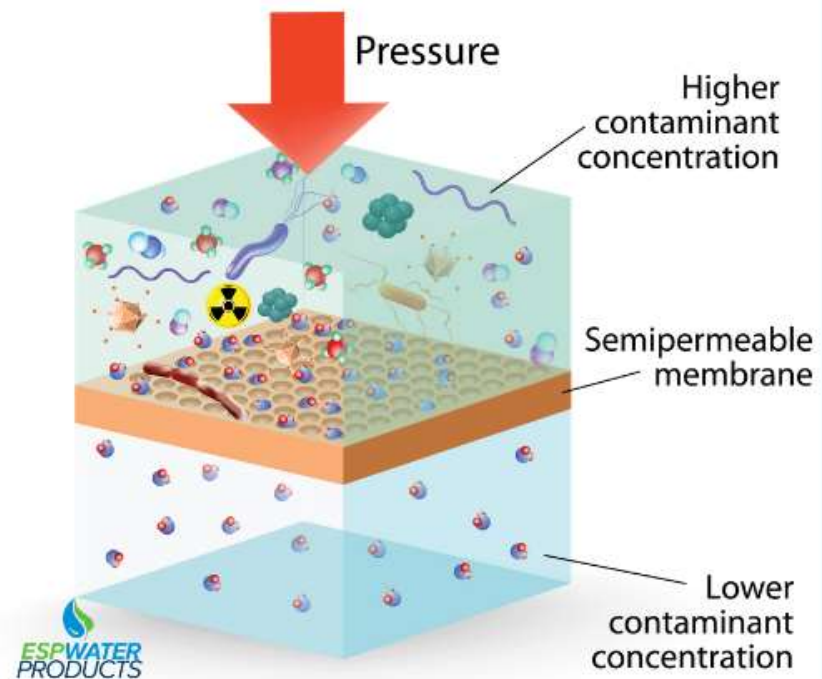
❖ **Fecal coliform, like other bacteria, can usually be killed by boiling water or by treating it with chlorine. Washing thoroughly with soap after contact with contaminated water can also help prevent infections**

❖ **Diseases and illnesses that can be contracted in water with high fecal coliform counts include typhoid fever, hepatitis, gastroenteritis, dysentery and ear infections.**

Reverse Osmosis



REVERSE OSMOSIS





POTABLE WATER



BIOCHEMICAL OXYGEN DEMAND(BOD)


The biochemical oxygen demand (BOD) represents the amount of dissolved oxygen (DO) consumed by biological organisms when they decompose organic matter in water

The biochemical oxygen demand (BOD) is also called biological oxygen demand

The BOD is a pollution parameter mainly to assess the quality of effluent or wastewater.

A BOD level of **1-2 ppm** is considered very good. There will not be much organic waste present in the water supply.


A water supply with a BOD level of 3-5 ppm is considered moderately clean.



Biological oxygen demand directly affects the amount of dissolved oxygen in rivers and streams. The rate of oxygen consumption is affected by a number of variables: temperature, pH, the presence of certain kinds of microorganisms, and the type of organic and inorganic material in the water.

The greater the value, the more rapidly oxygen is depleted in the stream. This means less oxygen is available to higher forms of aquatic life. The consequences of high BOD are the same as those for low dissolved oxygen: aquatic organisms become stressed, suffocate, and die.

Sources of biochemical oxygen demand include topsoil, leaves and woody debris; animal manure; effluents from pulp and paper mills, wastewater treatment plants, feedlots, and food-processing plants; failing septic systems; and urban stormwater runoff.



Biological oxygen demand is affected by the same factors that affect dissolved oxygen. Measuring biochemical oxygen demand requires taking two measurements. One is measured immediately for dissolved oxygen (initial), and the second is incubated in the lab for 5 days and then tested for the amount of dissolved oxygen remaining (final). This represents the amount of oxygen consumed by microorganisms to break down the organic matter present in the sample during the incubation period

BIOLOGICAL OXYGEN DEMAND MEASURING INSTRUMENT





The Winkler Method with Azide Modification

Reaction Involved

- $\text{MnSO}_4 + 2\text{KOH} \longrightarrow \text{Mn(OH)}_2 + \text{K}_2\text{SO}_4$ (white ppt)
- $\text{Mn(OH)}_2 + \text{O}_2 \longrightarrow 2 \text{MnO(OH)}_2$ (Brown ppt)
- $\text{MnO(OH)}_2 + 2\text{H}_2(\text{SO}_4)_2 + 3\text{H}_2\text{O} + 2\text{KI} \longrightarrow \text{MnSO}_4 + \text{K}_2\text{SO}_4 + \text{I}_2$
- $2\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O} + \text{I}_2 \longrightarrow \text{Na}_2\text{S}_4\text{O}_6 + 2\text{NaI} + 10\text{H}_2\text{O}$
- $2\text{NaN}_3 + \text{H}_2\text{SO}_4 \longrightarrow 2\text{HN}_3 + \text{Na}_2\text{SO}_4$



The Winkler Method with Azide Modification

Apparatus and equipment

- BOD bottles, capacity **300 mL**
- Sampling device for **collection** of samples

Reagents

- Manganese sulphate
- Alkali iodide-azide reagent
 - ♦ $10\text{g NaN}_3 + 500\text{mL distilled water} + 480\text{g NaOH} + 750\text{g NaI}$



7:34 / 39:32



CHEMICAL OXYGEN DEMAND

The chemical oxygen demand (COD) determines **the amount of oxygen required for chemical oxidation of organic matter** using a strong chemical oxidant, such as, potassium dichromate under reflux conditions. ... The amount of dichromate consumed is proportional to the oxygen required to oxidize the oxidizable organic matter

In environmental chemistry, the chemical oxygen demand is an indicative measure of the amount of oxygen that can be consumed by reactions in a measured solution.

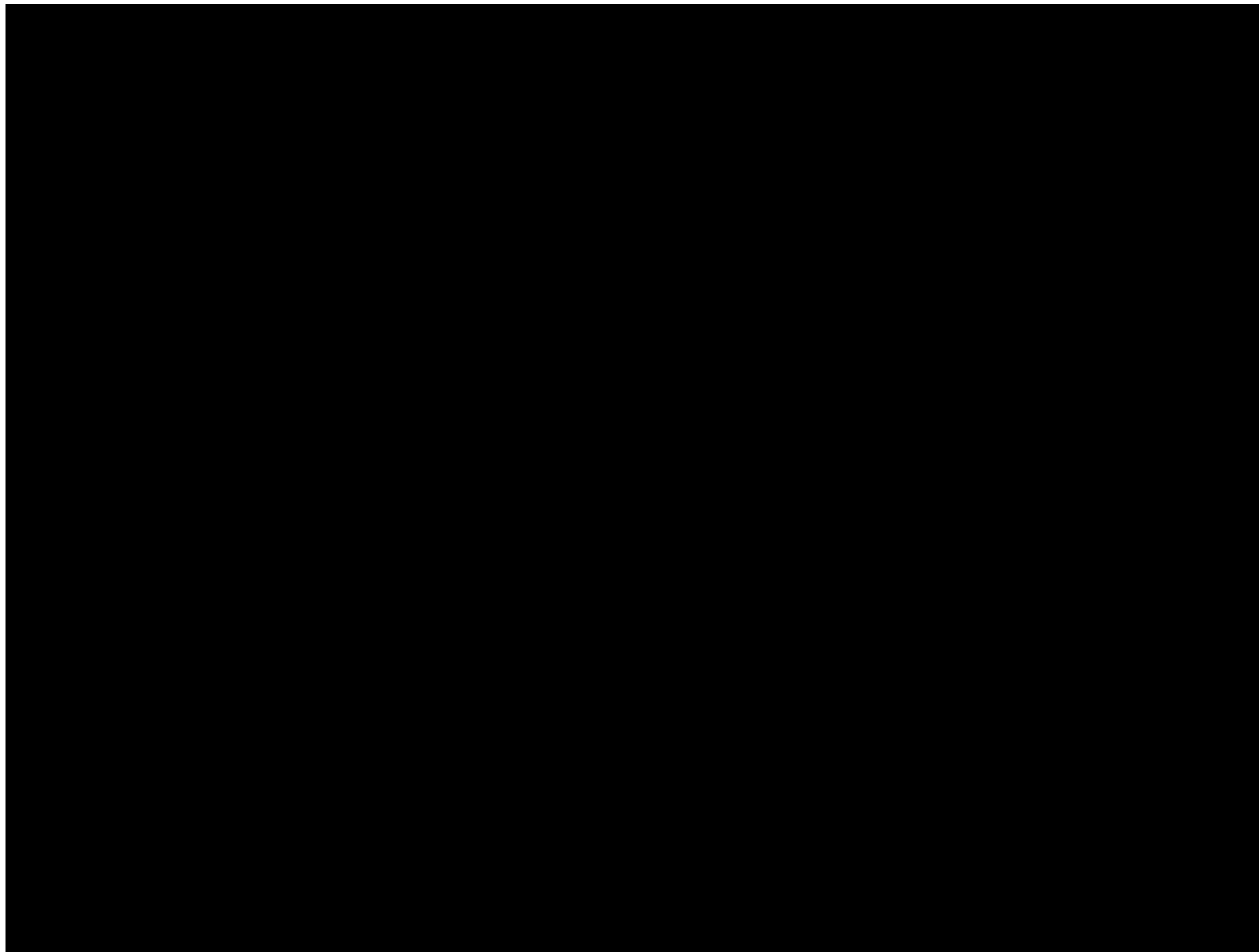
It is commonly expressed in mass of oxygen consumed over volume of solution which in SI units is milligrams per litre.

A COD test can be used to easily quantify the amount of organics in water.

The most common application of COD is in quantifying the amount of oxidizable pollutants found in surface water (e.g. lakes and rivers) or wastewater.

COD is useful in terms of water quality by providing a metric to determine the effect an effluent will have on the receiving body, much like biochemical oxygen demand (BOD).

BOD DETERMINATION METHOD





THANKS !!!
HAVE A NICE DAY



॥ ज्ञानम् परम् ध्येयम् ॥

Shri. Shivaji Education Society, Amravati's

**Shri. Shivaji Science and Arts College,
Chikhli, Dist.Buldana.**



DEPARTMENT OF CHEMISTRY

CERTIFICATE

This certificate is awarded to

In recognition of the successful completion and passing online Certificate course in Soil and Water Analysis organized by department of Chemistry, Shri.Shivaji Science and Arts College, Chikhli on 8/5/2022.

Prof..S.V.Dautpure
Organizing Secretary

Prof. S.L.Kumbhare
HOD of Chemistry

Prof.Dr. V. U. Pochhi
IQAC Co-ordinator

Dr.D.S.Deshmukh
Principal

Result Sheet on Online Certificate Course on Soil and Water Analysis-2022

Sr.No.	Date and Time	Name of Student	Name of College	Class	Total score
1	2022/05/09 10:25:33 AM GMT+5:30	Varsha Dnyaneshwar Bansode	Shri shivaji science and Art's college, chikhali	Bsc 3 yrs	42.00 / 80
2	2022/05/09 10:25:37 AM GMT+5:30	Punam Jagannath Solanki	Shri Shivaji Science And Art's College Chikhli	B.sc 2nd year	26.00 / 80
3	2022/05/09 10:27:13 AM GMT+5:30	Sonam shrikrushna parihar	Shri shivaji science and art collage chikhli	Bsc. 2 year	26.00 / 80
4	2022/05/09 10:27:25 AM GMT+5:30	Vilas bhagwan bhosale	Shri Shivaji Art and Science College, Chikhali	Bs.c 2 nd year	26.00 / 80
5	2022/05/09 10:28:12 AM GMT+5:30	Shravani Gajanan Jadhao	Shri shivaji science and arts college , chikhli	B.Sc II nd (sem IVth)	60.00 / 80
6	2022/05/09 10:34:57 AM GMT+5:30	Trupti keshav nikas	Shri shivaji science and art college chikhali	B. Sc 1yr	24.00 / 80
7	2022/05/09 10:34:58 AM GMT+5:30	Bhagyashri pradip shinde	Shari shivaji science and Arts College chikhli	B.sc1st years	28.00 / 80
8	2022/05/09 10:35:03 AM GMT+5:30	Pranali pramod Rindhe	Shri Shivaji Arts and science college. Chikhali	B.Sc 1 year	28.00 / 80
9	2022/05/09 10:35:03 AM GMT+5:30	Vaishnavi Sunil Dhundale	Shri shivaji science and art college chikhli	B.SC 1St year	26.00 / 80
10	2022/05/09 10:35:53 AM GMT+5:30	Adnan Saquib Siraj Mohammad Sayyad	Shri Shivaji arts and science college chikhli	Bsc 2nd	36.00 / 80
11	2022/05/09 10:36:49 AM GMT+5:30	Rutuja Bajirao Deshmukh	Shri Shivaji Science and Arts College, Chikhli	BSc-III	70.00 / 80
12	2022/05/09 10:36:59 AM GMT+5:30	Aniket siddheshwar lahane	Shri shivaji science and arts college chikhli	Bsc 2	52.00 / 80
13	2022/05/09 10:37:05 AM GMT+5:30	Sakshi Manoj Anwani	Shri shivaji science and arts college chikhli	B.sc1st year(bio)	60.00 / 80
14	2022/05/09 10:37:09 AM GMT+5:30	Nidhi Dilip Sonune	Shri Shivaji science and Arts college Chikhali	Bsc1	58.00 / 80
15	2022/05/09 10:40:41 AM GMT+5:30	Radhika Milind Dasture	Shree Shivaji Science And Art's College Chikhli	B.Sc.II	56.00 / 80
16	2022/05/09 10:41:08 AM GMT+5:30	Rhutuja Madan Dayaje	Shri shivaji science and art college chikhali	B.Sc. 2nd year	60.00 / 80
17	2022/05/09 10:41:14 AM GMT+5:30	Pranjali Sudhakar Gawai	Shri Shivaji science and art college chikhli	BSc 2 year	58.00 / 80
18	2022/05/09 10:41:54 AM GMT+5:30	Bhushan Vinayak Kale	Shri shivaji science and arts college chikhli Dist-Buldana	B.Sc.-II year (Sem -IV)	56.00 / 80
19	2022/05/09 10:41:55 AM GMT+5:30	Dipika Sanjay Gaikwad	Shri Shivaji Science and Art College Chikhli	B. Sc	56.00 / 80
20	2022/05/09 10:41:59 AM GMT+5:30	Ku. Pooja Mahadev Todekar	Shri Shivaji science and arts college chikhli	B. Sc. II nd year (sem IV)	58.00 / 80
21	2022/05/09 10:42:52 AM GMT+5:30	Rahul Dipak Paraskar	Shri Shivaji Science and Arts collage chikhali	Bsc 2	56.00 / 80
22	2022/05/09 10:43:37 AM GMT+5:30	Swati dilip dhole	Shri shivaji science & arts college chikhli	Bsc 1 st year	42.00 / 80
23	2022/05/09 10:46:26 AM GMT+5:30	Aishwarya Rameshwar Raut	Shri Shivaji Science Art's college chikhli	Bsc 2 yr	46.00 / 80
24	2022/05/09 10:49:17 AM GMT+5:30	Shubham Wamanrao Ingke	Shri Shivaji Science &Arts College, chikhali	Bsc II	52.00 / 80
25	2022/05/09 10:50:11 AM GMT+5:30	Megha Vishnu Mangulkar	Shri Shivaji science and art collage chikhli dist Buldhana	Bsc 2 nd year	52.00 / 80
26	2022/05/09 10:51:20 AM GMT+5:30	Vaishnavi sudhakar chopade	Shri shivaji science and arts colleges chikhli	B.sc 2 year (4 sem)	62.00 / 80
27	2022/05/09 10:52:11 AM GMT+5:30	Gauri Rajendra Bholane	Shri Shivaji Science and Arts College Chikhli	B.Sc. 2nd Year	66.00 / 80
28	2022/05/09 10:52:22 AM GMT+5:30	Abhay kailas Nikhade	Shri Shivaji science and art senior college chikhali	B.sc 2nd year	54.00 / 80
29	2022/05/09 10:52:30 AM GMT+5:30	Shubham Dnyaneshwar chinchole	Shri Shivaji science and art college chikhli	Bsc 2nd year	52.00 / 80
30	2022/05/09 10:53:26 AM GMT+5:30	Uday shivaji kale	Shri shivaji science and arts college, chikhli	Bsc 2 year	54.00 / 80
31	2022/05/09 10:53:44 AM GMT+5:30	Nivedi Madhukar Jaybhay	Shri shivaji science and arts college chikhli	B.sc 1st	54.00 / 80
32	2022/05/09 10:57:51 AM GMT+5:30	Rutuja Vijay Dalal	Shri Shivaji Science and Arts College Chikhali	B.Sc.2bd year	44.00 / 80
33	2022/05/09 10:58:23 AM GMT+5:30	Disha Sadashiv Parihar	Shri shivaji science and Art clg	B.sc 1st	60.00 / 80
34	2022/05/09 11:00:54 AM GMT+5:30	Sanjana Sanjeev Arakh	Shri Shivaji Science & Arts College Chikhli	Bsc 1st year	60.00 / 80
35	2022/05/09 11:03:03 AM GMT+5:30	Ajay theng	Shri Shivaji sci and arts college	Bsc 1st	42.00 / 80
36	2022/05/09 11:03:26 AM GMT+5:30	Roheena parvin firoz khan	Shri. Shivaji. Science & Art's College Chikhli	Bsc-1st year (BIO)	56.00 / 80
37	2022/05/09 11:03:58 AM GMT+5:30	Tabish shaikh	Shri shivaji science and art college chikhli	Bsc 1year	52.00 / 80
38	2022/05/09 11:05:03 AM GMT+5:30	Masira Tabassum Sayyad Salim	Shri shivaji science and arts college chikhli	BSc 2nd year	66.00 / 80

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SHRI SHIVJI EDUCATION SOCIETY, ASSOCIATE'S
SHRI SHIVJI SCIENCE AND ARTS COLLEGE, CHIKHLI
DEPARTMENT OF CHEMISTRY
SET/NET QUALIFIED STUDENTS
IN CHEMISTRY
Hurry! Computations!!!

Sr.No.	Name of the Students	Year of Passing
1	Umesh S. Shukla	NET
2	Manoj S. Wagh	NET
3	Shravan M. Purohit	NET
4	Sandip G. Subhakar	NET
5	Sugandh P. Wagh	NET
6	Manish S. Shukla	NET
7	Manish S. Shukla	NET
8	Manish S. Shukla	NET
9	Manish S. Shukla	NET
10	Manish S. Shukla	NET
11	Manish S. Shukla	NET
12	Manish S. Shukla	NET
13	Manish S. Shukla	NET
14	Manish S. Shukla	NET
15	Manish S. Shukla	NET
16	Manish S. Shukla	NET
17	Manish S. Shukla	NET
18	Manish S. Shukla	NET
19	Manish S. Shukla	NET
20	Manish S. Shukla	NET

Prof. S. M. Bhargava M.Sc., Ph.D.
Dr. H. B. Bhargava M.Sc., Ph.D.

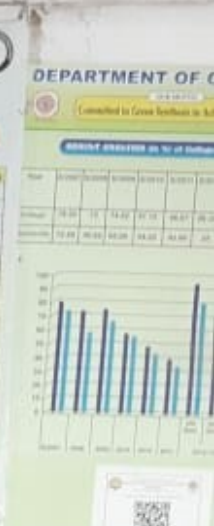
DEPARTMENT OF CHEMISTRY

SET/NET QUALIFIED STUDENTS
IN CHEMISTRY

Hurry! Computations!!!

Sr.No.	Name of the Students	Year of Passing
1	Umesh S. Shukla	NET
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3	Shravan M. Purohit	NET
4	Sandip G. Subhakar	NET
5	Sugandh P. Wagh	NET
6	Manish S. Shukla	NET
7	Manish S. Shukla	NET
8	Manish S. Shukla	NET
9	Manish S. Shukla	NET
10	Manish S. Shukla	NET
11	Manish S. Shukla	NET
12	Manish S. Shukla	NET
13	Manish S. Shukla	NET
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15	Manish S. Shukla	NET
16	Manish S. Shukla	NET
17	Manish S. Shukla	NET
18	Manish S. Shukla	NET
19	Manish S. Shukla	NET
20	Manish S. Shukla	NET

Prof. S. M. Bhargava M.Sc., Ph.D.
Dr. H. B. Bhargava M.Sc., Ph.D.



Certificate Course
On
Soil And Water Analysis



GPS Map Camera

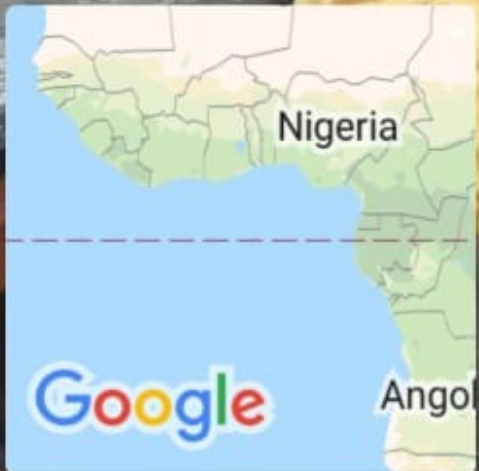
Chikhli, Maharashtra, India

9727+7V7, MH SH 176, Gandhi Nagar, Chikhli, Maharashtra 443201, India

Lat 20.350354°

Long 76.264784°

02/05/22 12:00 PM



Shri Shivaji Science & Arts College, Chikhli

Department of Chemistry

Report of Activity

Online Certificate Course (Value Added Course) on Soil and Water Analysis

Duration : 2/05/22 to 7/5/22

Time : 12.00 to 5.00 P.M.

Activity :Online Certificate Course (Value Added Course) on Soil and Water Analysis

Aim : To aware the importance of Water and Soil analysis and train the students for analysis of different parameter of Water and Soil sample.

Notice : Leaflet and Schedule of Certificate course is attached with thisReport.

Organizer :Dr.O.S. Deshmukh

Name of Convener :Prof.S.L. Kumbhare

Name of organizing Secretary : Prof. S.V. Dautpure

Organizing Committee : Dr.S.R. Patil

Dr.G.D. Thorat

Mr.S.S. Kale

Ms.T.S. Shrirame

Number of Registered Students for Course - 106

Action Taken Report :

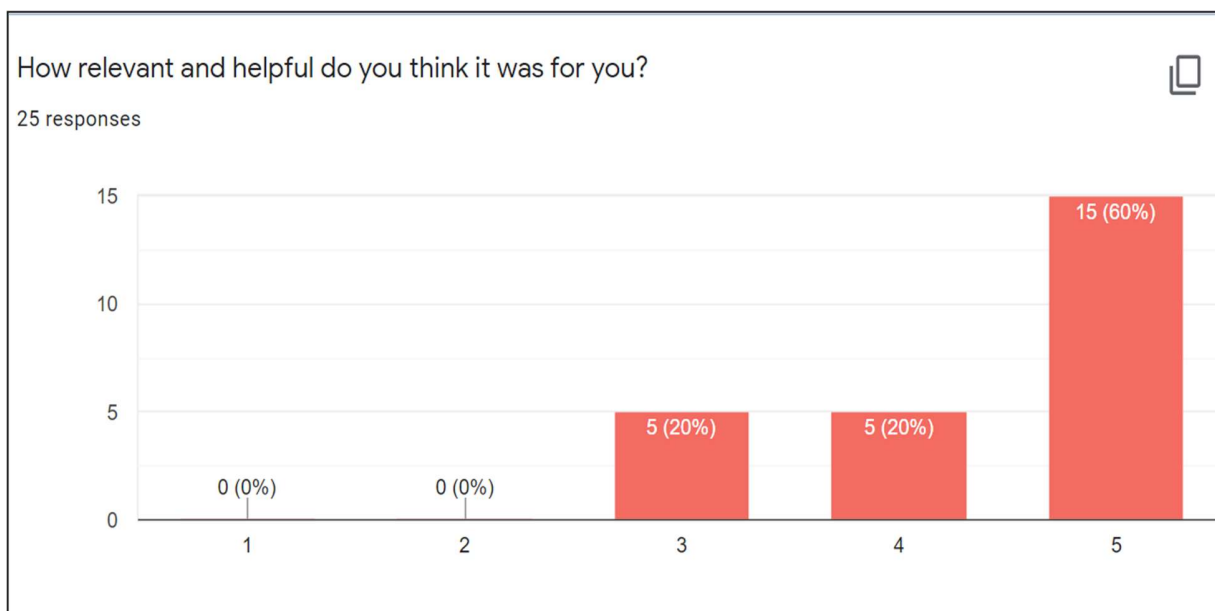
Department of Chemistry, Shri Shivaji Science & Arts College Chikhli, organized **Online Certificate Course (Value Added Course) on Soil and Water Analysis** during duration **2/5/2022 to 7/5/22**. We have prepared syllabus of Theory and Practical. We also prepared schedule of 30 Hours for conducting Theory and Practical.As per Schedule of Certificate course, Certificate Course started on 2/5/22 on

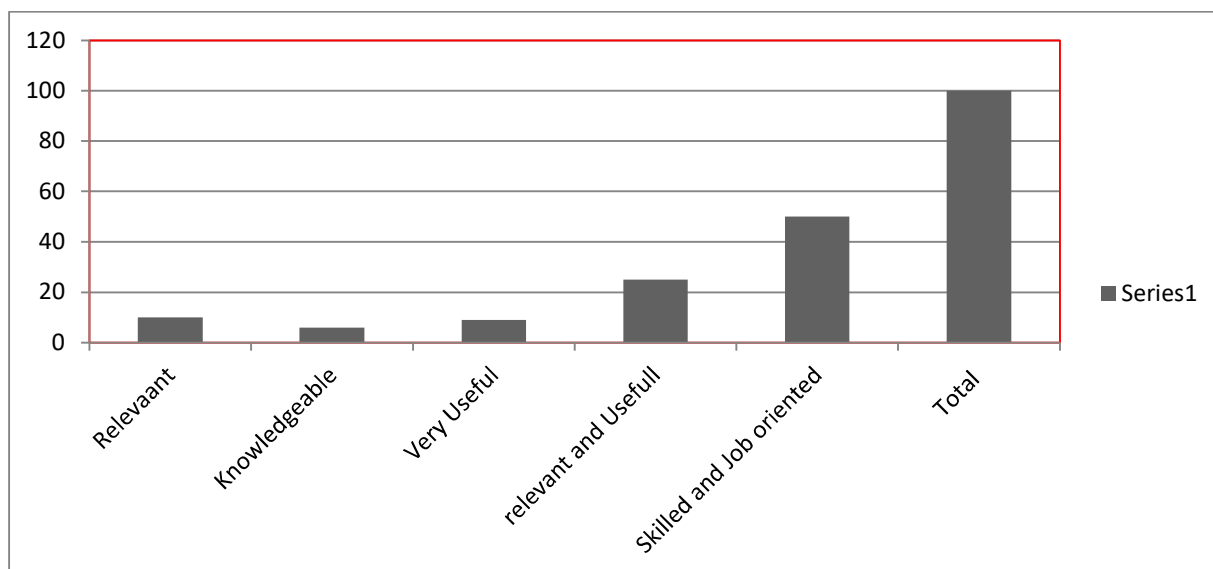
11.30 A.M. with Brief introductory Speech of Prof. S.L. Kumbhare, Head of Department. Detailed related to conduction of Certificate course, Schedule, Time table, Examination pattern, Passing Criteria explained by Prof.S.V.Dautpure. Then on 12.00 P.M. classes of Certificate course started. According to the Schedule on each day 6 Hours workload is allotted to carry out Theory and Practical sessions. The course ended on 7/5/22 by completion of 30 Hours of session. After Completion of Course, Examination of 80 Marks containing Theory and Practical base conducted on 8/5/22 on online mode. On the basis of evaluation, students who have passed examination and filled Feedback form allotted E Certificate.

Feedback Analysis

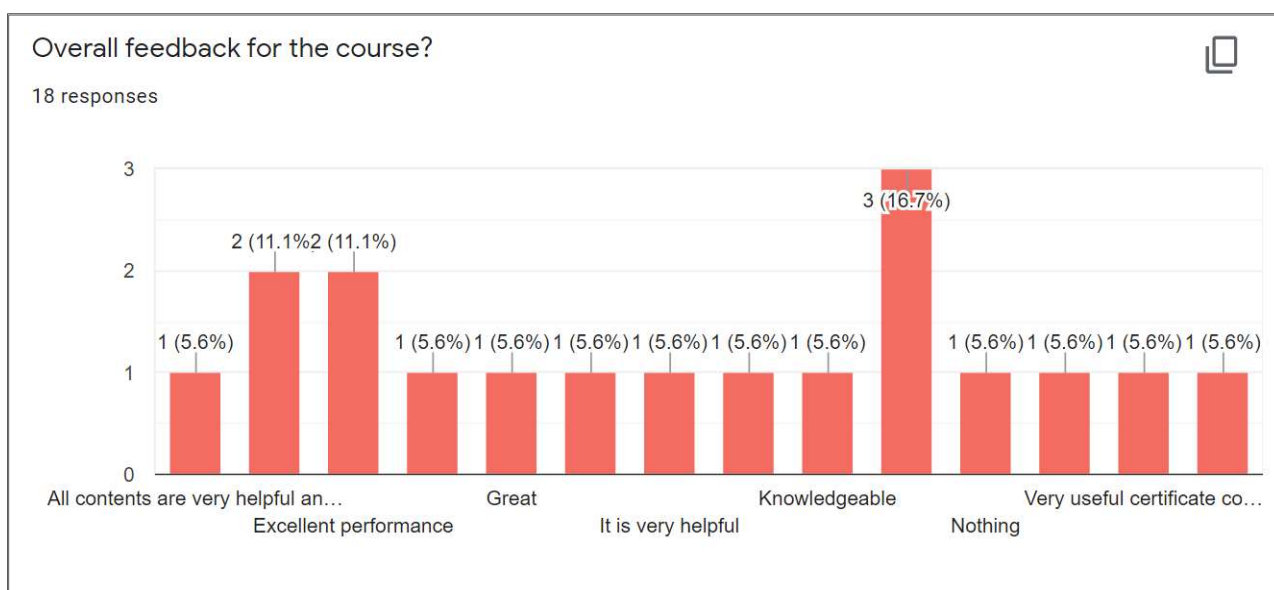
After completion of value added course feed back from all participant was collected through google form.After the analysis of feedback form following obseervations were noted prominently

❖ **Relevance and usefulness of Course on Five point Scale:**





❖ Overall feedback about the Course



❖ **Suggestions, comments and Action taken :**

Sr.No	Suggestions/Comments	Action Taken
1	Oral Demonstration Conducted during practical Course	Due to unavailability of some instruments in Chemistry laboratory for performing BOD and COD Some experiment were conducted online otherwise we have planned to run hand on practical for sample testing.

- On the basis of the Analysis and evaluation of feedback form following are the highlights of the course
- ❖ 50 % of students were saying course was Skill and job oriented.
 - ❖ Overall, it was Knowledgeable.
 - ❖ Most of the modules were relevant and useful.



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