

Sevadal Education Society's

Sevadal Mahila Mahavidyalaya

NAAC RE-REACCREDITED WITH 'A' GRADE

Sakkardara Square, Umrer Road, Nagpur - 440 024 (M.S.) Phone No.: 0712-2705037, 2751344 Fax: 0712-2705037 E-mail: sevamahilamv@gmail.com; smm_college@yahoo.co.in Website: https://sevadalmahilamahavidyalaya.ac.in

CERTIFICATE COURSE "BIODEGRADATION OF KITCHEN WASTE"

(Duration - Three Months)

Course Co-ordinators

Dr. (Mrs.) P. P. Morey

Department of Chemistry, Sevadal Mahila Mahavidyalaya, Nagpur

2023 - 2024



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Off. Principal

Sevadal Mahila Mahavidyalaya Nagpur. Course Title: Biodegradation of Kitchen Waste

Course Outline:

01. Module I : Selection of material (i,e Kitchen waste)

02. Module II: Preparation of Compost by various Kitchen waste.

03. Module III: Characterization of material by XRD, Photoluminescence studies

of synthesized material

04. Module IV: Analysis of compost prepared.

Syllabus:

1.Composting

2. Types of composting

3. Important parameters of composting process

4. Effective ingredients required for composting

5. Benefits of composting

6. Kitchen waste

7. Ingredients required for making kitchen compost

8. Types of kitchen waste

9. Methods of kitchen waste composting

10. Analysis of kitchen waste compost

Teaching Methodology:

- 1. Chalk and board method
- 2. Power point presentation
- 3. Practical method for preparing compost
- 4. Various methods for kitchen waste composting
- 5. Analysis of compost
- 6. Field visits

Guest Lectures:

Invited Speakers

1. Mr. Umesh Chitriv

NMC composting Brand Ambassador



Off. Principal
Sevadal Mahila Mahavidyalaya

Nagpur.

Assessment of Students:

Assessment of students was done through theoretical assignments/seminars.

Duration: Three months

Total Hrs: 60 Hrs.

Theoretical/ Hands on training
Composting place visit
50 hrs.
5 hrs.

Assignment and Seminars - 5 hrs.

Time:11.30 am. to 12.30 pm on Thursday, Friday and Saturday Practical's: 3:00pm to 4:30pm on Monday Tuesday

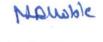
Learning Outcomes:

- 1. Allow students to learn about to create a sustainable and environmentally friendly way to manage organic waste and also to improve soil health.
- 2. This activity provides knowledge about how to transform organic waste material into a nutrient rich soil amendment.
- 3. One of the start-up opportunity
- 4. Gives platform to become a reasearch scholar understanding what is Research, Research papers, References, Paper publications, and further for Ph.d work in solid waste management chemistry.

Course Co-ordinators:

- Dr. (Mrs.) A. S. Mahakalkar, Professor, Department of Chemistry, Sevadal Mahila Mahavidyalaya, Nagpur.
- 2 Dr. (Mrs.) P. P. Morey. Assitainte Professor, Department of Chemistry, Sevadal Mahila Mahavidyalaya, Nagpur.





Course Title:

: Biodegradation of Kitchen Waste

Duration

Three Months

Eligibility

M.Sc. Chemistry, Students, Sevadal Mahila

Mahavidyalaya, Nagpur

Brief Description of the Course and Objectives:

1. To recycle organic waste by composting.

2. To improve soil quality composting is a rich sources of nutrients.

3. To reduce landfill waste composting reduces the amount of waste that ends up in landfills which helps to reduce greenhouse gas emissions and conserve landfill space.

4. To reduce environmental pollution – organic waste that ends up in landfills can generate methane gas, a potent greenhouse gas that contributes to climate change composting of organic waste reduces the amount of methane that is produced.

5. To reduce the need for Synthetic fertilizers- uses of compost reduces the need of synthetic fertilizers though compost is very rich in nutrients.

6. Promote biodiversity, conserve water, reduces soil erosion.

Objectives:

The course aimed at imparting skills on organic composting competitive advantage over others validation of knowledge, increased confidence, enhanced credibility, imparts skill in synthesis strategies. Innovative characterization techniques of compost and chemical systems enhancing and enriching the students learning experience in the college and to bring about a more holistic approach to learning as well as to cultivate and develop necessary skills for various careers.

Off. Principal Sevadal Mahila Mahavidyalaya Nagpur.

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SevadalMahilaMahavidyalaya

Place for Higher Learning and Research (Research Academy) Sakkardara Square, Umrer Road, Nagpur-440024

Date: - 04.12.2023

NOTICE

All the members of the Department of Chemistry are hereby informed that the meeting regarding the Certificate Course in Chemistry has been scheduled on 11th Dec. 2023 at 11.30am at the Hon'ble Principal's Chamber.

Hon'ble Principal Sir will chair the meeting in presence of A.P. Lambat, NAAC Coordinator.

Agenda of the meeting:

- 1) To commence three Certificate Courses in Chemistry Department for UG and PG students.
- 2) To frame the syllabus of the course.
- 3) Any other matter with the permission of the chair.

Copy to:

Dr. A. P. Lambat, NAAC Coordinator

Prof. A. S. Mahakalkar Head,

Department of Chemistry Sevadal Mahila Mahavidyalaya,

Nagpur

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Off. Principal Savadal Mahila Mahavidyalava



SevadalMahilaMahavidyalaya

Place for Higher Learning and Research (Research Academy) Sakkardara Square, Umrer Road, Nagpur-440024

Minutes of the Meeting dated on 11.12.2023

Certificate Courses in Department of Chemistry

The meeting regarding the Certificate Courses run by Department of Chemistry was held on 11th Dec. 2023 at 11.30 am in the Hon'ble Principal's Chamber. Hon'ble Principal Sir presided over the meeting.

Agenda of the meeting:

- 1) To commence three Certificate Courses in Chemistry Department for UG and PG students.
- 2) To frame the syllabus of the course.
- 3) Any other matter with the permission of the chair.

Following Members were present.

| 1) Prof. Pravin Charde, Principal | Chairman |
|-----------------------------------|-------------------------------|
| 2) Dr. A. P. Lambat | IQAC Coodinator |
| 3) Prof. A. S. Mahakalkar | Head, Department of Chemistry |
| 4) Prof. N. S.Dhoble | Member |
| 5) Prof. M. P. Patil | Member |
| 6) Dr.Mrs.P.P. Chahande | Member |
| 7) Dr. Mrs. A. M. Duragkar | Member |
| 8) Dr. Mrs. P. P. Morey | Member |

Prof. A.S. Mahakalkar Head, Department of Chemistry acted as secretary in the meeting. Head of Department welcomed the Chairperson, Hon'ble Principal, other members and called the meeting in order with permission of chairperson, read out agenda of the meeting and subsequently discussed the matter.

Off. Principal Sevadal Mahila Mahavidyalaya Nagpur.

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1) **Item No. 1**: To commence three certificate courses in Chemistry Department. **Resolution:** Unanimously it was decided to commence the Certificate Course in Department of Chemistry from the session 2023-24 with course name and coordinators as follows-

A) "Synthesis and Characterization of Inorganic Phosphors"

Coordinator: Prof Mrs. N. S. Dhoble Member: Dr. Mrs. A. M. Duragkar

B) "Preparation of Liquid Soap and Detergent Powder".

Coordinator: Prof. Mrs. M. P. Patil Member: Dr. P. P. Chahande

C) "Biodegradation of Kitchen Waste"

Coordinator: Prof.Dr. Mrs.A.S. Mahakalkar Member Dr. P. P. Morey

2) Item No. 2: To frame the syllabus of the course.

Resolution: Hon'ble Principal expressed his views regarding the framing of course syllabus. Coordinators and members were asked to prepare syllabus of the respective Certificate Courses.

3) **Item No. 3**: Any other matter with the permission of Chair. **Resolution**: As there was no other matter to discuss, the head of department of chemistry sum up the meeting by expressing thanks for everyone's gracious attendance.

Name

Prof. Pravin Charde, Principal

Dr. A. P. Lambat

Prof. A. S. Mahakalkar

Prof. N. S. Dhoble

Prof. M. P. Patil

Dr. Mrs. P.P. Chahande

Dr. Mrs. A. M. Duragkar

Dr. Mrs. P. P. Morey

Signature

Miss. Es. Malahalkar

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Place for Higher Learning and Research (Research Academy) Sakkardara Square, Umrer Road, Nagpur-440024

Date- 15.12.2023

NOTICE

All the PG students of Department of Chemistry are hereby informed the college has started various certificate courses. One of them is certificate course in "Biodegradation of Kitchen Waste" run by Department of Chemistry.

Interested students should contact following teachers for admission on or before 30th Dec 2023.

- 1) Prof. Mrs. A. S. Mahakalkar
- 2) Dr. Mrs.P.P. Morey

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Off. Principal Sevadal Mahila Mahavidyalaya Nagpur.



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Prof. Pravin Charde

Principal

Sevadal Mahila Mahavidyalaya,



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Place for Higher Learning and Research (Research Academy) Sakkardara Square, Umrer Road, Nagpur-440024

Academic session 2023-24 Student list (MSc Chemistry) Certificate course in Department of chemistry BIODEGRADATION OF KITCHEN WASTE

| Sr.No | Name of the student | Class | | | | | | |
|-------|---------------------|-------------|--|--|--|--|--|--|
| 1. | Rina D. Bobade | MSc.Sem I | | | | | | |
| 2. | Vanshika K. Pal | MSc.Sem I | | | | | | |
| 3. | Sadaf S. Asif Ali | MSc.Sem I | | | | | | |
| 4. | Sakshi N. Badge | MSc.Sem I | | | | | | |
| 5. | Shweta P. Nimje | MSc.Sem I | | | | | | |
| 6. | Gazal A. Hemne | MSc.Sem I | | | | | | |
| 7. | Naina L. Ingle | MSc.Sem I | | | | | | |
| 8. | Amruta N. Bawankule | MSc.Sem I | | | | | | |
| 9. | Ashanka S. Nakade | MSc.Sem III | | | | | | |
| 10. | Avantika V. Bokde | MSc.Sem III | | | | | | |
| 11. | Dipali A. Umre | MSc.Sem III | | | | | | |
| 12. | Harsha S. Kapse | MSc.Sem III | | | | | | |
| 13. | Harshada S. Satpute | MSc.Sem III | | | | | | |
| 14. | Minal R. Bokde | MSc.Sem III | | | | | | |
| 15. | Prachi Y. Wasnik | MSc.Sem III | | | | | | |
| 16. | Prerana E. Mahajan | MSc.Sem III | | | | | | |
| 17. | Sakshi S. Nakhate | MSc.Sem III | | | | | | |
| 18. | Saniya Yameen S. | MSc.Sem III | | | | | | |
| | Tehseen | | | | | | | |
| 19. | Ashanka S. Nakade | MSc.Sem III | | | | | | |
| 20. | Avantika V. Bokde | MSc.Sem III | | | | | | |
| 21. | Dipali A. Umre | MSc.Sem III | | | | | | |
| 22. | Ankita Mamdade | MSc.Sem III | | | | | | |

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Off. Principal
Sevadal Mahila Mahavidyalaya
Nagpur.

Dr. P. P. Morey



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Place for Higher Learning and Research (Research Academy) Sakkardara Square, Umrer Road, Nagpur-440024

Date- 01.04.2024

NOTICE

All the members of the Department of Chemistry are hereby informed that the meeting regarding the Certificate Course in Chemistry has been scheduled on 5th April 2024 at 11.30 am at the hon'ble Principal's Chamber.

Hon'ble Principal madam will chair the meeting in presence of A.P. Lambat, NAAC Coordinator.

Agenda of the meeting:

- 1) To confirm the minutes of the last meeting.
- 2) To review the completion of certificate course syllabus and to decide examination schedule of the course.
- 3) Any other matter with the permission of the chair.

Copy to:

Dr. A. P. Lambat, NAAC Coordinator

Prof. A. S. Mahakalkar
Head,
Department of Chemistry

Sevadal Mahila Mahavidyalaya, Nagpur

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Place for Higher Learning and Research (Research Academy) Sakkardara Square, Umrer Road, Nagpur-440024

Minutes of the Meeting dated on 05.04.2024

Certificate Courses in Department of Chemistry

The meeting regarding the Certificate Courses run by Department of Chemistry was held on 5th April 2024 at 11.30 am in the Hon'ble Principal's Chamber. Hon'ble Principal madam presided over the meeting.

Agenda of the meeting:

- 1) To confirm the minutes of the last meeting.
- 2) To review the completion of certificate course syllabus and to decide examination schedule the course.
- 3) Any other matter with the permission of the chair.

Following Members were present.

1) Prof. N. S.Dhoble

Member

2) Dr. A. P. Lambat

IQAC Coordinator

3) Prof. A. S. Mahakalkar

Head, Department of Chemistry

Mrs. As. Malaballar

4) Prof. M. P. Patil

Member

5) Dr.Mrs.P.P. Chahande

Member

6) Dr. Mrs. A. M. Duragkar

Member

7) Dr. Mrs. P. P. Morey

Member

Prof. A.S. Mahakalkar, Head, Department of Chemistry acted as secretary in the meeting. Head of Department welcomed the Chairperson, Hon'ble Principal and other members and called the meeting in order with permission of chairperson, read out agenda of the meeting and subsequently discussed the matter.

- Item No. 1: To confirm the minutes of the last meeting.
 Resolution The minutes of the last meeting held on 11th Dec 2023 were read by the Head of Department of Chemistry and subsequently the minutes were unanimously approved.
- 2) Item No. 2: To review the completion of certificate course syllabus and to decide examination schedule of the course.

Resolution: Hon'ble Principal madam overviewed the course completion of respective certificate courses run by department of chemistry and also guided about the examination pattern and schedule of examination to be commenced in this month.

4) Item No. 3: Any other matter with the permission of Chair.

Resolution: As there was no other matter to discuss, the head of department of chemistry sum up the meeting by expressing thanks for everyone's gracious attendance.

Name

1. Prof. N. S.Dhoble

2. Dr. A. P. Lambat

3. Prof. A. S. Mahakalkar

4. Prof. M. P. Patil

5. Dr.Mrs.P.P. Chahande

6. Dr. Mrs. A. M. Duragkar

7. Dr. Mrs. P. P. Morey

Signature

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Off. Principal

Nagpur.



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Place for Higher Learning and Research (Research Academy) Sakkardara Square, Umrer Road, Nagpur-440024

Date- 15.04.2024

NOTICE

All the students enrolled for Certificate Course "Biodegradation of Kitchen Waste" are hereby informed that the timetable of theory and practical examination is as follows-

| Date | Time |
|-------------|------------------|
| 20.04.2024 | 11.00am- 2.00 pm |
| 29.04. 2024 | 11.00am -2.00pm |

Take note of the same.

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Dr. Mrs. P. P. Morey

Member,

Certificate Course

Sevadal Mahila Mahavidyalaya,

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Place for Higher Learning and Research (Research Academy)
Sakkardara Square, Umrer Road, Nagpur-440024

Academic session 2023-24 Question Paper Certificate course BIODEGRADATION OF KITCHEN WASTE

| Que 1. Answer the following | 25 |
|---|----|
| a) What is composting? | |
| b) What are the types of composting? Explain in brief. | |
| c) Explain types of waste. | |
| d) What are the methods of composting? | |
| e) Explain phases of composting. | |
| Que 2. Answer the following | 25 |
| a) What are the benefits of composting? | |
| b) Which material is used in kitchen composting. | |
| c) What is waste decomposer? | |
| d) Explain some objectives of composting. | |
| e) Explain Bag method for kitchen waste composting. | |
| Que 3. Answer the following | 10 |
| a) What is anaerobic composting? | |
| b) Explain "Compost is a rich source of organic matter" | |
| c) Explain vermicomposting | |
| d) Explain Non-Biodegradable Waste. | |
| e) What is E-Waste? | |
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Sevadal Mahila Mahavidyalaya

Place for Higher Learning and Research (Research Academy) Sakkardara Square, Umrer Road, Nagpur-440024

Academic session 2023-24 Assingnment Questions Certificate course BIODEGRADATION OF KITCHEN WASTE

Que 1. Answer the following

- a) What is composting?
- b) What is E-Waste?
- c) Explain "Compost is a rich source of organic matter"
- d) Explain some objectives of composting.
- e) Explain types of waste.



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Sevadal Mahila Mahavidyalaya

Place for Higher Learning and Research (Research Academy)
Sakkardara Square, Umrer Road, Nagpur-440024

Academic session 2023-24 Student list (MSc Chemistry) Certificate course in Department of chemistry BIODEGRADATION OF KITCHEN WASTE RESULT

| Sr.No | Name of the student | Class | Marks Assignment 20 | Marks Practical 20 | Marks Theory 60 | Total Marks 100 | Grade |
|-------|-----------------------------|-------------|---------------------------|--------------------------|-----------------------|-----------------------|-------|
| 1. | Rina D. Bobade | MSc.Sem I | 15 | 15 | 50 | 80 | A |
| 2. | Vanshika K. Pal | MSc.Sem I | 15 | 15 | 55 | 85 | A |
| 3. | Sadaf S. Asif Ali | MSc.Sem I | 15 | 15 | 55 | 85 | A |
| 4. | Sakshi N. Badge | MSc.Sem I | 15 | 15 | 55 | 85 | A |
| 5. | Shweta P. Nimje | MSc.Sem I | 15 | 15 | 50 | 80 | A |
| 6. | Gazal A. Hemne | MSc.Sem I | 15 | 15 | 55 | 85 | A |
| 7. | Naina L. Ingle | MSc.Sem I | 15 | 15 | 45 | 75 | В |
| 8. | Amruta N. Bawankule | MSc.Sem I | 15 | 15 | 50 | 80 | A |
| 9. | Ashanka S. Nakade | MSc.Sem III | 15 | 15 | 50 | 80 | A |
| 10. | Avantika V. Bokde | MSc.Sem III | | | | 75 | |
| 11. | Dipali A. Umre | MSc.Sem III | 15 | 15 | 50 | 80 | A |
| 12. | Harsha S. Kapse | MSc.Sem III | 15 | 15 | 55 | 85 | A |
| 13. | Harshada S. Satpute | MSc.Sem III | 15 | 15 | 55 | 85 | A |
| 14. | Minal R. Bokde | MSc.Sem III | 15 | 15 | 55 | 85 | A |
| 15. | Prachi Y. Wasnik | MSc.Sem III | 15 | 15 | 50 | 80 | A |
| 16. | Prerana E. Mahajan | MSc.Sem III | 15 | 15 | 50 | 80 | A |
| 17. | Sakshi S. Nakhate | MSc.Sem III | 15 | 15 | 55 | 85 | A |
| 18. | Saniya Yameen S. Tehseen | MSc.Sem III | 15 | 15 | 45 | 75 | В |
| 19. | Ankita Mandade | MSc.Sem III | 15 | 10 | 45 | 70 | В |
| 20. | Adiba Khanam | MSc.Sem III | 15 | 10 | 45 | 70 | В |



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Certificates were distributed to the students after successful completion of the certificate course.

Total No. of Students Enrolled = 20

No. of Students Absent = 00

Total No. of Students Appeared = 20

Dr. Mrs. P.P. Morey

(Member)

Mo. KS. Mahahallar Prof. Mrs. A. S. Mahakalkar

(Course Coordinator)

Course Co-ordinators:

- 1 Dr. (Mrs.) A. S. Mahakalkar, HOD Department of Chemistry, Sevadal Mahila Mahavidyalaya, Nagpur.
- 2 Dr. (Mrs.) P. P. Morey, Assistant Professor, Department of Chemistry, Sevadal Mahila Mahavidyalaya, Nagpur.

| SEVADAL SHIKSHAM SANSTHA SEVADAL MAILLA MAIL RESEARCH ACADEMY SARGEMAN ACADEMY A P P P P P P P P P P P P P P P P P P | | | | | | | 5 F | + | | = | ř | | | | | ? . | | | P . | ₹ R | 1 | A STATE OF THE PARTY OF THE PAR |
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| | | Saniya yasmeens Jehse | scukshi s. Nakhate | e. Maha | ÷ | P | | 7 0 | 24. | Ashanka s. Nakade | Ankite N. Mandade | Adiba khanam | Ms. Amouta N. Bawansale | Ms. Naina L. Ingle | . | | | 15 . Vanshikta K. pal | 0 | | Sakkardara Square, Umrer Roc | SEVADAL SHIKSHAN SANSTHA SEVADAL MAHILA MAI 8. RESEARCH ACADEMY |
| | | 444444444444444444444444444444444444444 | APPPPPPPPP | PAPPPPPPNTT | PAPPPPPPP | 99900000000000 | 999999999999 | 000000000000000000000000000000000000000 | PAPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP | POPPONY POPPONO | PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP | 200000000000000000000000000000000000000 | 80000000000000000000000000000000000000 | P P P P P P P P P P P P P P P P P P P | 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | > 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | 000000000000000000000000000000000000000 | 3 V 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 05 01 24 06 01 24 11 01 24 12 01 24 13 01 24 13 01 24 19 01 24 20 01 24 27 01 24 28 02 24 03 02 24 06 02 24 10 02 25 10 02 25 10 02 25 10 02 25 | Attendance for the | certificale course |
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Sevadal Shikshan Sanstha's NAAC RE-ACCREDITED WITH 'A' GRADE

Sevadal Mahila Mahavidyalaya

Place for Higher Learning and Research (Research Academy) Sakkardara Square, Umrer Road, Nagpur-440024

Certificate of Completion

This certificate is awarded to

Ms. Minal R. Bokde

she has successfully completed the Certificate Course in "Biodegradable Waste Management

conducted by the Department of Chemistry.

Date: 30/04/2024

Dr. (Ms.) Pratiksha Morey **Course Coordinator**

Maushe Prof. (Mrs.) Nirupama S. Dhoble