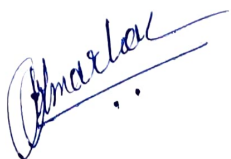


S.S.E.S.A's  
**Science College**  
Congress Nagar, Nagpur

**Certificate course in Groundwater Exploration**  
Session 2022-2023

**Notice**

It is hereby notified to all the students of Certificate course in Groundwater Exploration that their classes will be commenced from 13 May 2022 regularly. Therefore, they are asked to attend the classes on regular basis. All the classes will be running simultaneously with the UC regular classes as mentioned in the timetable.

  
Course Coordinator



**RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY**  
Established by Government of Central Provinces Education Department by Notification No. 513 dated the 1<sup>st</sup> of August, 1923 & presently a State University governed by Maharashtra Public Universities Act, 2010 (Mah. Act No. VI of 2017)

**DEPARTMENT OF LIFELONG LEARNING AND EXTENSION**  
Gurunanak Bhavan, University Campus, Amravati Road, Nagpur - 440 033. Phone : 2530860  
E-mail : doll\_rtmnu@gmail.com

No.DOLLE/ 305/22  
Dated : 12.08.2022

To,  
**The Principal**  
SSES Amt's Science College, Congress Nagar, Nagpur.

**Subject : Sanction for Conducting Short Term Courses under Jeevan Shikshan Abhiyan on No Grant Basis. (2022-23)**

Sir/Madam,

With reference to your proposal for conducting Short Term courses indicated below under Jeevan Shikshan Abhiyan of this Department, this is to inform you that your proposal has been accepted and your College has been granted permission to conduct the course on the following conditions:

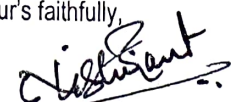
**Details of the Course**

Sr. No.	Name of the Course	Name of Course Coordinator	Duration	Credit	No.of Candidates to be admitted	Fees to be Charged per Student	Fees to be Deposited With the Deptt.
1	Certificate Course in Environment and Water Management.	Prof. Yogita K. Meshram	43 hrs. (15Weeks)	2	20	1500/-	10%
2	Certificate Course in Ground Water Exploration.	Ms. P. B. Zamarkar ✓	45 hrs. T- 36 hrs. P- 09 hrs.	2	40	1500/-	10%
3	Certificate Course in Mushroom Cultivation.	Dr. R. H. Mahakhode	40 hrs. T- 20 hrs. P- 20 hrs.	2	40	1500/-	10%
4	Certificate Course in Immunology and Immunodiagnosics.	Dr. Deepthi Hynal	44 hrs. T- 36 hrs. P- 08 hrs.	2	20	1500/-	10%
5	Certificate Course in Fruit Processing and Wine Technology.	Dr. Pranita B. Gulhane	45 hrs. T- 37 hrs. P- 08 hrs.	2	20	1500/-	10%

**Rules & Regulations of this Department regarding these courses should be strictly followed.**

- Owing to Covid-19 situations all the norms of Central & State Government and instructions by R.T.M. Nagpur University, Nagpur should be strictly followed.
  - This sanction is valid for this particular Batch only.**
  - Fees for the course should be charged as per the norms prescribed.
  - Expenditure on the course should be incurred as per norms.
  - Course should be started within a Month from the date of sanction.
  - Please communicate your acceptance within a month and submit the Initial Report
  - Submit the List of Students admitted in the excel format attached herewith.
- Also send a soft copy in CD/Pen drive.

Your's faithfully,

  
Director

wa  
30



**RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY**  
Established by Government of Central Provinces Education Department by Notification No. 513 dated the 1<sup>st</sup> of August, 1923 & presently a State University governed by Maharashtra Public Universities Act, 2016 (Mah. Act No. VI of 2017)

**DEPARTMENT OF LIFELONG LEARNING AND EXTENSION**

Gururanak Bhavan, University Campus, Amravati Road, Nagpur - 440 033. Phone : 2530860  
E-mail : doll\_rtmnu@gmail.com

To,  
The Principal  
S.S.E.S.Amravati's Science College,  
Nagpur.

No.DOLLE/ 98/22  
Dated : 13.05.2022

**Subject : Sanction for Conducting Short Term Courses under Jeevan Shikshan Abhiyan on No Grant Basis.**

Sir/Madam,

With reference to your proposal for conducting Short Term courses indicated below under Jeevan Shikshan Abhiyan of this Department, this is to inform you that your proposal has been accepted and your College has been granted permission to conduct the course on the following conditions:

**Details of the Course**

Sr. No.	Name of the Course	Name of Course Coordinator	Duration	Credit	No. of Candidates to be admitted	Fees to be Charged per Student	Fees to be Deposited With the Deptt.
1	Certificate Course in Ground Water Exploration	Ms. P.B. Zamarkar	45 hrs. T-36 hrs P-09 hrs	2	40 (Max 40)	1500/-	10%

**Rules & Regulations of this Department regarding these courses should be strictly followed.**

- Owing to Covid-19 situations all the norms of Central & State Government and instructions by R.T.M. Nagpur University, Nagpur should be strictly followed.
- This sanction is valid for this particular Batch only.**
- Fees for the course should be charged as per the norms prescribed.
- Expenditure on the course should be incurred as per norms.
- Course should be started within a Month from the date of sanction.
- Please communicate your acceptance within a month and submit the Initial Report  
Submit the List of Students admitted in the excel format attached herewith.  
Also send a soft copy in CD/Pen drive.

Your's faithfully,

*(Signature)*  
-Director



Shri Shivaji Education society Amravati's

# Science College

Congress Nagar, Nagpur

## Department of Geology

### Certificate course in Hydrogeology Exploration

Session 2022-2023

A certificate course in hydrogeology exploration typically provides a focused education on the principles and techniques used to investigate and manage groundwater resources. This type of course may cover topics such as:

Introduction to Hydrogeology, Understanding the basics of groundwater, its occurrence, and importance, Groundwater Exploration Techniques, Hydrogeological Mapping. Groundwater Quality, Hydrogeological Modeling, Environmental and Regulatory considerations

During the session field visit to nearby area is carried out in which two wells were taken under the study for well inventory, The study tour was done under the guidance of Dr. P. B. Zamarkar and Ms. A. D. Fuladi.

#### Action Taken:

In the session 2022-2023 twenty students were enrolled, all the students qualified with good grades. The passing grade was based on different bases like theory marks, practical marks and field excursion.







Latitude: 21.128876  
Longitude: 79.082369  
Elevation: 333.86±1 m  
Accuracy: 17.2 m  
Time: 06-05-2023 13:28  
Note: college well

Powered by NoteCam

Application for Admission to Skill based course

1) Certificate course :  2) Diploma course:  3) Advance dip

To,  
The Principal,  
Science College  
Congress Nagar, Nagpur-12



R/Sir,

I hereby apply for admission to the above course. I shall abide by the rules and regulations of the concerned department and college.

*Anushka*  
Signature of the applicant

PARTICULARS TO BE FILLED IN BY THE CANDIDATE:

- 1) Full Name (Block Letters) ANUSHKA AMAR PALANDURKAR
- 2) Details of last exam. passed/failed/group/ percent marks obt. 12<sup>th</sup> state board  
percent → 98.16%
- 3) Name of Skill base programme to apply : \_\_\_\_\_
- 4) Details of other courses Applied/admitted \_\_\_\_\_
- 5) Date of birth : 09/05/2003 Contact No. 7666571986  
E-mail. anushkapalandurkar.06@gmail.com
- 6) Information of Father / Guardian:
- a) Full Name : Amar Palandurkar b) Occupation: Businessman
- c) Annual Income: 80,000 d) Contact No. 9923131866
- e) E. mail. \_\_\_\_\_

Postal address of student for correspondence:

501, Anand nagar, near  
Sakkardasa police station  
Nagpur.

*Anushka*  
Signature of the applicant

Declaration of Father or Guardian

I declare that the applicant is my son / daughter / ward and the particulars given above by him / her are correct and shall see that he / she observes all the rules of the college.

*Amar*  
Signature of the father / Guardian,  
Full Name. Amar Palandurkar  
Address Sakkardasa sq.  
Ngp.

# RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR

## IN COLLABORATION WITH

### SHRI SHIVAJI SCIENCE COLLEGE, CONGRESS NAGAR, NAGPUR- 12

SYLLABUS FOR CERTIFICATE COURSE IN Groundwater exploration

(With effect from academic year 2019- 2020)

The skill based Certificate course syllabus for B.Sc. I, II, II appearing student is 15 weeks Certificate Course in Groundwater Exploration. The examination of Course shall comprise of theory paper of 3 hours caring 50 marks and a practical of 3 hours duration caring 40 marks. Project based carries 10 marks. Candidates are expected to pass separately in theory, Project and practical examinations.

The student requires 40% marks in theory for passing including the project marks. Separate passing in practical examination is required.

Structure of syllabus for diploma course along with distribution of marks is also displayed in the following table.

Course	Theory Paper's and practical's	Marks			Total marks
		Theory	Internal Assessment (Project)	Practical	
Certificate course in Groundwater Exploration	Theory paper – Groundwater Exploration (Hydrogeology) Practical based on Toposheet reading	50	10	40	100
		Grant Total			100

Internal Assessment:

Based on Students attendance and the performance in field work and Project report.



**Syllabus**  
**Certificate Course in**  
**Groundwater Exploration (Hydrogeology)**

---

**Unit I**

Defination of Precipitation, Precolation, runoff, evaporation and transpiration, hydrogeology cycle. Occurence and distribution of groundwater. Zone of acration and saturation, water table, cone of depression and recharge.

**Unit II**

Influent and effluent seepage and springs. Elementasry idea about groundwater flow.  
Hydrogeologic characteristics of different types of rock

**Unit III**

Aquifer and their classification. Groundwater management: Artificial and natural groundwater recharge. Groundwater province of India. Groundwater conditions in different parts of Maharashtra.

**Unit IV**

Concept of watershed management. Preparation of hydrogeological maps, statistical analysis of hydrogeological data and use of computer based technique for data analysis and interpretation.  
Concept of Aqua meter/ Resistivity meter.

**Practicals**

1. Seminar (Compulsory)
2. Hands on training on Aqua meter/ Resistivity meter
3. Problems on aquifer properties of groundwater.
4. Hydrogeological Survey and Well inventory
5. Water table contour map



**Teaching Plan**  
**Certificate Course (15 weeks)**  
**Groundwater Exploration (Hydrogeology)**

Weeks	Theory/ Practical	Hours	Content
Week I	Theory I	I	Definition of Precipitation, Percolation.
	Theory II	II	Brief idea about Precipitation, Percolation (Continued)
	Theory III	III	Definition of runoff, evaporation and transpiration
Week II	Theory I	IV	Brief idea about Runoff
	Theory II	V	Brief idea about evaporation
	Theory III	VI	Brief idea about transpiration.
Week III	Theory I	VII	Introduction to hydrological cycle
	Theory II	VIII	Hydrogeology cycle.
	Theory III	IX	Hydrogeology cycle.(Continued)
Week IV	Theory I	X	Zone of aeration and saturation,
	Theory II	XI	Zone of aeration and saturation,
	Theory III	XII	Zone of aeration and saturation,
Week V	Theory I	XIII	Zone of aeration and saturation,(Continued)
	Theory II	XIV	Water table
	Theory III	XV	Cone of depression
Week VI	Theory I	XVI	Recharge of groundwater
	Theory II	XVII	Elementary idea about groundwater flow.
	Theory III	XVIII	Elementary idea about groundwater flow.(Continued)
Week VII	Theory I	XIX	Hydro geologic characteristics of different types of rock
	Theory II	XX	Hydro geologic characteristics of different types of rock.(Continued)
	Theory III	XXI	Aquifer and their classification.
Week VIII	Theory I	XXII	Aquifer and their classification.(Continued)
	Theory II	XXIII	Groundwater management: Artificial recharge.
	Theory III	XXIV	Groundwater management: Artificial recharge.(Continued)
Week IX	Theory I	XXV	Groundwater management: natural groundwater recharge.
	Theory II	XXVI	Groundwater management: natural groundwater recharge.(Continued)
	Theory III	XXVII	Groundwater province of India.

Week X	Theory I	XXVIII	Groundwater province of India.(Continued)
	Theory II	XXIX	Groundwater conditions in different parts of Maharashtra.
	Theory III	XXX	Groundwater conditions in different parts of Maharashtra.(Continued)
Week XI	Theory I	XXXI	Concept of watershed management.
	Theory II	XXXII	Concept of watershed management.(continued)
	Theory III	XXXIII	Preparation of hydrogeological maps
Week XII	Theory I	XXXIV	Preparation of hydrogeological maps (continued)
	Theory II	XXXV	statistical analysis of hydrogeological data
	Theory III	XXXVI	Detail information about Aqua meter/ Resistivity meter
Week XIII	Practical I	XXXVII	Problems on aquifer properties of groundwater
	Practical I	XXXVIII	Problems on aquifer properties of groundwater
	Practical III	XXXIX	Well inventory
Week XIV	Practical I	XXXX	Well inventory
	Practical II	XXXXI	Water table contour map
	Practical III	XXXXII	Water table contour map
Week XV	Practical I	XXXXIII	Aqua meter
	Practical II	XXXXIV	Resistivity meter
	Practical III	XXXXV	Resistivity meter

S.S.E.S. Amravati's  
**Science college Congress Nagar Nagpur**  
Department of Geology

**Skill based courses**  
Session 2022-2023

**Certificate Course (Hydrogeology Exploration)**

SR.No.	Name of Student	M/F
01	Anushka Palanodurkar	F
02	Preshit Wahale	M
03	Shravani Kusare	F
04	Purva Adhau	F
05	Yashika Rangari	F
06	Pooja Hajare	F
07	Jatin Khare	M
08	Sakshi Narnaware	F
09	Atharwa Wankhade	M
10	Dhanshree Chodhari	F
11	Sanjana Jangade	F
12	Aditya Wadibhasme	M
13	Harsh Bhoutkar	M
14	Aahan Manwatkar	F
15	Radhika Gaikwad	F
16	Dhanashree Dharmik	F
17	Mohammed Sahil Anwar Motiwala	M
18	Arya Kunsarpawar	F
19	Nishchal Ingle	F
20	Kshitij Gupta	F



Shri Shivaji Education Society Amravati's, Science College, Congress Nagar, Nagpur  
Subject:- Certificate Course in Groundwater Exploration (Hydrogeology)

Department of Geology

2022 - 2023

Teacher Name: P. B. Zamathkar

Theory / Practical

Sr. No.	Students Full Name																																								
1	Anushka Palanodurkar	.	12/1/23	.	19/1/23	.	2/3/23	.	9/3/23	.	23/3/23	.	30/3/23	.	1/4/23	.	13/4/23	.	20/4/23	.	27/4/23	.	1/5/23	.	2/5/23	.	8/5/23	.	9/5/23	.	14/5/23										
2	Preshit Wahale	.		P		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.			
3	Shravani Kusare	.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.			
4	Purva Adhau	P		P		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.			
5	Yashika Rangari	.		P		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.			
6	Pooja Hajare	P		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.			
7	Jatin Khare	.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.			
8	Sakshi Naraware	P		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.			
9	Atharwa Wankhade	P		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.			
10	Dhanshree Chodhari	P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P			
11	Sarjana Jangade	P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P			
12	Aditya Wadibhasme	P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P			
13	Harsh Bhoutkar	.		P		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.	
14	Aahan Manwatkar	P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P			
15	Radhika Gaikwad	P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P			
16	Dhanashree Dharnik	P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P			
17	Mihammed Sahil Anwar Mottiwala	.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.	
18	Arya Kunsarpawar	.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.	
19	Nishchal Ingole	.		P		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.		.	
20	Kshiti Gupta	P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P		P			

*[Signature]*

Assistant Professor  
Department of Geology  
S. S. E. S. Amravati's  
Science College, Nagpur.

Theory / Practical

Sr. No.	Students Full Name																				
1	Anushka Palanodurkar	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2	Preshit Wahale	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3	Shravani Kusare	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4	Purva Adhau	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5	Yashika Rangari	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6	Pooja Hajare	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
7	Jatin Khare	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
8	Sakshi Narnaware	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
9	Atharwa Wankhade	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
10	Dhanshree Chodhari	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
11	Sanjana Jangade	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
12	Aditya Wadibhasme	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
13	Harsh Bhoutkar	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
14	Aahan Manwatkar	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
15	Radhika Gaikwad	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
16	Dhanashree Dharmik	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
17	Mihammed Sahil Anwar Motiwala	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
18	Arya Kunsarpawar	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
19	Nishchal Ingle	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
20	Kshiti Gupta	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

A. D. Fukhri  
A. D. Fukhri

Shri Shivaji Education Society Amravati's, Science College, Congress Nagar, Nagpur  
Subject:- Certificate Course in Groundwater Exploration (Hydrogeology)

Teacher Name: A.D. Fuladi

Department of Geology

2022 - 2023

✓  
Theory / Practical

Sr. No.	Students Full Name	06/01/2023	13/01/2023	20/01/2023	27/01/2023	03/02/2023	10/02/2023	17/02/2023	24/02/2023	03/03/2023	10/03/2023	17/03/2023	24/03/2023	31/03/2023	06/04/2023	14/04/2023	21/04/2023	03/05/2023	04/05/2023	07/05/2023	10/05/2023	11/05/2023	
1	Anushka Palanodurkar	.	.	P	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	Preshit Wahale	P	.	.	.	.	.	.	P	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	Shravani Kusare	.	.	.	.	.	.	.	.	.	.	.	.	.	P	.	.	.	P	.	.	.	.
4	Purva Adhau	P	P	.	P	P	.	P	.	P	.	P	.	P	P	.	P	P	.	P	P	P	
5	Yashika Rangari	.	.	.	.	.	.	P	.	.	.	.	.	.	.	.	.	P	.	.	P	.	.
6	Pooja Hajare	P	P	.	P	.	P	.	P	P	.	P	.	P	.	.	.	P	.	P	.	P	
7	Jatin Khare	.	.	.	P	.	.	.	.	.	.	.	.	P	.	.	.	.	.	P	.	P	
8	Sakshi Narnaware	.	.	P	.	.	.	P	.	.	.	.	.	.	.	.	.	P	.	.	.	.	.
9	Atharwa Wankhade	P	P	P	.	P	.	P	.	P	P	P	P	P	P	P	P	P	P	P	P	P	
10	Dhanshree Chodhari	P	.	P	.	P	.	P	.	P	P	.	P	P	.	P	P	P	P	P	.	P	
11	Sanjana Jangade	P	.	P	.	P	.	P	P	P	P	P	P	P	P	P	P	P	P	P	P	.	
12	Aditya Wadibhasme	P	P	P	P	.	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
13	Harsh Bhoutkar	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	Aahan Manwatkar	.	P	P	P	P	P	.	.	.	.	P	P	P	P	P	P	P	P	P	P	P	
15	Radhika Gaikwad	P	.	P	.	.	P	P	P	P	P	P	P	P	.	P	.	P	P	P	P	P	
16	Dhanashree Dharmik	P	P	P	.	P	.	P	.	P	P	P	P	P	P	P	P	P	.	P	P	P	
17	Mihammed Sahil Anwar Motiwala	.	.	.	P	.	.	.	.	P	.	P	.	P	.	.	.	.	.	P	.	.	.
18	Arya Kunsarpawar	.	.	.	.	P	.	.	.	.	.	.	.	.	.	.	.	.	P	.	.	P	.
19	Nishchal Ingle	P	P	.	.	.	P	P	P	.	.	P	.	P	.	P	.	P	.	P	.	P	.
20	Kshitij Gupta	P	P	P	P	P	.	P	P	P	.	P	P	P	P	P	P	P	.	P	P	P	

Fuladi  
A.D. Fuladi

Assistant Professor  
Department of Geology  
S. S. E. S. Amravati's  
Science College, Nagpur.



RTMNU Practical Examination, Winter: 2022  
Skill Base Course (2022-23)

Groundwater Exploration certificate course

Department of Geology

Center: S.S.E.S.A's Science College, Congress Nagar, Nagpur- 440012

Time: 3 hours

Date: 20/05/2023

Marks: 30 M

NAME:-----

Note :—(1) There are 18 objective type questions and each question carry one marks.  
(2) All questions are compulsory

1. ----- refers to the fluid-holding capacity of a rock.

- a) Porosity
- b) Voids ratio
- c) Permeability
- d) Specific yield.

2.----- is the rate at which water passes through a unit width of the aquifer under a unit hydraulic gradient.

- a) Permeability
- b) Storativity
- c) Transmissivity
- d) Not known.

3. Which aquifer is called water table aquifer?

- a) Unconfined aquifer
- b) Confined aquifer
- c) Ground aquifer
- d) Connate aquifer.

4. What is the pressure of upper surface of unconfined aquifer?

- a) Very high pressure
- b) Lower than atmospheric pressure
- c) Equal to atmospheric pressure
- d) Greater than atmospheric pressure.

5. What is the isolated water table held by a small extension of impervious rock called?

- a) Underlying water
- b) Phreatic water
- c) Perched water
- d) Underwater.

6. What is the volume of voids in a rock mass expressed in percentage of total volume of rock called?

- a) Porosity
- b) Voids ratio
- c) Permeability
- d) Specific yield.

7. Which types of rocks are highly porous?

- a) Igneous
- b) Sedimentary
- c) Metamorphic
- d) Igneous and Metamorphic.

8. What is the quantity of water that a unit volume of aquifer drains by gravity called?

- a) Porous volume
- b) Water yield
- c) Specific yield
- d) Unit yield.

9.----- is the term used to express the amount of water retained by a unit volume of aquifer after allowing gravity drainage through it.

- a) Unit yield
- b) Specific retention
- c) Unit retention
- d) Specific allowance.

10. Which among the following is not an example of the good aquifer?

- a) Granite
- b) Gravels
- c) Limestones
- d) Sandstones.

11. What is an artesian well?

- a) A free-flowing well.
- b) A geyser.
- c) A spring..

✓ d) Any well where water rises above the aquifer itself.

12. ----- is defined as a geohydrological unit draining to a common point by a system of drains.

a) Basin

✓ b) Watershed

c) Drainage

d) None of the above.

13. ----- is the rate of flow under a unit hydraulic gradient through a unit cross-sectional area of aquifer

✓ a) Hydraulic conductivity

b) Storativity

c) Transmissivity

d) None of the above.

14. The ----- sedimentary rocks of the Barakar and Godavari river basins contain good aquifers of ground water.

a) Deccan trap

b) Alluvium

✓ c) Gondwana

d) None of above.

15. ----- groundwater province which occupy about 82% of the total area of the State, is a major groundwater province for consideration and evaluation of groundwater potential in the State.

✓ a) Deccan Trap volcanic groundwater province

b) Proterozoic sedimentary groundwater province

c) precambrian metamorphic groundwater province

d) Gondwana sedimentary groundwater province.

16. The Objectives of Watershed Management :

a) Production of food, fodder, fuel.

b) Pollution control

c) Over exploitation of resources should be minimized

✓ d) All of the above.

17. ----- is the entry of water into the groundwater system, as in infiltration and disappearing streams.

✓ a) Recharge

b) Discharge



- c) Both (a) and (b)
- d) Not known.

18. What is formed when water is removed from a well?

- a) Cone of depression.
- b) Cone of discharge.
- c) Zone of aeration.
- d) Zone of saturation.

Seminar  
Viva-voice

(06 marks)  
(06 marks)



**Internal Examiner**  
Ms. P. B. Zamarkar

**Certificate Course Practical Examination**

**Summer 2023**

**Subject: Groundwater Exploration (Geology)**

**Centre: Shri Shivaji Science College, Congress Nagar, Nagpur**

Time: Three hours

Full marks: 30

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Q.1. Give a brief idea about well inventory by performing nearby well.

20 Marks

Q.2. Seminar.

10 Marks



Coordinator  
Department of Geology  
Shri Shivaji Science College,  
Nagpur.

**Shri Shivaji Education Society Amravati's, Science College, Congress Nagar, Nagpur**  
**Subject:- Certificate Course In Groundwater Exploration (Hydrogeology)**  
**Department of Geology**  
**Session 2022 – 2023**

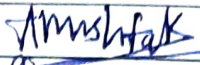
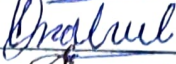
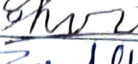



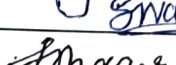
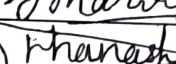
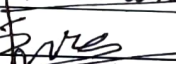

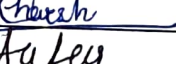
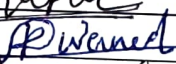
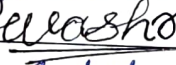
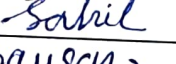
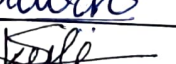
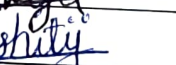




Sr. No	Students Full Name	Theory Marks (Out of 10)	Theory Internal (Out of 10)	Practical Marks (Out of 30)	Practical Internal (Out of 10)	Total (Out of 80)	Grade
1	Anushka Palanodurkar	38	10	30	10	88	A+
2	Preshit Wahale	26	10	29	10	75	A
3	Shravani Kusare	36	10	25	10	81	A
4	Purva Adhau	34	10	24	10	78	A
5	Yashika Rangari	38	10	26	10	84	A
6	Pooja Hajare	36	10	30	10	86	A+
7	Jatin Khare	16	10	28	10	64	B+
8	Sakshi Narnaware	28	10	28	10	76	A
9	Atharwa Wankhade	38	10	27	10	85	A+
10	Dhanshree Chodhari	38	10	30	10	88	A+
11	Sanjana Jangade	38	10	30	10	88	A+
12	Aditya Wadibhasme	32	10	30	10	82	A
13	Harsh Bhoutkar	38	10	28	10	86	A+
14	Aahan Manwatkar	42	10	28	10	90	A+
15	Radhika Gaikwad	36	10	29	10	85	A+
16	Dhanashree Dharmik	34	10	30	10	84	A
17	Mihammed Sahil Anwar Motiwala	34	10	28	10	82	A
18	Arya Kunsarpawar	34	10	27	10	81	A
19	Nishchal Ingle	42	10	27	10	89	A+
20	Kshitij Gupta	32	10	30	10	82	A



Course Co-Ordinator  
Department of Geology  
Shri Shivaji Science College,  
Nagpur.



**Shri Shivaji Education Society Amravati's, Science College, Congress Nagar, Nagpur**  
**Subject:- Certificate Course in Groundwater Exploration (Hydrogeology)**  
**Department of Geology**  
**Session 2022 – 2023**

Sr. No.	Students Full Name	Signature
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5	Yashika Rangari	
6	Pooja Hajare	
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12	Aditya Wadibhasme	
13	Harsh Bhoutkar	
14	Aahan Manwatkar	
15	Radhika Gaikwad	
16	Dhanashree Dharmik	
17	Mihammed Sahil Anwar Motiwala	
18	Arya Kunsarpawar	
19	Nishchal Ingle	
20	Kshitij Gupta	



Course Co-Ordinator  
Department of Geology  
Shri Shivaji Science College,  
Nagpur.



## Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

[Established by Government of Central Provinces Education Department by Notification No. 513 dated the 1<sup>st</sup> of August, 1923 & presently a State University governed by Maharashtra Public Universities Act, 2016(Mah. Act No. VI of 2017)]

### University Skill Development Centre (under Board of Lifelong Learning and Extension)

## Certificate

No. ....

Shri/Smt./Ku. *Anushka Palanodurkar* ..... is  
awarded with Certificate on successful completion of the course titled  
*Groundwater Exploration (Hydrogeology)* ..... in  
session *2022 - 23* ..... under **Jeevan Shikshan Abhiyan** conducted for  
**45 hours** from *12/01/2023* to *14/05/2023* by the **Board of Lifelong  
Learning & Extension** in collaboration with Department of Botany,  
**S.S.E.S. Amt's Science College Congress Nagar, Nagpur, 440012.**

He/She has passed the Examination with *A* ..... Grade

Total Credits Earned : 01

*M. N. Gore*

Principal  
SSES Amt's Science College  
Congress Nagar, Nagpur-12

*A. M. Kulkarni*

Course Co-ordinator  
SSES Amt's Science College  
Congress Nagar, Nagpur-12

*P. M. Patil*

Director  
Board of Lifelong Learning  
and Extension, RTMNU, Nagpur

Shri Shivaji Education Society, Amravati's  
**SCIENCE COLLEGE**  
Congress Nagar, Nagpur-12 (M.S.)

India Accredited with CGPA of 3.51 at 'A+' grade by NAAC, Bangalore A  
"College with Potential for Excellence" identified by UGC New Delhi.  
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Research Mentor College under 'PARAMARSH Scheme', UGC, New Delhi

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SSES Amravati's Science College, Congress Nagar, Nagpur-12  
**DEPARTMENT OF GEOLOGY**

Short Term Course under Jeevan Shikshan Abhiyan on No Grant  
Basis (2022-23)

Course Title: Certificate Course in Groundwater Exploration  
(Hydrogeology)  
**Feedback Form**

Name of Volunteer.....

Please rate the following aspects of the program on a scale from 1 to 4, with 1 being "Poor" and 4 being "Excellent"

**Q.1 Relevance of the event**

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4

**Q.2 Clarity of Instructions**

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4

**Q.3 Engagement of Instructor**

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4

**Q.4 Interaction and Participation**

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4

**Q.5 Benefits of Program**

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4



