Nanded Education Society

Science College, Nanded

Affiliated to Swami Ramanand Teerth Marathwada University, Nanded.(MS)

(Reaccredited with "A"" grade by NAAC with (CGPA 3.35) 4th Cycle,
CPE Status, DST-FIST, Best College Award (SRTMUN)

Annual Quality Assurance Report 2023-24

Criteria – 5

Students Support and Progression

5.1.3. Capacity building and skills enhancement initiatives taken by the institution include the following: soft skills language and communication skills, Life skills (Yoga, physical fitness, health and hygiene) ICT/ Computing skills

A Report
on
One Day Workshop
on
"SkillPlus Program for BSc Students"

Date: 11/01/2024 Time: 11:30 am

Venue : Puranmalji Lahoti Auditorium, NES Science college, Nanded.

Resource Person

1. Miss. Shirisha Javvaji (Deshpande Foundation)
2. Mr. Shekhar Jaiswal (Deshpande Foundation)

PRINCIPAL
Science College, Nanded

Organized by
Science College, Nanded
(Re-accredited by NAAC with 'A' grade (CGPA 3.38), CPE Status)
P.O.Box No. 62, Sneh Nagar, Nanded -431605.
Web: www.sciencecollegenanded.org

Report on SkillPlus Program for BSc Students

Date: January 11, 2024

Venue: Purushottamji Lahoti Auditorium, NES Science College, Nanded.

President of the Program: Dr. D.U. Gawai (Principal, NES Science College, Nanded)

Dignitaries: Vice Principal- Prof. L.P. Shinde ,Prof. Shukla Aruna ,Prof. E.M.Khillure

Program Coordinator: Mr. Shrikant R . Dalewad

NES Science College, Nanded, organized a comprehensive skill development program titled "SkillPlus" from Kakatiya Sandbox by Deshpande Foundation with whom our Nanded Education Society signed an MoU. This program is aimed at enhancing soft skills among BSc students. The event took place on January 11, 2024, at the prestigious Purushottamji Lahoti Auditorium within the college premises.

Objectives:

The SkillPlus program was designed to equip BSc students with essential soft skills necessary for personal and professional growth. The initiative aimed to enhance communication, interpersonal, and leadership skills among participants.

Program Highlights:

Inauguration and Welcome:

The program commenced with a warm welcome extended by Mr. Shrikant Dalewad, the program coordinator, who emphasized the significance of soft skills in today's competitive world.

Dr. D.U. Gawai, the Principal of NES Science College, inaugurated the event and highlighted the importance of holistic development for students.

Guidance Sessions:

The main guidance for the program was provided by distinguished speakers:

Shiksha Jaywaji

Shekhar Jaiswal

Shubhangi Bodkhe

These experts conducted interactive sessions focusing on different aspects of soft skills such as effective communication, time management, teamwork, and problem-solving.

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Panel Discussion and Q&A:

A panel discussion moderated by the speakers allowed students to engage in meaningful dialogue and seek advice on developing and applying soft skills in academic and professional settings.

The Q&A session provided an opportunity for students to address specific challenges and gain insights from experienced professionals.

Practical Workshops:

The program included practical workshops where students participated in activities designed to enhance their soft skills, including role-plays, group exercises, and mock interviews.

Participants received personalized feedback and guidance to improve their soft skill proficiency.

Closing Ceremony:

The SkillPlus program concluded with a closing ceremony presided over by Dr. D.U. Gawai, Prof. L.P. Shinde, Prof.Dr.Aruna Shukla , Prof. E.M.Khillare

Outcome:

The SkillPlus program proved to be a valuable initiative in nurturing well-rounded BSc students equipped with essential soft skills. Participants gained practical insights and tools to enhance their communication, teamwork, and leadership abilities, paving the way for future success in their academic and professional endeavours.

Acknowledgements:

NES Science College extends sincere gratitude to the program coordinator, speakers, dignitaries, faculty members, and students for their active participation and support in making the SkillPlus program a resounding success.

Anchoring:

Whole program was anchored by Vice Principal Prof. Dr. Aruna J Shukla

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Session Photographs

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Inaugural Function

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President's Message

Vote of Thanks

Leaflet

PRINCIPAL
Science College, Hanamkonda

Activities by the students

PRINCIPAL
Science College, Nandur

PRINCIPAL

Student Attendance

Sl. No.	Name of the Student	Class	Signature
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

PRINCIPAL

Sr. No.	Name of the Student	Class	Signature
1)	Abhishek [illegible]	B.Sc. [illegible]	[signature]
2	[illegible]	B.Sc. I	[signature]
3	[illegible] Vishal [illegible]	B.Sc. I	[signature]
4	[illegible]	[illegible]	[signature]
5	[illegible]	B.Sc. [illegible]	[signature]
6	[illegible]	B.Sc. [illegible]	[signature]
7	[illegible]	B.Sc. [illegible]	[signature]
8	[illegible]	B.Sc. [illegible]	[signature]
9	[illegible]	B.Sc. [illegible]	[signature]
10)	[illegible]	B.Sc. [illegible]	[signature]
11	[illegible]	B.Sc. [illegible]	[signature]
12)	[illegible]	B.Sc. [illegible]	[signature]
13)	[illegible]	B.Sc. [illegible]	[signature]
14	[illegible]	B.Sc. [illegible]	[signature]
15)	[illegible]	B.Sc. [illegible]	[signature]
16)	[illegible]	B.Sc. III [illegible]	[signature]
17)	[illegible]	B.Sc. III [illegible]	[signature]
18)	Jadhav Abhijeet	B.Sc. TY	[signature]
19)	[illegible]	B.Sc. [illegible]	[signature]
20)	[illegible]		[signature]
21)	[illegible]	B.Sc. III [illegible]	[signature]
22)	[illegible]	B.Sc. III [illegible]	[signature]
23)	[illegible]	B.Sc. [illegible]	[signature]
24)	[illegible]	B.Sc. III [illegible]	[signature]

PRINCIPAL
Science College, Nanded

Faculty Present for the seminar

Sr. No.	Name of Faculty	Signature
1)	Dr. D. W. [illegible]	[illegible]
2)	Prof. [illegible]	[illegible]
3)	Mrs. S. M. [illegible]	[illegible]
4)	Mrs. V. K. Jadhav	[illegible]
5)	Mr. R. V. [illegible]	[illegible]
6)	Dr. V. N. [illegible]	[illegible]
7)	Dr. G. P. Chavan	[illegible]
8)	Mr. S. G. [illegible]	[illegible]
9)	Mr. A. M. [illegible]	[illegible]
10)	Mr. A. W. Gandge	[illegible]
11)	Mr. S. R. Jadhav	[illegible]
12)	Dr. L. P. Shinde	
13)	Dr. S. R. Shinde	
14)	Rani [illegible]	

PRINCIPAL

Newspaper

पुण्य नगरी | स्थानीय | नांदेड | ४

सायन्स कॉलेजमध्ये स्किल प्लसवर विद्यार्थ्यांसाठी कार्यशाळा संपन्न

लोकमत

सायन्स कॉलेजमध्ये स्किल प्लस वर विद्यार्थ्यांसाठी एक दिवसीय कार्यशाळा संपन्न

PRINCIPAL
Science College,Nanded

NANDED EDUCATION SOCIETY'S

SCIENCE COLLEGE, NANDED

(Affiliated to Swami Ramanand Teerth Marathwada University, Nanded)
(NAAC Re-accredited "A" grade CGPA 3.38, Recipient of DST-FIST, CPE Status)

CERTIFICATE COURSE

IN

"HYDRO EXPLORATION AND WATER QUALITY ANALYSIS (CCHEAWQA)"

ORGANIZED BY

DEPARTMENT OF GEOLOGY

Science College, Nanded

2023-24

Principal
N.E.S. Science College,
Nanded

Short information of Course

Sr. No.	Criteria	Particulars
1	Title of the Couse	Certificate Course on Hydro Exploration and Water Quality Analysis.
2	Eligibility for Admission	Intermediate or Graduate.
3	Level	UG & PG students of regular science stream.
4	Passing Marks	50%
5	No. of Years/ Semester/Duration	2 Months
6	To be implemented from the Academic Year	From Academic year 2021-22

Course Coordinator
Dr. P.R. Kulkarni

Principle
Dr. D.U. Gawai
Principal
N.E.S. Science College,
Nanded

Resource Persons/Faculty

Sr. No.	Name of the Faculty	Particulars
1	Mr. Kartik R. Patki	Hydrogeology and Remote Sensing.
2	Miss. Ashwini V. Takankhar	Water quality Fundamentals.
3	Mr. Harshal H. Dakore	General Geology and Geomorphology.

CONTENT

1. Preamble
2. Objectives of the Course
3. Syllabus
4. Ordinance
5. Practical
6. Mode of Assessment

Certificate Course on Hydro-Exploration and Water Quality Analysis
Department of Geology
N.E.S Science College Nanded

DEPARMENTAL RESOLUTION

The faculty member of the Dept. of Geology, N.E.S Science college Nanded have met in Departmental staff room on 14/07/2023 at 12 p.m. and made the following resolution unanimously.

1. It is Resolved conduct a 50-hour Certificate Course on Hydro-exploration and water quality.
2. The certificate course shall be conducted daily from 4.00 to 5.00 p.m.
3. The certificate course is conducted for the benefit of the UG and PG students of this college and outsiders.
4. It is proposed to collect Rs. 500/- as course fee.
5. The following faculty members of the Department shall act as resource persons.

1. Dr. P. R. Kulkarni (In charge, Head) -
2. Mr. Harshal H. Dakore, Lecturer in Geology -
3. Mr. Kartik R. Patki, Lecturer in Geology -
4. Miss. Ashwini V. Takankhar, Lecturer in Geology -

DEPARTMENT OF GEOLOGY

CERTIFICATE COURSE ON HYDRO-EXPLORATION AND WATER QUALITY ANALYSIS

(CCHEAWQA)

DEPARTMENT OF GEOLOGY

N.E.S SCIENCE COLLEGE NANDED

PREAMBLE

Water is the essential substance for life. It is prerequisite for human health and well-being as well as for the preservation of the environment. Groundwater exploration is the investigation of underground formation to understand the hydrologic cycle, know the groundwater quality and identify the nature, number and types of aquifers. This certificate course is designed to familiarize students with the methods of water analysis and the analytical instruments used to measure the quality of drinking water.

The certificate course aims at employability in the water analytical lab as analyst and supervisors. The certificate will be authorized by the Principle of N.E.S. Science College, Nanded, Head of Department of Geology and Coordinator of the programme.

DURATION	: 2 months.
PRE-REQUISITE	: Intermediate or Graduate.
TARGET GROUP	: UG & PG students of regular science stream.
NO. OF SEATS	: 20.
FEE STRUCTURE	: 500 Rs. per student at the time of admission.
RESOURCE PERSON	: All faculty members in the Dept. of Geology.

TEACHING METHODOLOGY

1) Lecture
2) PPT/PDF/Video
3) Demonstration video/Experimental.
4) Group Discussion.

COURSE DESCRIPTION

- This certificate course on groundwater exploration and water quality analysis towards the making students aware about introductory requirement to understand ground water exploration and its related problems.
- This course on water quality assessment is an attempt to equip students with theoretical background and practical skills to participate in water quality ensuring practices.
- The course intends to prepare a student in acquiring skills on the art of water monitoring and quantitative analysis of critical water quality parameters.
- It also brings in those aspects of chemistry which are important for water quality management and pollution control.

ASSESMENT AND CERTIFICATION

Assessment:

The assessment will done by the department both theory and practical examination will be conducted using suitable synchronous and asynchronous modes.

Certificate:

Successful candidate will be issued certificate by the college.

COURSE OBJECTIVE

1. To understand various components and interrelationship of hydrological cycle.
2. To inculcate scientific temperament among the students to take up farming with scientific approach.
3. To apply knowledge of different rock types to understand their water holding capacities.
4. To understand groundwater condition in various parts of Maharashtra.
5. Develop awareness about water quality criteria and standards, and their relation to public health and environment.
6. Understand important parameters for measuring water quality.
7. To make the people aware about the extent of pollutants in their areas which in turn
8. helps to understand the damage causing to their health.

EXPECTED LEARNING OUTCOMES

1. To use the techniques and skills necessary for groundwater exploration and resource management.
2. To apply the Knowledge of Geology and chemistry.
3. To identify, formulate and solve the environmental problems
4. Apply (gained) knowledge and experience regarding water quality and treatment methods in design, operation & maintenance and rehabilitation of conventional water treatment processes and plants.
5. This course will cover building blocks contain to understand groundwater and its relationship with geology.

Course Content

Unit I: (20 Hours)

Hydrogeology- Introduction, hydrologic cycle, water table, aquifer and its classification. Aquifer properties such as porosity, permeability, specific yield, specific retention, transitivity, hydraulic conductivity. Darcy's law.

Unit II: (18 Hours)

Occurrence of groundwater in igneous, sedimentary and metamorphic rocks. Hydrological prospecting. Concept of watershed. Methods of soil and water conservation.

Unit III: Water Quality Fundamentals (6 Hours)

Chemistry of water, Physical and chemical properties, Water resources, water pollution, Important water Quality parameters and methods for their determination - turbidity, color, taste, pH, acidity, alkalinity, chemical constituents, hardness, dissolved oxygen etc., water sampling, standard for drinking water as per BIS specifications, household water treatment and safe storage.

Unit IV: Practical's based on Laboratory tests for water quality monitoring and Toposheets by Survey of India (6 Hours)

Understanding Toposheet Reading part, Groundwater provinces of India part. Determination of pH and conductivity. Test for acidity and alkalinity. Test for total hardness. Test for chloride, calcium, iron etc., calculation of magnesium content and total solids.

WEEK PLANS WITH CONTENT SPECIFICATION

WEEK	BROAD AREA	SPECIFICATION
WEEK 1	Ground Water Exploration (GWE)	Groundwater Hydrology & its relation to other sciences. Hydrological Cycle. Elements & components of Hydrological Cycle. Occurrence and distribution of Groundwater.
WEEK 2	Ground Water Exploration (GWE)	Influent and effluent seepage. Spring and their types. Theory of groundwater flow, Darcy's law and its limitation for groundwater flow. Aquifer and their types.
WEEK 3	Ground Water Exploration (GWE)	Hydrological properties of rock and their definition. Specific yield, Porosity, permeability, specific retention
WEEK 4	Ground Water Exploration (GWE)	Groundwater provinces of India. Groundwater condition in different parts of Maharashtra. Lithological control.
WEEK 5	Water Quality Analysis (WQA)	Water Quality Fundamentals. Chemistry of water, Physical and chemical properties. Water recourses, water pollution. Important water Quality parameters. Methods for their determination
WEEK 6	Water Quality Analysis (WQA)	Laboratory tests for water quality monitoring. Determination of pH and conductivity. Test for total Hardness, Test for chloride, calcium, iron etc.
WEEK 7	Water Quality Analysis (WQA)	Lab Test for COD of water samples. Determination of BOD of water samples. Determination of total soluble of salt content.

DETAILED TIME WISE COURSE PLAN

Week	Days	Syllabus	Hours	Credit
WEEK 1	1	UNIT 1 (GWE) Groundwater Hydrology & its relation to other sciences.	Theory 30 min+ Summary 10 min	1 credit
	2	Hydrological Cycle.	Theory 30 min+ Summary 10 min	
	3	Elements & components of Hydrological Cycle.	Theory 30 min+ Summary 10 min	
	4	Occurrence and distribution of Groundwater.	Theory 30 min+ Summary 10 min	
	5	Practical 1. Understanding Toposheet Reading part 1.	Theory 30 min+ Summary 10 min	
	6	Practical 2 and Discussion Understanding Toposheet Reading part 2.	Theory 30 min+ Summary 10 min Discussion 1 hr.	

WEEK 2	7	Influent and effluent seepage.	Theory 30 min+ Summary 10 min	
	8	Spring and their types.	Theory 30 min+ Summary 10 min	
	9	Practical 3 Topographic maps 1.	Theory 30 min+ Summary 10 min	
	10	Practical 4 Topographic maps 2.	Theory 30 min+ Summary 10 min	
	11	Theory of groundwater flow, Darcy's law and its limitation for groundwater flow.	Theory 30 min+ Summary 10 min	
	12	Aquifer and their types.	Theory 30 min+ Summary 10 min	
	13	Practical and Discussion.	Theory 30 min+ Summary 10 min Discussion 1 hr.	
	14	TEST AND ASSINGMENT.	1.30 Hr.	
WEEK 3	15	Hydrological properties of rock and their definition.	Theory 30 min+ Summary 10 min	
	16	Specific yield, Porosity, permeability, specific retention.	Theory 30 min+ Summary 10 min	
	17	Practical 5 Groundwater provinces of India part 1.	Theory 30 min+ Summary 10 min	
	18	Practical 6 Groundwater provinces of India part 2.	Theory 30 min+ Summary 10 min	
	19	Practical and Discussion.	Theory 30 min+ Summary 10 min Discussion 1 hr.	

	20	TEST AND ASSINGMENT.	1.30 Hr.	
WEEK 4	21	Occurrences of Groundwater in different rock type's part 1.	Theory 30 min+ Summary 10 min	
	22	Occurrences of Groundwater in different rock type's part 2.	Theory 30 min+ Summary 10 min	
	23	Groundwater provinces of India.	Theory 30 min+ Summary 10 min	
	24	Groundwater condition in different parts of Maharashtra.	Theory 30 min+ Summary 10 min	
	25	Lithological control.	Theory 30 min+ Summary 10 min	
	26	Practical 7 Groundwater provinces of India part 1.	Theory 30 min+ Summary 10 min	
	27	Practical 8 Groundwater provinces of India part 2.	Theory 30 min+ Summary 10 min	
	28	Practical and Discussion.	Theory 30 min+ Summary 10 min Discussion 1 hr.	
	29	Test and assignments	2 hr.	

WEEK 5	30	UNIT 2 (WQA) Water Quality Fundamentals		1 credit
	31	Chemistry of water, Physical and chemical properties.	Theory 30 min+ Summary 10 min	
	32	Water recourses, water pollution, Important water Quality parameters.	Theory 30 min+ Summary 10 min	
	33	Methods for their determination (Taste, pH, acidity, alkalinity)	Theory 30 min+ Summary 10 min	
	34	Water sampling.	Theory 30 min+ Summary 10 min	
	35	PRACTICAL 1 Determination of pH of water samples.	Theory 30 min+ Summary 10 min Discussion 1 hr.	

WEEK 6	36	Laboratory tests for water quality monitoring.	Theory 30 min+ Summary 10 min	
	37	Determination of pH and conductivity	Theory 30 min+ Summary 10 min	
	38	Test for total Hardness.	Theory 30 min+ Summary 10 min	
	39	Test for chloride, calcium, iron etc.	Theory 30 min+ Summary 10 min	
	40	calculation of magnesium content and total solids.	Theory 30 min+ Summary 10 min Discussion 1 hr.	
WEEK 7	41	Determination of COD of water samples.	Theory 30 min+ Summary 10 min	
	42	Determination of BOD of water samples.	Theory 30 min+ Summary 10 min	
	43	Determination of TDS of water samples.	Theory 30 min+ Summary 10 min	
	44	Determination of Turbidity of water samples.	Theory 30 min+ Summary 10 min	
	45	Determination of total soluble of salt content.	Theory 30 min+ Summary 10 min	
	46	Results and discussions	Theory 30 min+ Summary 10 min Discussion 1 hr.	
	47	Final test and Assignments	2 hr.	

ORDINANCES FOR CERTIFICATE COURSE

The Certificate Course in Certificate Course on Hydro Exploration and Water Quality Analysis will be covered under following ordinances.

1. Number of Students per batch are 20.

2. The admission/ examination will be opened to any candidate who has passed (10+2) examination with at least 50% marks in aggregate in science.

3. The candidate after passing examination will be awarded a separate Certificate for Completing the Course.

4. Every candidate will be required to attend minimum of 75% lectures / Practical in Laboratory.

5. The candidate must obtain 40% of the total marks in theory and practical separately to pass the course.

6. Candidates will be offered English as the medium of Instructions/ Examination.

Modality of Assessment

Theory – 60 (MCQ) Marks

Practical – 40 Marks (Lab Work)

Duration – The Examination shall be of 3 hours duration.

Lab Work Exam

1) There will be Multiple choice question on each of unit.
2) All question shall be compulsory with Internal choice within the question.
3) Terms for Practical Examination

Sr. No.	Particulars	Marks
1)	Practical Exam	20
2)	Skill and presentation	10
3)	Viva	10

Enrollment Students List

CERTIFICATE COURSE ON HYDRO-EXPLORATION AND WATER QUALITY ANALYSIS (CCHEAWQA)
(2023-2024)
N.E.S. Science College, Nanded

Sr. No.	Name of student	Group
1	More Nalanda Pralhad	B.Sc. I (CBG)
2	Sontakke Ganesh Kundlik	B.Sc. I (CBG)
3	Shaikh Saniya Kausar Kaleem	B.Sc. I (CBG)
4	Shrusthi Sanjay Betiwar	B.Sc. I (CBG)
5	Hamde Nikita Ganesh	B.Sc. II (CBG)
6	Aditya Satish Shelke	B.Sc. II (CBG)
7	Solanke Prateek Gangadhar	B.Sc. II (CBG)
8	Dhawale Anjali Arvind	B.Sc. II (CGCs)
9	Nilangekar Ruchika Shyam	B.Sc. II (CGCs)
10	Pawde Vinay Sambhaji	B.Sc. III (CGCs)
11	Turkad Govind Yashvantrao	B.Sc. III (CBG)
12	Chavhan Dinesh Balaji	B.Sc. III (CBG)
13	Rathod Ashish Dilip	B.Sc. III (CBG)

N.E.S Science College Nanded

Department of Geology

Certificate Course 2023-24

Feedback Form

1. Name of the Student:
2. Class:
3. Mobile Number:
4. Email-id:
5. Address:
6. How well did you achieve this learning goal in this course?
   a. Extremely well b. Very Well
   c. Slightly Well d. Not well at all
7. How useful to you was this course element?
   a. Extremely well b. Very Well
   c. Slightly Well d. Not well at all
8. How well did you achieve the learning goals of this course?
   a. Extremely well b. Very Well
   c. Slightly Well d. Not well at all
9. About what percent of the class did you attend?
   a. 100% b. Over 75%
   c. Over 50% d. Bellow 50%
10. How much did you learn from this course?
    a. great deal b. A lot
    c. A moderate amount d. A little, Nothing

11. Overall, how would you describe the quality of the instruction in this course?

a. Excellent b. Good

c. Fair d. Very Poor

12. Overall, how would you describe the quality of the instruction in this course?

a. Excellent b. Good

c. Fair d. Very Poor

13. What Grade you want to give to this Certificate Course?

a. A b. B

c. C d. D

14. What would you like to say about this course to a student who is considering taking it in the future?

15. Would you like to provide any other comments about this course?

Students Signature with Date

Student Attendance (2023-24)

N.E.S. Science College, Nanded
Geology Department
Students List

CERTIFICATE COURSE ON HYDRO-EXPLORATION AND WATER QUALITY ANALYSIS (CCHEAWQA)

(2023-2024)

Sr. No.	Name of student	Group	Sign
1	More Nalanda Prabhad	B.Sc. I (CBG)	
2	Sontakke Ganesh Kundlik	B.Sc. I (CBG)	
3	Shaikh Saniya Kausar Kaleem	B.Sc. I (CBG)	
4	Shirsathi Sanjay Beniwar	B.Sc. I (CBG)	
5	Hamde Nikita Ganesh	B.Sc. II (CBG)	
6	Aditya Satish Shelke	B.Sc. II (CBG)	
7	Solanke Prateek Gangadhar	B.Sc. II (CBG)	
8	Dhawale Anjali Arvind	B.Sc. II (CGCs)	
9	Nilangekar Ruchika Shyam	B.Sc. II (CGCs)	
10	Pawde Vinay Sambhaji	B.Sc. III (CGCs)	
11	Tirkad Govind Yashwantrao	B.Sc. III (CBG)	
12	Chavhan Dinesh Balaji	B.Sc. III (CBG)	
13	Rathod Ashish Dilip	B.Sc. III (CBG)	

Students performing water sample tests in practical session during the course

Students Performing practical's during the Course for tracing the toposheets, identification of minerals physical properties and lab work.

Assignments and test conducting during the Course in Geological lab.

DEPARTMENT OF GEOLOGY

CERTIFICATE

OF COMPLETION

This is to certify that DHAWALE ANJALI ARVIND has successfully completed five month certificate course in "HYDRO-EXPLORATION AND WATER QUALITY ANALYSIS" conducted by the department of Geology during Dt. 16/08/2023 to 16/10/2023.

CERTIFICATE

OF COMPLETION

This is to certify that CHAVHAN DINESH BALAJI has successfully completed five month certificate course in "HYDRO-EXPLORATION AND WATER QUALITY ANALYSIS" conducted by the department of Geology during Dt. 16/08/2023 to 16/10/2023.

Report

The certificate course aims at employability in the water analytical lab as analyst and supervisors. The certificate will be authorized by the principle of N.E.S. Science College, Nanded, Head of Department of Geology and Coordinator of the programme.

1. This course is held during the dt. 16/08/2023 to 17/10/2023.
2. The certificate course shall be conducted daily from 4.00 to 5.00 p.m.
3. The certificate course is conducted for the benefit of the UG and PG students of this college and outsiders.
4. The total no. students enrolled to this course is 13 and all are passed successfully.

Sr. No.	No. of students Enrolled	Passed Students	Passing percentage
1	13	13	100%

Principal
N.E.S. Science College
Nanded

NANDED EDUCATION SOCIETY'S

SCIENCE COLLEGE, NANDED

(Affiliated to Swami Ramanand Teerth Marathwada University, Nanded)
(NAAC Re-accredited "A" grade CGPA 3.38, Recipient of DST-FIST, CPE Status)

CERTIFICATE COURSE IN

"Certificate Course on Morphometric (Petrographical) Analysis of Minerals and Rocks (CCMAMR)"

ORGANIZED BY

DEPARTMENT OF GEOLOGY

Science College Nanded

2023-24

N.E.S. SCIENCE COLLEGE NANDED

Principal
N.E.S.Science College,
Nanded

Short information of Course

Sr. No.	Criteria	Particulars
1	Title of the Couse	Certificate Course on Morphometric (Petrographical) Analysis of Minerals and Rocks.
2	Eligibility for Admission	Intermediate or Graduate.
3	Level	UG & PG students of regular science stream.
4	Passing Marks	50%
5	No. of Years/ Semester/Duration	2 Months
6	To be implemented from the Academic Year	From Academic year 2023-24

Course Coordinator
Dr. P.R. Kulkarni

Principle
Dr. D.U. Gawai

Principal
N.E.S.Science College,
Nanded

Resource Persons/Faculty

Sr. No.	Name of the Faculty	Particulars
1	Mr. Harshal H, Dakore	Petrology.
2	Mr. Kartik R. Patki	Mineralogy and crystallography.
3	Miss. Ashwini Takankhar	General Geology and Geomorphology.

CONTENT

1. Preamble
2. Objectives of the Course
3. Ordinance
4. Syllabus
5. Practical
6. Mode of Assessment

CERTIFICATE COURSE ON MORPHOMETRIC (PETROGRAPHICAL) ANALYSIS OF MINERALS AND ROCKS (CCMAMR)

PREAMBLE

Minerals are the fundamental blocks of all Earth's solid material and also that of the inner planets of our Solar system. Mineralogy is essential for the courses in igneous, sedimentary and metamorphic petrology, economic geology and for interpretation of geophysical data.

This course in Mineralogy would help the students to understand distribution of minerals in different Earth's spheres, evaluate different processes of mineral formation, why some minerals are restricted to particular physic-chemical environments, identify and characterize the minerals based on their physical, crystal chemical and optical properties.

This course used in to Identify and characterize the igneous rocks based on their physical and textural characteristics. Also, to train the students in identification of beds, formations, sedimentary structures, measurement of field, plotting and interpreting them.

DURATION	: 2 months.
PRE-REQUISITE	: Intermediate or Graduate.
TARGET GROUP	: UG & PG students of regular science stream.
NO. OF SEATS	: 20.
FEE STRUCTURE	: 500 Rs. per student at the time of admission.
RESOURCE PERSON	: All faculty members in the Dept. of Geology.

TEACHING METHODOLOGY

Lectures will be conducted both synchronously and asynchronously based on need.

1) Lecture

2) PPT/PDF/Video

3) Demonstration video/Experimental.

4) Group Discussion.

ASSESMENT AND CERTIFICATION

Assessment:

The assessment will done by the department both theory and practical examination will be conducted using suitable synchronous and asynchronous modes.

Certificate:

Successful candidate will be issued certificate by the college.

COURSE CONTENTS

UNIT I: (10 Hours)

Introduction to mineralogy, classification and composition mineral, Physical properties of mineral (colour, lustre, streak, habit, cleavage, fracture, hardness, relative specific gravity).

Unit II: (5 Hours)

formation of mineral by different process (Magmatism, Metamorphism (Regional and Contact), Contact metasomatism, Sublimation, Hydrothermal, Water-Rock interaction (Marine/Groundwater/Thermal springs), Weathering, Authigenic growth during digenesis, Chemical/Biochemical precipitation, Evaporation, Bacterial processes, Meteorite impact.

Unit III: (10 Hours)

Introduction to common rock forming silicate mineral (Olivine, Pyroxene, Amphibole, Mica, Silica and Feldspar), carbonate, oxide, halite sulphate, sulphides and native elements

Unit IV: (20 Hours)

Petrology Definition, Textures, structures and classification of (Igneous Petrology, Sedimentary Petrology, Metamorphic Petrology) and rock cycle.

COURSE OBJECTIVE

1. The student will study the basic principles behind the arrangement of atoms to form crystal structures, how these atoms are coordinated and bonded and how this is reflected in the external form, chemical composition, and physical properties of the crystals.
2. The student will study how to identify the most common minerals in hand specimen and, by using optical techniques, learn how to identify the common minerals in thin section.
3. The course introduces the minerals, which are of economic significance. The course also introduces the student to sophisticated instruments used in deciphering mineral structure and chemistry.
4. The students will study Origin of magmas in crust and mantle, evaluate different processes of magma generation Role of temperature, pressure, depth and volatiles on magma composition.
5. This Course helps to understand Formation of metamorphic rocks as controlled by pressure-temperature changes in the deep Earth consequently they are the windows to deep Earth composition, structure and processes.
6. This course Helps to find out how Metamorphism as the fundamental process of altering earlier minerals and formation of new minerals stable in the changed physio-chemical conditions.

EXPECTED LEARNING OUTCOMES

At the completion of the course student would be able to,

1. Explain distribution of elements in different structural sites of the minerals.
2. Explain how the properties of chemical elements and their bonds determine the structure and composition of minerals.
3. Discuss which mineral identification method is appropriate for solving a mineralogical problem.
4. Recognize and describe the basic properties and chemistry of common rock-forming minerals.
5. Explain generation of different mantle reservoirs.
6. Explain origin and differentiation of magmas.
7. Identify and characterize igneous rocks based on megascopic and microscopic observations.
8. Identify and characterize metamorphic rocks based on megascopic and microscopic observations.

WEEK PLANS WITH CONTENT SPECIFICATION

WEEK	BROAD AREA	SPECIFICATION
Week 1	Minerology	Introduction to mineralogy, classification and composition minerals.
Week 2	Minerology	Physical properties of minerals. Optical Properties of Minerals & Descriptive Mineralogy.
Week 3	Minerology	formation of mineral by different process. Introduction to common rock forming silicate minerals.
Week 4	Petrology	Introduction of Petrology, Rock cycle.
Week 5	Petrology	Heat Sources for Magma Generation Physical Properties of the Magma.
Week 6	Petrology	Textures, structures and classification of (Igneous Petrology, Sedimentary Petrology, Metamorphic Petrology)
Week 7	Petrology	Identify and characterize igneous, Sedimentary and Metamorphic rocks based on megascopic and microscopic observations.

DETAILED TIME WISE COURSE PLAN

Week	Days	Syllabus	Hours	Credit
Week 1	1	**UNIT 1 (Mineralogy)** Introduction to mineralogy.	Theory 30 min+ Summary 10 min.	**1 credit**
	2	Classification and composition minerals	Theory 30 min+ Summary 10 min.	
	3	Physical properties of minerals.	Theory 30 min+ Summary 10 min.	
	4	Physical properties of minerals.	Theory 30 min+ Summary 10 min.	
	5	**Practical 1.** Identification of minerals.	Theory 30 min+ Summary 10 min.	
	6	**Practical 2.** Identification of minerals	Theory 30 min+ Summary 10 min. Discussion 1 hr.	

Week	Days	Syllabus	Hours	Credit
Week 2	7	Physical properties of minerals.	Theory 30 min+ Summary 10 min	
	8	Physical properties of minerals.	Theory 30 min+ Summary 10 min	
	9	Optical Properties of Minerals. Basic introduction to wave propagation	Theory 30 min+ Summary 10 min	
	10	Optical Properties of Minerals. Isotropy and Anisotropy of Minerals.	Theory 30 min+ Summary 10 min	
	11	**Practical 3.** Study of Optical properties of minerals.	Theory 30 min+ Summary 10 min	
	12	**Practical 4.** Study of Optical properties of minerals	Theory 30 min+ Summary 10 min Discussion 1 hr.	
Week 3	13	formation of mineral by different process.	Theory 30 min+ Summary 10 min	
	14	Processes of Mineral formation.	Theory 30 min+ Summary 10 min	
	15	Introduction to common rock forming silicate minerals.	Theory 30 min+ Summary 10 min	
	16	Silicate Structures.	Theory 30 min+ Summary 10 min	
	17	**Practical 5.** Study of Rock-forming minerals in Hand Specimen.	Theory 30 min+ Summary 10 min	
	18	**Practical 6.** Calculation of Mineral Chemical Formulae.	Theory 30 min+ Summary 10 min Discussion 1 hr.	

Week	Days	Syllabus	Hours	Credit
Week 4	19	**UNIT 2 (Petrology)** Introduction of Petrology, Rock cycle.	Theory 30 min+ Summary 10 min	**1 credit**
	20	Magma Generation and its sources	Theory 30 min+ Summary 10 min	
	21	Physical Properties of Magma.	Theory 30 min+ Summary 10 min	
	22	Distribution within the Earth Temperature Distribution within the Earth.	Theory 30 min+ Summary 10 min	
	23	Types of Magma and its classification.	Theory 30 min+ Summary 10 min	
	24	**Practical 7**	Theory 30 min+ Summary 10 min Discussion 1 hr.	
Week 5	25	Textures, structures and classification of Different Petrology's.	Theory 30 min+ Summary 10 min	
	26	Classification Igneous Rocks.	Theory 30 min+ Summary 10 min	
	27	Textures of Igneous rocks.	Theory 30 min+ Summary 10 min	
	28	Structures of Igneous Rocks.	Theory 30 min+ Summary 10 min	
	29	**Practical 8** Study of Igneous Rocks in Hand Specimen.	Theory 30 min+ Summary 10 min	
	30	**Practical 9** Study of Igneous Rocks in Thin Section.	Theory 30 min+ Summary 10 min Discussion 1 hr.	

Week 6	31	Textures, structures and classification of Different Petrology's.	Theory 30 min+ Summary 10 min	
	32	Classification of Products of weathering Rocks.	Theory 30 min+ Summary 10 min	
	33	Textures of Sedimentary rock.	Theory 30 min+ Summary 10 min	
	34	Structure of Sedimentary Rock.	Theory 30 min+ Summary 10 min	
	35	**Practical 10** Study of Sedimentary Rocks in Hand Specimen	Theory 30 min+ Summary 10 min	
	36	**Practical 11** Study of Sedimentary Rocks in Thin Section.	Theory 30 min+ Summary 10 min Discussion 1 hr.	
Week	**Days**	**Syllabus**	**Hours**	**Credit**
Week 7	37	Identify and characterize Metamorphic rocks based on megascopic and microscopic observations.	Theory 30 min+ Summary 10 min	
	38	Metamorphism as a process of Earth's differentiation, Metamorphic processes.	Theory 30 min+ Summary 10 min	
	39	Types of metamorphism and their products.	Theory 30 min+ Summary 10 min	
	40	Textures and structures of metamorphic rocks.	Theory 30 min+ Summary 10 min	
	41	**Practical 12** Study of Metamorphic Rocks in Hand specimen.	Theory 30 min+ Summary 10 min	
	42	**Practical 13** Study of Metamorphic Rocks in Thin Section.	Theory 30 min+ Summary 10 min Discussion 1 hr.	

ORDINANCES FOR CERTIFICATE COURSE

The Certificate Course in Certificate Course on Morphometric (Petrographical) Analysis of Minerals and Rocks will be covered under following ordinances.

1) Number of Students per batch are 20.

2) The admission/ examination will be opened to any candidate who has passed (10+2) examination with at least 50% marks in aggregate in science.

3) The candidate after passing examination will be awarded a separate Certificate for Completing the Course.

4) Every candidate will be required to attend minimum of 75% lectures / Practical in Laboratory.

5) The candidate must obtain 40% of the total marks in theory and practical separately to pass the course.

6) Candidates will be offered English as the medium of Instructions/ Examination.

Modality of Assessment

Theory – 60 (MCQ) Marks

Practical – 40 Marks (Lab Work)

Duration – The Examination shall be of 3 hours duration.

Lab Work Exam

- There will be Multiple choice question on each of unit.
- All question shall be compulsory with Internal choice within the question.
- Terms for Practical Examination

Sr. No.	Particulars	Marks
1)	Practical Exam	20
2)	Skill and presentation	10
3)	Viva	10

Enrollment Students List

Certificate Course on Morphometric (Petrographical) Analysis of Minerals and Rocks.

Sr. No.	Name of student	Group
1	More Nalanda Pralhad	B.Sc. I (CBG)
2	Sontakke Ganesh Kundlik	B.Sc. I (CBG)
3	Shaikh Saniya Kausar Kaleem	B.Sc. I (CBG)
4	Shrusthi Sanjay Betiwar	B.Sc. I (CBG)
5	Hamde Nikita Ganesh	B.Sc. II (CBG)
6	Aditya Satish Shelke	B.Sc. II (CBG)
7	Solanke Prateek Gangadhar	B.Sc. II (CBG)
8	Dhawale Anjali Arvind	B.Sc. II (CGCs)
9	Nilangekar Ruchika Shyam	B.Sc. II (CGCs)
10	Pawde Vinay Sambhaji	B.Sc. III (CGCs)
11	Torkad Govind Yashvantrao	B.Sc. III (CBG)
12	Chavhan Dinesh Balaji	B.Sc. III (CBG)
13	Rathod Ashish Dilip	B.Sc. III (CBG)

Department of Geology

Certificate Course 2023-24

Feedback Form

1. Name of the Student:
2. Class:
3. Mobile Number:
4. Email-id:
5. Address:
6. How well did you achieve this learning goal in this course?
   a. Extremely well b. Very Well
   c. Slightly Well d. Not well at all
7. How useful to you was this course element?
   a. Extremely well b. Very Well
   c. Slightly Well d. Not well at all
8. How well did you achieve the learning goals of this course?
   a. Extremely well b. Very Well
   c. Slightly Well d. Not well at all
9. About what percent of the class did you attend?
   a. 100% b. Over 75%
   c. Over 50% d. Bellow 50%
10. How much did you learn from this course?
   a. great deal b. A lot
   c. A moderate amount d. A little, Nothing

11. Overall, how would you describe the quality of the instruction in this course?

a. Excellent b. Good

c. Fair d. Very Poor

12. Overall, how would you describe the quality of the instruction in this course?

a. Excellent b. Good

c. Fair d. Very Poor

13. What Grade you want to give to this Certificate Course?

a. A b. B

c. C d. D

14. What would you like to say about this course to a student who is considering taking it in the future?

15. Would you like to provide any other comments about this course?

Students Signature with Date

Students Attendance (2023-24)

N.E.S. Science College, Nanded
Geology Department
Students List

CERTIFICATE COURSE ON MORPHOMETRIC (PETROGRAPHIC) ANALYSIS OF MINERALS AND ROCKS (CCMAMR)

(2023-2024)

Sr. No.	Name of student	Group	Sign
1	More Nalanda Pralhad	B.Sc. I (CBG)	Nalanda
2	Sontakke Ganesh Kundlik	B.Sc. I (CBG)	Gksontakke
3	Shaikh Saniya Kausar Kaleem	B.Sc. I (CBG)	Saniya
4	Shrusthi Sanjay Betiwar	B.Sc. I (CBG)	Betiwars
5	Hamde Nikita Ganesh	B.Sc. II (CBG)	Nhamade
6	Aditya Satish Shelke	B.Sc. II (CBG)	Aditya
7	Solanke Prateek Gangadhar	B.Sc. II (CBG)	Pratik
8	Dhawale Anjali Arvind	B.Sc. II (CGCs)	Anjali
9	Nilangekar Ruchika Shyam	B.Sc. II (CGCs)	Ruchika
10	Pawde Vinay Sambhaji	B.Sc. III (CGCs)	Vinay
11	Torkad Govind Yashvantrao	B.Sc. III (CBG)	Govind
12	Chavhan Dinesh Balaji	B.Sc. III (CBG)	Dinesh
13	Rathod Ashish Dilip	B.Sc. III (CBG)	Rathod

N.E.S. SCIENCE COLLEGE NANDED

Students Performing practical's during the Course for tracing the toposheets, identification of minerals physical properties and lab work.

Assignments and test conducting during the Course in Geological lab.

SCIENCE COLLEGE, NANDED

CERTIFICATE

OF COMPLETION

This is to certify that **MORE NALANDA PRALHAD** has successfully completed two month certificate course in "*Morphometric (Petrographical) Analysis of Minerals and Rocks*" conducted by the department of Geology during Dt.10/01/23 to 10/03/23.

Course Co-ordinator

Principal

Nanded Education Society's
SCIENCE COLLEGE, NANDED

CERTIFICATE

OF COMPLETION

This is to certify that **SHEIKH SANIYA KAUSAR KALEEM** has successfully completed two month certificate course in "*Morphometric (Petrographical) Analysis of Minerals and Rocks*" conducted by the department of Geology during Dt.10/01/23 to 10/03/23.

Course Co-ordinator

Principal

Department of Geology

Report

This course in Mineralogy would help the students to understand distribution of minerals in different Earth's spheres, evaluate different processes of mineral formation. The certificate will be authorized by the principle of N.E.S. Science College, Nanded, Head of Department of Geology and Coordinator of the programme.

1. This course is held during the dt. 10/01/2024 to 10/03/2024.

2. The certificate course shall be conducted daily from 4.00 to 5.00 p.m.

3. The certificate course is conducted for the benefit of the UG and PG students of this college and outsiders.

4. The total no. students enrolled to this course is 13 and all are passed successfully.

Sr. No.	No. of students Enrolled	Passed Students	Passing percentage
1	13	13	100%

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