SHRI SHIVAJI EDUCATION SOCIETY AMRAVATI'S

SCIENCE COLLEGE

CONGRESS NAGAR, NAGPUR - 12

DEPARTMENT OF CHEMISTRY

CERTIFICATE COURSE IN

ENVIRONMENTAL AND WATER MANAGEMENT

2019-20

Course Duration	: 6 Weeks
Course Fee	: ₹ 1000
Seats	: 20
Eligibility	: Students Of B.Sc Sem I/ Sem III

COURSE CO-ORDINATOR

DR. YOGITA MESHRAM

LEARNING OBJECTIVES

1. To understand the general properties of water and the significance of water resources and water conservation.
2. Develop an awareness of water quality criteria and standards, and their importance for public health and the environment.
3. Understand important parameters for measuring water quality.
4. Know the methods for determining water quality parameters
5. Learn how to conduct accurate water quality tests and understand the relationslups between various parameters

SSES Amravati's Science College, Congress Nagar, Nagpur,

DEPARTMENT OF CHEMISTRY
(2019-2020)

Notice

Admission open for Skill based Certificate Course: **Certificate Course in Environmental and Water Management** (affiliated to RTM Nagpur University, Nagpur)

Eligibility- B.Sc I, II year students

Duration – Six weeks

For Registration please contact Department of Chemistry

1. Dr. Y.K.Meshram
2. Mr. Pramod N. Bhoyar

Dr R U Khope

Head

Department Of Chemistry

Session 2019-2020

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY
Established by Government of Central Provinces Education Department by Notification No. 513 dated the 1st 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
Gurunanak Bhavan, University Campus, Amravati Road, Nagpur - 440 033. Phone : 2530860
E-mail : dolle.rtmnu@gmail.com

No.DOLLE/236/19
Dated : 16.10. 2019

To,
The Principal
Shivaji Science College,
Nagpur,
9423103043

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, I am to inform you that your proposal has been accepted by the Department 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	Duration	No. of Candidates to be admitted	Fees to be Charged per Student	Fees to be Deposited With the Deptt.
1	Certificate Course in Groundwater Exploration	8 Weeks	20	1200/-	10%
2	Certificate Course in Statistical Quality Control	6 Weeks	20	650/-	10%
3	Certificate Course in Immune-Diagnostics	4 Weeks	20	2200/	10%
4	Certificate Course in Environmental and Water Management	6 Weeks	20	1000/	10%
5	Certificate Course in Mushroom Cultivation	6 Weeks	20	1000/	10%
6	Certificate Course in Biofertilisers and Biopesticides	12 Weeks	20	1500/	10%
7	Certificate Course in Forestry and Wild Life Management	6 Weeks	20	1500/	10%

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

1. ***This sanction is valid for this particular Batch only.***
2. Fees for the course should be charged as per the norms prescribed.
3. Expenditure on the course should be incurred as per norms.
4. Course should be started within a Month from **the date of sanction.**
   Please communicate your acceptance within **a month and submit Initial Report Along with list of students admitted.**

Dr. A.D. Bobdey
for M.A.
Nagpur
05.01.2020

Your's faithfully,

Director

SSES AMRAVATI 'S SCIENCE COLLEGE, CONGRESSNAGAR, NAGPUR,

DEPARTMENT OF CHEMISTRY

CERTIFICATE COURSE IN ENVIRONMENTAL AND WATER MANAGEMENT
(CCEWM -Six Weeks)
2019-2020

Name of Course:Certificate Course In Environmental And Water Management
Course Duration: 06 weeks
Entry Requirement: Students of B.Sc. I yr / B. Sc. II yr (Chemistry)
Course Fee: Rs. 1000/-
Number of students admitted: 07

The environment is one of the most challenging areas of modern science. Problems resulting from increased industrialization and urbanization on a global scale are threatening our water resources. For a sustainable future, environmental scientists are tackling the effects of acid rain, water pollution. Continuous monitoring of water quality is an essential which provide information on water safety. This course will develop knowledge to plan and to check the quality of water resources and bringing together scientific, social, and technological issues in environmental study. Nagpur is rapid developing city in central area with many industries coming up in recent years hence this course is started to fulfill the demand of industry also.

Aim

The program intends to build integrated water management professionals able to collaborate, create and deliver innovative approaches to complex water management challenges. And also to develop practical approach and skills for assessment of water quality and management solutions. This program will develop an effective leadership capacity as well as the strategic, managerial and technical skills need to advance in the water sector.

Objectives

- This will provide a valuable insight and develop both knowledge and practical and analytical skills.
- The course intends to develop awareness about water quality criteria and standards, and their relation to public health and environment.
- To prepare a student in acquiring skills on the art of water monitoring and quantitative analysis of water quality parameters
- This course develops the scientific knowledge and techniques required for understanding fundamental environmental patterns and processes and understanding how environmental science relates to society.
- To develop an interest in scientific activities, including laboratory, fieldwork and research.
- To develop ability to interpret standards and guidelines and a sound analytical approach to solve problems.

- To create an awareness about water pollution and new technologies and solutions to solve these problems.
- To encourage ability to work individually or as part of a team.

Learning outcome

At the end of course, students will be able to

- Understand different physical and chemical parameter of water and properties of ore and coal.
- Know the principles and methods to assess the water quality for sustainable development and explain treatment used in water purification methods.
- Develop awareness about water quality criteria and understand water resources and water conservation.
- This program endeavor to develop technical knowledge along with basic science influencing sustainability and environmental issues water and management problems.

Dr Yogita Meshram
Course Coordinator

Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

Dr R.U. Khope ,Head
Department of Chemistry

SSES Amt's Science College Congress Nagar Nagpur

Certificate Course in Environmental and Water Management (six weeks)

Department of Chemistry

2019-2020

Action Taken Report

The course intends to develop awareness about water quality criteria and standards, and their relation to public health and environment. Seven students benefitted by the certificate course in Environmental and water Management in 2019-2020. This program developed technical knowledge along with basic science, influencing sustainability and environmental,water issues, and management problems.

Dr Yogita Meshram
Course Coordinator

Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

Dr R.U. Khope, Head
Department of Chemistry

SSES Amt's Science College Congress Nagar Nagpur

Department of Chemistry

Certificate Course in Environmental and Water Management

2019-2020

Report

The course intends to develop awareness about water quality criteria and standards, and their relation to public health and environment Seven students were registered for the certificate course in Environmental and water Management in 2019-2020. The duration of this course was six weeks. During session, Sampling and analysis of water were done. Collection of water samples from different localities were done and assessed physical, chemical parameters and check the quality of water. These results were compared against water quality standards (BIS) in regulations and guidelines to determine its use and/or the treatment required to make the water suitable for its intended use (e.g. drinking water/agriculture purpose).

Following parameters were studied like pH, TDS, Conductivity, Chloride, Alkalinity, Hardness, Dissolved Oxygen, and coal analysis. Students got acquainted with the sophisticated instrument such as UV-visible Spectrophotometer, pH meter, Conductivity, meter, Distillation unit etc. Students submitted the environmental based assignments. But Covid-19 pandemic, Practical examination (MCQ based) was conducted in online mode and submitted the assignment on various environmental issues.

Students who have successfully completed the course in the session 19-20

Dr Yogita Meshram
Course Coordinator

Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

Dr R.U. Khope ,Head
Department of Chemistry

Students who have successfully completed the course in the session 19-20

S.S.E.S. Amravati's Science College, Congress Nagar, Nagpur

Certificate course in Environmental and Water Management

Syllabus
2019-2020
(6 week)

Theory -

Unit:I

Introduction of instruments:-Digital balance, oven muffle furnace, PH meter Spectrophotometer- Visible, UV, Double distillation plants, etc.

Unit II:

Water Pollution: - Classification of water pollutants, Sampling of water sample, Chemical and physical characteristics of water such as temperature, pH, Chlorides, COD, BOD, Alkalinity, Toxic metal etc. Treatment of water purification.

Unit III:

Analysis of Minerals: Occurrence and Methods of extraction of Al from bauxite ore and Al and Mg from dolomite ore.

Unit IV:

Analysis of the moisture and ash content in the Coal sample using proximate analysis Method.

Practicals :- 1) Determination of pH, Conductance, Alkalinity, Chloride etc.
2) Determination of COD.
3) Determination of Chloride.
4) Analysis of moisture content and ash content
5)The analysis of Dolomite.
6)The analysis of Bauxite.

Distribution of Marks: -

1.Theory Examination-50 M

2. Project /Practical-40M

3. Internal assignment -10

Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

Certificate course in Environmental and Water Management
Department of Chemistry
Teaching Plan 2019-20

Week	Hour Wise Teaching Plan		Content
Week 1	**Unit I**	1	**Introduction of instruments**
		1	Digital balance, oven muffle furnace
		1	PH meter Spectrophotometer- Visible, UV, Double distillation plants etc.
Week-2	**Unit II**	1	Introduction to water and water pollution
		1	Water cycle in nature, sources of water
		1	Determination of pH, Conductance, etc
\Week-3		1	Water pollution in surface and ground water bodies
		1	Classification of pollutant
		1	Determination of Alkalinity
\Week-4	**Unit II**	1	Chemical composition of polluted water ,Sampling of water and their preservation,
		1	Industrial and Domestic water Treatments, Secondary treatment, Tertiary treatment
		1	Toxic metals and effect on environment
Week-4	**Unit III**	1	Occurrence and Methods of extraction of Al from bauxite ore
		1	Extraction of Mg from dolomite ore
		1	Determination of Chloride
Week-5	**Unit IV**	**1**	Properties and Occurrences of Coal, Proximate analysis of Coal Method.
		1	The analysis of moisture content and ash content.
		1	Determination of BOD,
Week-6		1	Determination of COD
		1	Examination, Assignment
		1	Report making and submission

Dr. Yogita Meshram
Course coordinator
Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

Prof . R. U. Khope
Head, Department of chemistry

S.S.E.S. Amravati's Science College, Congress Nagar, Nagpur

CERTIFICATE COURSE IN ENVIRONMENTAL AND WATER MANAGEMENT

Department of Chemistry-2019-20

List of students enrolled in Skill based course

1. Ms Sharvari S. Kshirsagar CMBT
2. Ms. Arti C. Nimbalkar CMBT
3. Ms. B. Savita Rao CBZ
4. Ms. Sakshi S Mohite CBZ
5. Ms Sejal S Bulkunde CBZ
6. Ms Kanchan Prabha CBZ
7. Mr.Rohan K Mankar PCG

Dr. RU Khope
Head,Dept of chemistry

Associate Professor & Head
Department of Chemistry
S.S.E.S. Amt's Science College
Congress Nagar, Nagpur.

Dr. Yogita K Meshram
Course coordinator

S.S.E.S. Amravati's Science College, Congress Nagar, Nagpur
Certificate course in Environmental and Water Management

Department of Chemistry
2019-2020

Notice

Date: 20th Jan 2020

All the students of Certificate course are hereby informed that, theory and practical classes for **Certificate course in Environmental and Water Management** will be commenced from 27th Jan 2020. You all are informed to attend the classes regular

Dr Yogita Meshram
Course Coordinator

Dr R.U. Khope, Head
Department of Chemistry

Shri Shivaji Education Society Amravati's
Science College,Congressnagar, Nagpur
Department of Chemistry

Certificate course in Environmental and water management

Attendance Sheet (2019-2020)

S.N	Name of students	27/1	28/1	29/1	30/1	3/2	4/2	5/2	6/2	10/2	11/2	12/2	18/2	24/2	26/2	27/2	2/3	3/3	4/3	5/3	9/3	11/3	12/3	17/3	
1	Ms.Sharvari S. Kshirsagar	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	
2	Ms.Arti C. Nimbalkar	P	A	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	
3	Ms.B.Savita Rao	P	P	A	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
4	Ms.Sakshi S Mohite	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	A	P	P	
5	Ms. Sejal S Bulkunde	A	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
6	Ms Kanchan Prabha	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	
7	Mr. Rohan K Mankar	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	

Dr. R. U. Khape.
Head, Dept of chemistry

Dr Jogels K. Meshram.
Dept of chemistry

S.S.E.S. Amravati's Science College, Congress Nagar, Nagpur

Certificate course in Environmental and Water Management

Department of Chemistry

2019-2020

Notice

Date: 9th March 2020

All the students of Certificate course are hereby informed that, MCQ based theory examination for Certificate course in Environmental and Water Management will be held on15th March 2020 at 2.00 to 3.30 pm. All Students should report in the department of chemistry ten minutes before the examination time.

Dr Yogita Meshram
Course Co-ordinator
Department of Chemistry

SSES Amt's Science College Congress Nagar Nagpur
Department of Chemistry
Certificate Course in Environmental and Water Management
MCQ- Test 19-20 (Offline mode)

Time: 1.30 Hrs **Total marks: 50**

Note: All questions are compulsory and carry equal marks

1. Which of the following is the physical characteristic of water?

   a) Chloride b) Turbidity c) DO d) BOD

2. What causes permanent hardness of water?

   a) Sodium sulphate b) Gypsum c) Magnesium Sulphate d) Manganese

3. Which of the following is considered a water pollutant?

   a. organic waste b .Sediments c.Heat

   a) a and b b) b and c c) a,b,c

4. What is the most common coagulant used

   a) Alum b) Ferric sulphate c) Limestone d) Coal

5. Which of the following diseases is caused by nitrate poisoning in water?

   a) Minamata disease b) Blue Baby syndrome c) Methemoglobin d) None of the above

6. 10 mg/Liter is equal to----------

   a) 0.1ppm b) 1ppm c) 10ppm d) 100ppm

7. Metal EBT complex is

   a) Blue coloured b) Wine Red coloured c) Pink colored d) Colourless

8. The colour of metal EDTA complex is

   a) Blue b) Wine Red c) Pink d) Colourless

9. For the determination of hardeness of water, sodium salt of EDTA instead of EDTA because

   a) EDTA is volatile b) EDTA is very Cheap c) EDTA is colorless d) EDTA is partially soluble in water

10. Chloride are estimated by using indicator

    a) Pot dichromate b) Pot Chromate c) Pot permanganate d)None of the above

11. Which of the following is the principle ore of aluminium.

Course Coordinator

a) Galena b) Dolomite c) Fluorspar d) Bauxite

12. Which of the following process is used in concentration of ore in metallurgy?

a) Leaching b) magnetic separation c) Frost flotation d) All of the Above

13. What is the pH of double distilled water?

a)3 b) 6 c) 7 d) 9

14. Which of the rivers listed below is the most polluted river?

a) Ganges River b) Citarum River c) Yellow River d) Mississippi River

15. Which water treatment process is done after filtration of water?

a) Primary sedimentation b) Disinfection c) Secondary sedimentation d) Flocculation

16. Which method of disinfection is mainly used in rural areas?

a) Boiling method b) Excess lime treatment c) Potassium permanganate treatment d) Silver treatment

17. Removal of floating materials is called

a) Coagulation b) filtration c) sterilization d) Screening

18. Which of the following is an example of suspended impurities?

a) Sand b) Carbonate c) Metal d) Chloride

19. Which of the following is an example of dissolved impurities?

a) Sand b) Bacteria c) Inorganic salts d) a and c

20. Nitrate can be effectively removed by

a) Boiling b) Cation exchanger c) Anion exchanger d) both b and c

21. Which properties of water also changes with temperature.

a) Taste b) Color c) Temperature d) Odour

22. Which parameter in a water sample can be directly determined by evaporating the water and weighing the residue.

a) Hardness b) Iron c) Chloride d) Total Solids

23. The permissible limit of pH preferred for potable water is ___ ppm.

a) 6.5-9 b) 7-8.5 c) 10-14 d) 0-7

24. World Water Day is celebrated on

a) 21st March b) 22nd March c) 20nd March d) 23rd March

Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

25. The world available fresh water about-----%

a) 75 b) 30 c) 20 d)3

26. Which of the following is true about groundwater pollution?

a) Arsenic and fluoride are the most common inorganic pollutants of groundwater pollution

b) Nitrate is the most common chemical contaminant of groundwater

a) Only a b) Only b c) Both a and b d) None of the above

27. Which Unit are constructed for water supply, irrigation and other

a) Swimming pools b) Tanks c) Ponds d) Reservoirs

28. Proximate analysis includes estimation of carbon, hydrogen, Sulphur

a) True b) False

29. Moving water is used to produce

a) Electrical energy b) Thermal energy c) Wind energy d) Hydroelectric energy

30. At what temperature coal should be heated so as to determine the moisture content of coal

a) 90-100 b) 145-155 c) 125-140 d)105-110

31. Excessive concentration of fluoride causes

a) Fluorosis b) Psoriasis c) Osteoporosis d) Sclerosis

32. What are the sources of water.

a) River b) Rain water c) Ground water d) All options are correct

33. Which substances are transformed to coal in its early stages

a) Animal debris b) Bacteria c) Plant d) Non-living things

34. Coal is a renewable resource

a) True b) False

35. Water pollution impacts on following

a) Industry Production b) Human c) Animal d) all are correct

36. Which wavelength is used for UV-Visible Spectroscopy

a) 200-400nm b) 400-800nm c) 200-800nm d) both b and c

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Nagpur

37. What radiation is used for UV spectroscopy

a) Tungsten Lamp b) IR radiation c) Deuterium Lamp d) None

38. Which law is used for spectroscopy?

a) Beer law b) Lambert law c) Hooks Law d) both a and b

39. Why water became a hard

a) Sulphate of Mg b) Chlorides of Mg c) Carbonates of Ca d) Due to all three options

40. Which Indicator is used for determination of hardness of water?

a) Methyl orange b) Methyl red c) Phenolphthalein d) Erio-T

41. Identify the ores of magnesium

a) Carmelite b) Magnesite c) Dolomite d) All of these

42. What is the formula of dolomite?

a) $MgCO_3$ b) $CaCO_3$ c) $MgCO_3$ and $CaCO_3$ d) none of these

43. At what Ph Hardness of water is determined

a) 0-3 b) 4-7 c) 9-11 d) more than 11

44. Water Pollution affects environment

a) True b) False

45. Which specification are used for assessment of water quality in India

a) ISI b) BSI c) BIS d) None of these

46. Rain water is the purest form of water

a) True b) False

47. Hydroelectric energy is the renewable source of energy.

a) True b) False

48. Pollution is a

a) Natural problem b) Manmade problem c) Legal problem d) Social problem

49. National Pollution prevention Day is marked on_____

a) 1st July b) 2nd December c) 1st December d) 2nd october

50. Sardar Sarovar project is constructed on

a) Sardar b) Tehri c) Narmada d) Ganga

Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

SSES Amt's Science College Congress Nagar Nagpur
Department of Chemistry
Certificate Course in Environmental and Water Management
MCQ- Test 19-20 (Answer key)

Time: 1.30 Hrs **Total marks: 50**

1. Ans: b)
2. Ans. c)
3. Ans. c)
4. Ans: a)
5. Ans. b)
6. Ans : c)
7. Ans: b)
8. Ans: d)
9. Ans: d)
10. Ans: b)
11. Ans d)
12. Ans: d)
13. Ans: c)
14. Ans; a)
15. Ans: b)
16. Ans : a)
17. Ans: d)
18. Ans: a)
19. Ans: c)
20. Ans: c)
21. Ans: a)
22. Ans: d)
23. Ans: a)
24. Ans: b)
25. Ans: d)
26. Ans. c)
27. Ans: d)
28. Ans: b)
29. Ans: d)
30. Ans: d)
31. Ans: a)
32. Ans: d)
33. Ans: c)
34. Ans: b)
35. Ans: d)
36. Ans: c)
37. Ans: c)
38. Ans: d)
39. Ans: d)
40. Ans: d)
41. Ans: d)
42. Ans: c)
43. Ans: c)
44. Ans: a)
45. Ans: c)
46. Ans: b)
47. Ans: b)
48. Ans: b)
49. Ans : b)
50. Ans: c

Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

S.S.E.S. Amravati's Science College, Congress Nagar, Nagpur

Certificate Course In Environmental And Water Management

Department of Chemistry
2019-20

List of students enrolled in Skill based course Date of Examination: 15/3/19

Attendance sheet.

1. Ms Sharvari S. Kshirsagar	CMBT	
2. Ms. Arti C. Nimbalkar	CMBT	
3. Ms. B. Savita Rao	CBZ	
4. Ms. Sakshi S Mohite	CBZ	
5. Ms Sejal S Bulkunde	CBZ	
6. Ms Kanchan Prabha	CBZ	
7. Mr.Rohan K Mankar	PCG	

Dr. Yogita K Meshram Course
Co-ordinator

S.S.E.S. Amravati's Science College, Congress Nagar, Nagpur

Certificate course in Environmental and Water Management

Department of Chemistry

2019-2020

Notice

Date: 23rd Oct 2020

All the students of Certificate course are hereby informed that, MCQ based practical examination for Certificate course in Environmental and Water Management will be held 4th Nov 2020 at 3.00 pm to 4.30pm **in online mode**.

Dr Yogita Meshram
Course Coordinator

Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

Certificate Course in Environmental and WaterManagement
Department of Chemistry
2019-20
Online mode : (MCQ- based Practical Examination)

1. Increase in concentration of soluble salts in water is called _____
a) Desalination
b) Salination
c) Pollution
d) Pollutants

2. The disease caused due to nuclear hazards is
a) AIDS
b) Cancer
c) Kidney stone
d) Jaundice

3. World environmental day
a) 5 June
b) 21 June
c) 6 June
d) 25 June

4. Earth day is celebrated on
a) 22 April
b) 23 April
c) 24 April
d) 25 April

5. Petrol & coal are_____ source of energy
a) Renewable
b) Non- Renewable
c) Man-made
d) Limited

6. Greenhouse effect is related to _____
a) Green trees on house
b) Global warming
c) Grasslands
d) Greenery in country.

7. Fluoride pollution mainly affects_____
a) Kidney
b) Brain
c) Heart
d) Teeth

8. What is the range of U.V electromagnetic radiation?
a) less than200nm
b) more than800nm
c)200-400 nm
d) 400-800 nm

9.The full form of B.O.D
a) Biology oxidation demand
b) Biologcal oxidation demand
c)Bio oxidation demand
d) biostastic oxidation demand

10. What is the range of visible electromagnetic radiation.
a) Below 200 nm
b) 200 - 400 nm
c) 400 - 800 nm
d) More than 800 nm

11. The unit of conductance
a)ohm
b) ohm^{-2}
c) ohm^{-1}
d) ampere

12.Formation of coal & petroleum requires
a) One year
b) Few year
c) Hundreds of years
d) Millions of years

13.Pollution is a
a) Natural problem
b) Manmade problem
c) Legal problem
d) Social problem

14. Depletion of ozone layer is due to following
a) pollution
b) rise in SO2
c) rise inCO2
d) all of above

Dr. S. k. Meshram
Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

15. Choose energy resources derived from natural organic material.
a) Geothermal energy resources
b) Fossile fuel
c) Biomass
d) All of these

16. Which of the following is an example non renewable energy resource.
a) Methane
b) Coal
c) Hydroelectric
d) Solar

17. C.O.D stands for
a) Chemical oxidation demand
b) Cryogenic oxidation demand
c) Critical oxygen demand
d) none of these

18. Which of the following is principle ore of aluminium.
a) Galena
b) Dolomite
c) Fluorspar
d) Bauxite

19. Which of the following process is used in concentration of ore in metallurgy?
a) leaching
b)magnetic seperation
c) Frost flotation
d) All of the Above

20. What is the pH of double distilled water.
a)3
b) 6
c) 7
d) 9

Dr. P. K. Deshmukh
Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

Shri Shivaji Education Society Amravati's
Science College, Congress Nagar, Nagpur
Department of Chemistry
Certificate course in Environmental and Water Management

2019-2020

MARKSHEET

Sr.No.		Name of Students	Theory=50	Internal Assignment= 10	Practical =40	Total Marks =100
1	Ku	Sharvari S. Kshirsagar	48	10	40	98
2	Ku	Arti C. Nimbalkar	45	10	40	95
3	Ku	B. Savita Rao	44	10	40	94
4	Ku	Sakshi S Mohite	46	10	40	96
5	Ku	Sejal S Bulkunde	44	10	40	94
6	Ku	Kanchan Prabha	42	10	40	92
7	Mr	Rohan K Mankar	46	10	40	96

Dr. Yogita K Meshram
Course Coordinator

Course Coordinator
S.S.E.S.A.'s Science College
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.
Institutional Member of APQN
Recognized Centre for Higher Learning and Research
Mentor College under 'PARAMARSH Scheme', UGC, New Delhi

Certificate Course in Certificate Course In Environmental And Water Management

Session: 2019-20

Max. Marks: 50 48/50 Tughs Time:

Roll No: 01 **Note:** Tick √ in the box of correct answer

Date of exam

Q.No	Options	Q.No	Options
1	a. ☐ b. ☑ c. ☐ d. ☐	26	a. ☐ b. ☐ c. ☑ d. ☐
2	a. ☐ b. ☐ c. ☑ d. ☐	27	a. ☐ b. ☐ c. ☐ d. ☑
3	a. ☐ b. ☐ c. ☑ d. ☐	28	a. ☐ b. ☑ c. ☐ d. ☐
4	a. ☑ b. ☐ c. ☐ d. ☐	29	a. ☐ b. ☐ c. ☐ d. ☑
5	a. ☐ b. ☑ c. ☐ d. ☐	30	a. ☐ b. ☒ c. ☐ d. ☑
6	a. ☐ b. ☐ c. ☑ d. ☐	31	a. ☑ b. ☐ c. ☐ d. ☐
7	a. ☐ b. ☑ c. ☐ d. ☐	32	a. ☐ b. ☐ c. ☐ d. ☑
8 X	a. ☑ b. ☐ c. ☐ d. ☐	33	a. ☐ b. ☐ c. ☑ d. ☐
9	a. ☐ b. ☐ c. ☐ d. ☑	34	a. ☐ b. ☑ c. ☐ d. ☐
10	a. ☐ b. ☑ c. ☐ d. ☐	35	a. ☐ b. ☐ c. ☐ d. ☑
11	a. ☐ b. ☐ c. ☐ d. ☑	36	a. ☐ b. ☐ c. ☑ d. ☒
12	a. ☐ b. ☐ c. ☐ d. ☑	37	a. ☐ b. ☐ c. ☑ d. ☐
13	a. ☐ b. ☐ c. ☑ d. ☐	38	a. ☐ b. ☐ c. ☐ d. ☑
14	a. ☑ b. ☐ c. ☐ d. ☐	39	a. ☐ b. ☐ c. ☐ d. ☑
15	a. ☐ b. ☑ c. ☐ d. ☐	40	a. ☐ b. ☐ c. ☐ d. ☑
16	a. ☑ b. ☐ c. ☐ d. ☐	41	a. ☐ b. ☐ c. ☐ d. ☑
17	a. ☐ b. ☐ c. ☐ d. ☑	42 X	a. ☐ b. ☑ c. ☐ d. ☐
18	a. ☑ b. ☐ c. ☐ d. ☐	43	a. ☐ b. ☐ c. ☑ d. ☐
19	a. ☐ b. ☐ c. ☑ d. ☐	44	a. ☑ b. ☐ c. ☐ d. ☐
20	a. ☐ b. ☐ c. ☑ d. ☐	45	a. ☐ b. ☐ c. ☑ d. ☐
21	a. ☑ b. ☐ c. ☐ d. ☐	46	a. ☐ b. ☑ c. ☐ d. ☐
22	a. ☐ b. ☐ c. ☐ d. ☑	47	a. ☐ b. ☑ c. ☐ d. ☐
23	a. ☑ b. ☐ c. ☐ d. ☐	48	a. ☐ b. ☑ c. ☐ d. ☐
24	a. ☐ b. ☑ c. ☐ d. ☐	49	a. ☐ b. ☑ c. ☐ d. ☐
25	a. ☐ b. ☐ c. ☐ d. ☑	50	a. ☐ b. ☐ c. ☑ d. ☐

SSES Amt's Science College Congress Nagar Nagpur

Certificate Course in Environmental and Water Management

(six weeks)

Department of Chemistry

2019-2020

Feedback form

S. N	Questions	Ratings		
1	1. Was this course useful for students carrier	A. Yes	B. No	-
				-
2	2. Did you achieve your learning goals	A. Yes	B. No	-
				-
3	3. How do you rate the prescribed syllabus for course?	A. Excellent	B. Good	C. Satisfactory
4	4. How do you rate the overall certificate course	A. Excellent	B. Good	C. Satisfactory
5.	5. Were you satisfied with the practical session	A. Very satisfied	B. Satisfied	C. Not satisfied

SSES Amt's Science College Congress Nagar Nagpur

Certificate Course in Environmental and Water Management (six weeks)

Department of Chemistry

2019-2020

Feedback Presentation

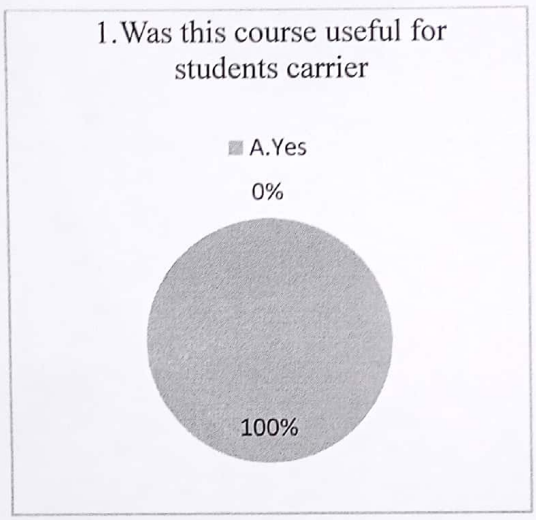
1.	1. Was this course useful for students carrier	A. Yes	B. No	-
		7	0	-
2	2. Did you achieve your learning goals	A. Yes	B. No	-
		7	0	-
3	3. How do you rate the overall certificate course	A. Excellent	B. Good	C. Satisfactory
		7	0	-
4	4. How do you rate the overall certificate course	A. Excellent	B. Good	C. Satisfactory
		7	0	-
5.	5.Were you satisfied with the practical session	A. Very satisfied	B. Satisfied	C. Not satisfied
		6	1	0

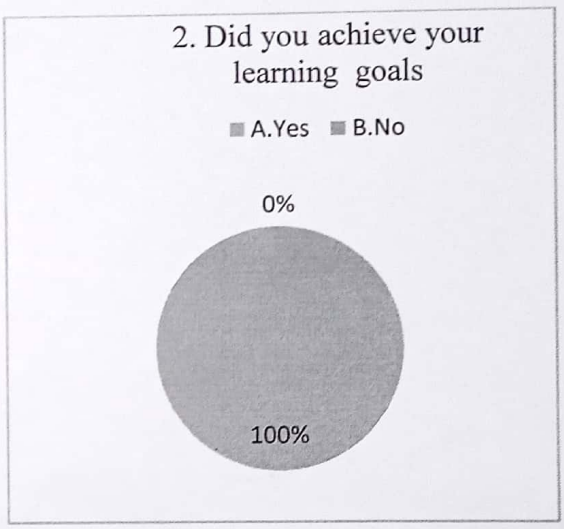
Course Coordinator
S.S.E.S.A,'s Science Colle
Nagpur

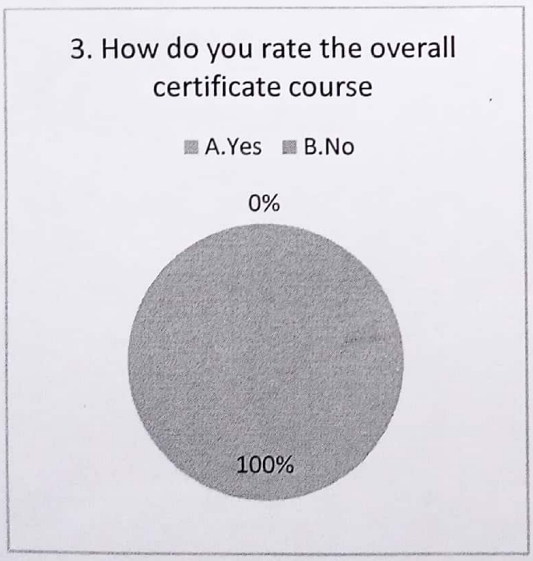
SSES Amt's Science College Congress Nagar Nagpur
Certificate Course in Environmental and Water Management
(six weeks)
Department of Chemistry
2019-2020

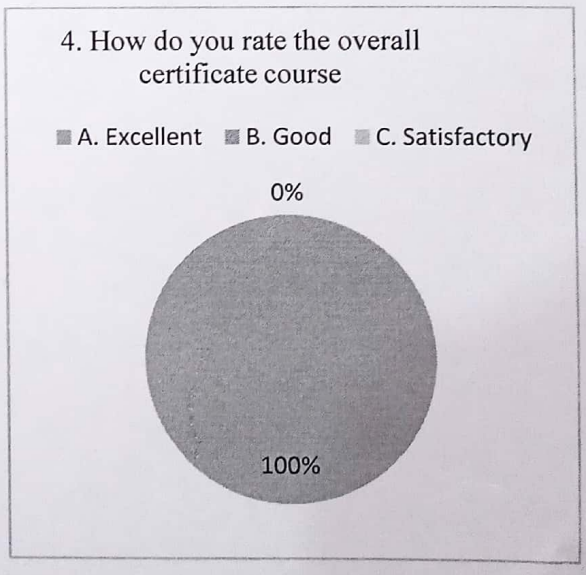
Feedback Presentation

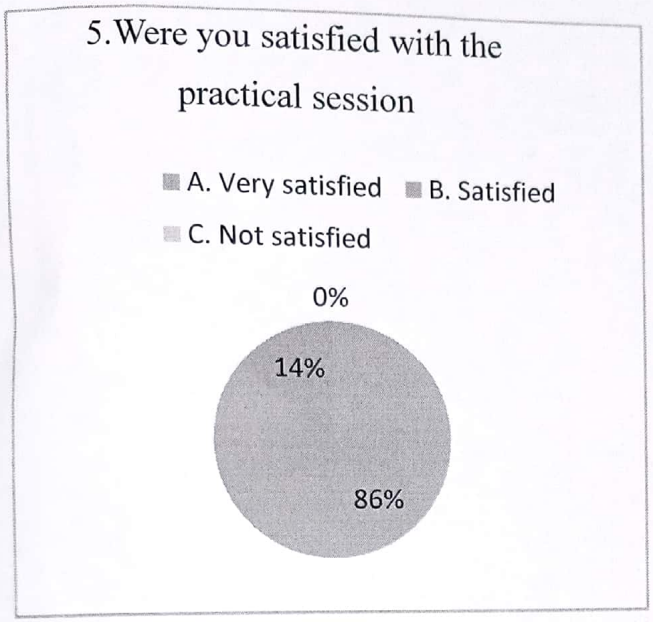
Pie Chart











Internal Quality Assurance Cell
(IQAC)
S. S. E. S. A. Science College
Congress Nagar, Nagpur.

SEAL

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

Rashtrasant Tukadoji Maharaj Nagpur University

Board of Lifelong Learning and Extension

Certificate

Environmental and Water Management

Awards this certificate to ***Ku. Sejal S. Bulkunde***

on satisfactory completion of the Certificate Course in Environmental and Water Management under Jeevan Shikshan Abhiyan run by Department of Lifelong Learning and Extension in collaboration with S. S. E. S.Amt's Science College, Congress Nagar Nagpur. During the session 2019-20.

He/She passed at the examination in Grade ***A***

Course Co-ordinator

Principal

Director
Deptt. of Lifelong Learning and Extension, R.T.M. Nagpur University