



Shri Shivaji Education society, Amravati's
Shri Shivaji Science and Arts College,
Chikhli, Dist.-Buldana



॥ ज्ञानम् परम् ध्येयम् ॥

Department of Physics

Action taken report on Certificate Course in Basics of Nanotechnology

Academic year: 2023-2024

22 January 2024 to 22 April 2024

Action Taken Report

Activity: Certificate Course in Basics of Nanotechnology

Aim: To learn & understand nanotechnology and how research works to do in materials science.

Notice: Leaflets are attached with this action taken report

- Organizer** : Department of Physics
: Dr. Meena T. Nikam, Officiating Principal, Shri Shivaji Science & Arts College Chikhli
- IQAC Coordinator Name** : Dr. V. U. Pochhi
- Convener** : Mr. N. B. Thakare, Department of Physics
- Course Coordinator** : Dr. Pallavi B. Nalle, Department of Physics
- Organizing Member** : Dr. V. B. Huse, Department of Physics
Dr. P. P. Padghan, Department of Physics
Dr. D. N. Bhoyar, Department of Physics
- Resource Persons** : **Dr. C. M. Kanamadi**,
Department of Physics, Devchand College, Arjun Nagar, Kolhapur.
Dr. R. S. Sutar,
Post Doctoral Fellow Henan University, Kaifeng, 475004, China.
Dr. Sagar E. Shirsath,
Department of Physics, Lecturer, Vivekanand College, Aurangabad, MS, India.
Visiting Fellow, University of New South Wales, Sydney, Australia.
Mr. N. B. Thakare,
Department of Physics, Shri Shivaji Science and Arts College, Chikhli.
Dr. V. B. Huse,
Department of Physics, Shri Shivaji Science and Arts College, Chikhli.
Dr. Pallavi B. Nalle,
Department of Physics, Shri Shivaji Science and Arts College, Chikhli.
Dr. P. P. Padghan,
Department of Physics, Shri Shivaji Science and Arts College, Chikhli.
Dr. D. N. Bhoyar,
Department of Physics, Shri Shivaji Science and Arts College, Chikhli.
- Number of Participants** : 30

Action Taken:

Department of Physics of Shri Shivaji Science College Chikhli, organized Certificate Course in Basics of Nanotechnology which is held during duration 22 January 2024 to 22 April 2024. First of all, welcome address is given by IQAC Coordinator Dr. V. U. Pochhi, after that principal address of Dr. Meena T. Nikam was held where she emphasized on the today's situation of Nano science and technology which is very useful for career building of young students.

Dr. Pallavi B. Nalle introduced the resource person Dr. C. M. Kanamadi, Department of Physics, Devchand College, Arjun Nagar, Kolhapur. He gives the details information of Module 1: Introduction to Nanotechnology which covers topics Nanoscience, Nanoparticles, History of nanoparticles,

Nanotechnology, Effect of size on nanoparticles.

Module 2: Nanomaterials was introduced by Dr. R. S. Sutar, Post Doctoral Fellow Henan University, Kaifeng, 475004, China he gives the information about types of nanomaterials, properties of nanomaterials (structural, morphological, electrical, magnetic, optical, superconductivity), application and drawbacks of nanomaterials.

Module 3: Preparation Method was delivered by Mr. N. B. Thakre and Dr. Pallavi B. Nalle. They covers the topics such as Synthesis of Nanomaterials, types of synthesis method, physical method, chemical method, weight chemical method, green synthesis, application and drawbacks of synthesis methods.

Dr. Sagar E. Shirshat, Department of Physics, Lecturer, Vivekanand College, Aurangabad, MS, India. Visiting Fellow, University of New South Wales, Sydney, Australia. delivered a Module 4: Characterization Techniques which covers the topics TG-DTA, XRD, FTIR, SEM, TEM, 2/4 Prob Method (DC Resistivity), LCR-Q Meter (Dielectric), VSM etc.

Case study of nanomaterials was completed by Dr. D.N. Bhojar in which he covers the case study of Oxides, ferrites, perovskite, graphene etc. After all the sessions the question answer carried out to solve student's queries.

Practical session is taken in offline mode in Department of Physics by all physics teacher with help of non-teaching staff Mr. E. L. Jadhao & Mr. A. B. Bahekar. For final examination & for assignment only 20 students are selected. But overall lecture and practical are taken to all B.Sc. students.




PRINCIPAL
Shri Shivaji Science & Arts
College, Chikhli, Dist. Buldana

Evidence of Success

Dr. Chidambaram Presenting

OUTLINE....

- oNanomaterials
- oNanoscience
- oNanotechnology
- oSmall Size: Big Impact....!!!
- oSynthesis methods
- oApplications

11:07 AM | hsk-hgla-gpp

Dr. Chidambaram Presenting

EXAMPLES OF PROGRESS IN TECHNOLOGY

QLED vs OLED

11:07 AM | hsk-hgla-gpp

Dr. Chidambaram Presenting

Technology is everywhere.....!!! In all fields!!!

Applications

- Optical engineering and instrumentation
- Biomedical and drug delivery
- Electronics
- Agriculture and food
- Manufacturing and materials
- Genomics and health
- Defense and security
- Energy storage
- Nanotechnology
- Tools

11:16 AM | hsk-hgla-gpp

Dr. Chidambaram Presenting

IS SIZE A MATERIAL PROPERTY?

The gold we know: Material properties don't change with size - resistivity - melting point

The gold we are discovering: Material properties (such as optical Absorption, shown here) change with the size of the gold nanoparticle.

11:28 AM | hsk-hgla-gpp

Rajaram Sutar Presenting

Shri Shriji Science & Arts College, Chikhi Dist. Buldhana

Department of Physics

Organized Certificate Course in Basics of Nanotechnology

11:20 AM | hsk-hgla-gpp

Rajaram Sutar Presenting

Types of nanomaterials

11:28 AM | hsk-hgla-gpp

Rajaram Sutar (Presenting)

Gold

| | Uniaxial | Uniaxial | Uniaxial | Uniaxial | Uniaxial |
|------------------------------|----------|----------|----------|----------|----------|
| Number of faces | 4 | 6 | 8 | 10 | 12 |
| Number of vertices | 4 | 6 | 8 | 10 | 12 |
| Number of edges | 6 | 12 | 18 | 24 | 30 |
| Number of diagonals | 0 | 9 | 27 | 54 | 90 |
| Number of planes of symmetry | 6 | 12 | 18 | 24 | 30 |
| Number of axes of symmetry | 3 | 6 | 9 | 12 | 15 |

11:48 AM | hsk-hgka-ggr

Rajaram Sutar (Presenting)

OPTICAL PROPERTIES

Red: $\lambda_g \sim 100 \text{ nm}$, Triangle
 Yellow: $\lambda_g \sim 100 \text{ nm}$, Spheres
 Green: $\lambda_g \sim 50 \text{ nm}$, Spheres
 Light blue: $\lambda_g \sim 40 \text{ nm}$, Spheres
 Blue: $\lambda_g \sim 40 \text{ nm}$, Spheres

11:52 AM | hsk-hgka-ggr

Sagar Shrivasth (Presenting)

1:16 PM | hsk-hgka-ggr

Sagar Shrivasth (Presenting)

1:31 PM | hsk-hgka-ggr

Sagar Shrivasth (Presenting)

1:52 PM | hsk-hgka-ggr

Sagar Shrivasth (Presenting)

2:12 PM | hsk-hgka-ggr



Shri Shivaji Education Society Amravati's
SHRI SHIVAJI SCIENCE AND ARTS
COLLEGE, CHIKHLI, DIST. BULDANA-443201
NAAC Reaccredited with B++ Grade (CGPA 3.00)
ISO: 9001-2015

Dr. M. T. Nikam
Principal (Officiating)

Hon'ble Shri Harshvardhan Deshmukh
President

CS/Invitation (2024/768)

Date: 17 / 02 / 2024

Invitation

To,
Dr. C. M. Kanamadi
Department of Physics,
Devchand College,
Arjun Nagar,
Kolhapur.

Respected Sir,

With warm regards, we are pleased to invite you as a Guest Lecture in the "Certificate Course in Basics of Nanotechnology" organised by the Department of Physics and Internal Quality Assurance Cell (IQAC) of our college on 21st February 2024 at 11:00 AM.

Kindly accept our invitation.

Thanking You.

Dr. M. T. Nikam

Date: 17 / 02 / 2024

Place: Chikhli

Principal
PRINCIPAL
Shri Shivaji Science & Arts
College, Chikhli, Dist. Buldana



Shri Shivaji Education Society Amravati's

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ISO: 9001-2015



**Dr. M. T. Nikam
Principal (Officiating)**

**Hon'ble Shri Harshvardhan Deshmukh
President**

cs/certificate/2024/769

Date: 21 / 02 / 2024

Certificate of Appreciation

This is to certify that **Dr. C. M. Kanamadi**, Department of Physics, Devchand College, Arjun Nagar, Kolhapur has delivered an online guest lecture as a resource person on the topic, "Module 1: Introduction to Nanotechnology" in our college on dated 21/02/2024. This lecture was arranged in the "Certificate Course in Basics of Nanotechnology" organized by the Department of Physics of our College.

I appreciate the valuable guidance of **Dr. C. M. Kanamadi** to our students and I am thankful to him.

Thanking You,


Dr. M. T. Nikam

Date: 21 / 02 / 2024

Place: Chikhli

Principal
PRINCIPAL
Shri Shivaji Science & Arts
College, Chikhli, Dist. Buldana

www.ssesa.org www.shivajichk.ac.in

E-mail:- shivajichk@rediff.com Phone:- (07264) 242088(0)

We Educate, Inspire and Empower...

Shri Shivaji Science & Arts College, Chikhli, Dist. Buldhana.

Department of Physics

Certificate Course in Basics of Nanotechnology

22 January 2024 to 22 April 2024

Attendance Sheet

January 2024

| Sr No | Name of Student | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|-------|--------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 01 | Abhishek P. Kute | | | | | | | | | | | | | | | | | | | | | | P | A | P | S | P | P | P | P | P | |
| 02 | Buddhabhushan B. Gaikwad | | | | | | | | | | | | | | | | | | | | | | P | P | P | N | P | P | P | P | P | |
| 03 | Divya R. Lakhade | | | | | | | | | | | | | | | | | | | | | | P | P | P | D | P | P | P | P | P | |
| 04 | Dnyaneshwar H. Bakal | | | | | | | | | | | | | | | | | | | | | | A | P | P | E | P | D | P | P | P | |
| 05 | Hrushikesh P. Shelke | | | | | | | | | | | | | | | | | | | | | | P | P | P | P | A | P | P | P | P | |
| 06 | Jayashri M. Sable | | | | | | | | | | | | | | | | | | | | | | P | P | P | E | P | P | P | P | P | |
| 07 | Komal F. Sonune | | | | | | | | | | | | | | | | | | | | | | P | P | P | N | P | P | P | P | P | |
| 08 | Komal S. Sonune | | | | | | | | | | | | | | | | | | | | | | P | P | P | D | P | P | P | P | P | |
| 09 | Mohammad Sahil M. S. | | | | | | | | | | | | | | | | | | | | | | P | P | P | E | A | P | P | P | P | |
| 10 | Nagesh S. Dakre | | | | | | | | | | | | | | | | | | | | | | P | P | P | N | P | P | P | P | P | |
| 11 | Pavan S. Lokhande | | | | | | | | | | | | | | | | | | | | | | P | P | P | C | P | P | P | P | P | |
| 12 | Pinki S. Kumavat | | | | | | | | | | | | | | | | | | | | | | P | P | P | E | P | P | P | P | P | |
| 13 | Pranita Shete | | | | | | | | | | | | | | | | | | | | | | P | P | P | P | P | P | P | P | P | |
| 14 | Priti D. Chandre | | | | | | | | | | | | | | | | | | | | | | P | P | P | E | P | P | P | P | P | |
| 15 | Rutuja Rahate | | | | | | | | | | | | | | | | | | | | | | P | P | P | A | P | P | P | P | P | |
| 16 | Sakshi Chavan | | | | | | | | | | | | | | | | | | | | | | P | P | P | A | P | P | P | P | P | |
| 17 | Sakshi K. Hanwate | | | | | | | | | | | | | | | | | | | | | | P | P | P | Y | P | P | P | P | P | |
| 18 | Sapana M. Lende | | | | | | | | | | | | | | | | | | | | | | P | P | P | P | P | P | P | P | P | |
| 19 | Shaikh Rizvan S. S. | | | | | | | | | | | | | | | | | | | | | | P | P | P | P | P | P | P | P | P | |
| 20 | Shital Vir | | | | | | | | | | | | | | | | | | | | | | P | P | P | A | P | P | P | P | P | |

Shri Shivaji Science & Arts College, Chikhli, Dist. Buldhana.

Department of Physics

Certificate Course in Basics of Nanotechnology

22 January 2024 to 22 April 2024

Attendance Sheet

February 2024.

| Sr. No | Name of Student | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | |
|--------|--------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
| 01 | Abhishek P. Kute | P | P | P | S | P | P | P | P | P | P | S | P | P | P | P | P | P | P | S | P | A | P | P | P | P | S | P | P | P | P | | |
| 02 | Buddhabhushan B. Gaikwad | A | P | P | U | P | P | P | P | P | P | U | P | P | P | A | P | P | P | U | H | P | P | P | P | P | U | P | P | P | P | | |
| 03 | Divya R. Lakhade | P | P | P | N | P | P | P | P | P | P | N | A | P | P | P | P | P | P | N | S | P | P | P | P | P | P | P | P | P | P | | |
| 04 | Dnyaneshwar H. Bakal | P | P | P | D | P | P | P | P | P | P | D | P | P | P | P | P | P | P | D | V | P | P | P | P | P | P | P | P | P | P | | |
| 05 | Hrushikesh P.Shelke | P | P | P | A | P | P | P | P | P | P | A | P | P | P | P | P | P | P | A | | P | P | P | P | P | P | P | P | P | P | | |
| 06 | Jayashri M.Sable | P | P | P | Y | P | P | P | A | P | P | Y | P | P | P | P | P | P | P | Y | J | P | P | P | P | P | Y | P | P | P | P | | |
| 07 | Komal F. Sonune | P | P | P | P | P | P | P | P | P | P | | P | P | P | P | P | P | P | | A | P | P | P | P | P | | P | P | P | P | | |
| 08 | Komal S. Sonune | P | P | P | P | P | P | P | P | P | P | | A | P | P | P | P | P | P | | Y | P | P | P | P | P | | P | P | P | P | | |
| 09 | Mohammad Sahil M. S. | P | P | P | P | P | P | P | P | P | P | | P | P | P | P | P | P | P | | A | P | P | P | P | P | | P | P | P | P | | |
| 10 | Nagesh S. Dakre | P | P | P | P | P | P | P | P | P | P | | P | P | P | P | P | P | P | | N | P | P | P | P | P | | P | P | P | P | | |
| 11 | Pavan S. Lokhande | P | P | P | P | P | P | P | A | P | P | | P | P | P | P | P | P | P | | T | P | P | P | P | P | | P | A | P | P | | |
| 12 | Pinki S.Kumavat | P | P | P | P | P | P | P | P | P | P | | A | P | P | P | P | P | P | | S | P | P | P | P | P | | P | P | P | P | | |
| 13 | Pranita Shete | P | P | P | P | P | P | P | P | P | P | | P | P | P | P | P | P | P | | | P | P | P | P | P | | P | P | P | P | | |
| 14 | Priti D. Chandre | P | A | P | P | P | P | P | P | P | P | | P | P | P | P | P | P | P | | | P | P | P | P | P | | P | P | P | P | | |
| 15 | Rutuja Rahate | P | P | P | P | P | P | P | A | P | P | | P | P | P | P | P | P | P | | | P | P | P | P | P | | P | P | P | P | | |
| 16 | Sakshi Chavan | P | P | P | P | P | P | P | P | P | P | | P | P | P | P | P | P | P | | | P | P | P | P | P | | P | P | P | P | | |
| 17 | Sakshi K. Hanwate | P | P | P | P | P | A | P | P | P | P | | P | P | P | P | P | P | P | | | P | P | P | P | P | | P | P | P | P | | |
| 18 | Sapana M. Lende | P | P | P | P | P | P | P | P | P | P | | P | P | P | P | P | P | P | | | P | P | P | P | P | | P | P | P | P | | |
| 19 | Shaikh Rizvan S. S. | P | P | P | P | P | P | P | P | P | P | | P | P | P | P | P | P | P | | | P | P | P | P | P | | P | P | P | P | | |
| 20 | Shital Vir | P | P | P | P | P | A | P | P | P | P | | P | P | P | P | P | P | P | | | P | P | P | P | P | | P | P | P | P | | |

SHRI SHIVAJI EDUCATION SOCIETY AMRAVATI



SHRI SHIVAJI SCIENCE AND ARTS
COLLEGE, CHIKHLI, DIST. BULDHANA

॥ ज्ञानम् परम् ध्येयम् ॥

CERTIFICATE COURSE
IN
BASICS OF NANOTECHNOLOGY

This is certified that*Narbhav E. Lakade*.....of Shri
Shivaji Science and Arts College, Chikhli, Dist. Buldhana, class B. Sc. has
participated in Certificate Course in Basics of Nanotechnology organised by
Department of Physics of Shri Shivaji Science and Arts College, Chikhli, Dist.
Buldhana dring 22 January 2024 to 22 April 2024.

Pallavi B. Nalle

Dr. Pallavi B. Nalle
Course Coordinator

V. B. Huse

Dr. V. B. Huse
Convener

Vanita U. Pochhi

Dr. Vanita U. Pochhi
IQAC Coordinator

Meena T. Nikam

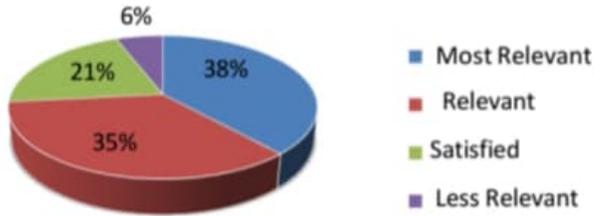
Dr. Meena T. Nikam
Officiating Principal

Head. Dent. of Physics

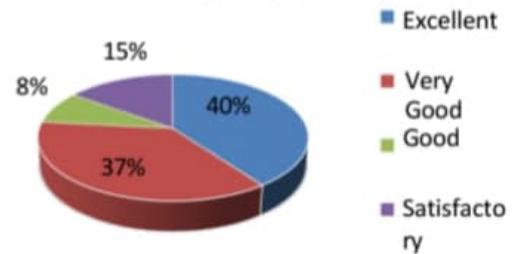
11) Feedback & Action Taken:

Feedback: The overall feedback of the participants about course as follows,

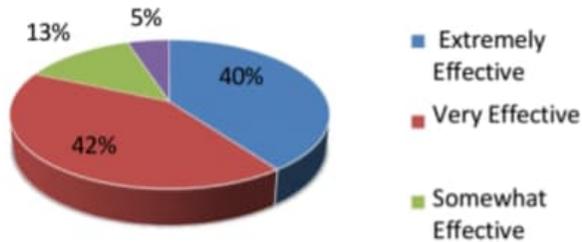
1) How do you rate the relevancy of the theme of the Lecture?



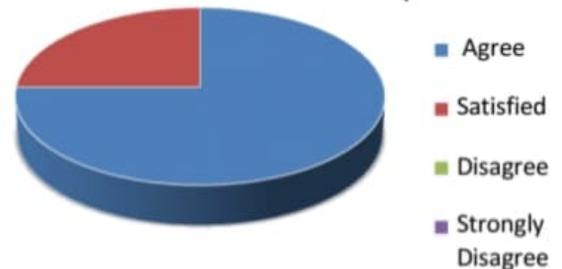
2) How do you find the content of this Course?



3) How do you rate the quality of the delivery of the lecture & practical by the resource person?



4) The session delivered the information as I had expected



Shri Shivaji Science & Arts College, Chikhli, Dist. Buldhana.

Department of Physics

Certificate Course

in

Basics of Nanotechnology

Feedback Form

Date:

Name of Participant: Sapna Madan Lende

Class: IInd

Contact Number: 9322869683

Email: Lendesapna4@gmail.com

1] How do you find the content of this course?

- Most Relevant
- Relevant
- Satisfied
- Less Relevant

2] How do you rate the relevancy of the theme of the lecture?

- Excellent
- Very Good
- Good
- Satisfactory

3] How do you rate the quality of the lecture & practical's by the resource person?

- Extremely Effective
- Very Effective
- Slightly Effective
- Effective

4] The session delivered the information as I had expected.

- Agree
- Satisfied
- Disagree
- Strongly Disagree

5] How relevant and helpful do you think it would be for your knowledge?

- Strongly Agree
- Agree
- Satisfied
- Disagree

6] Rate overall knowledge level covered by session.

- Excellent
- Very Good
- Good
- Satisfied

7] Valuable suggestions in shorts.


Signature

Shri Shivaji Science & Arts College, Chikhli, Dist. Buldhana.

Department of Physics

Certificate Course

in

Basics of Nanotechnology

Feedback Form

Date:

Name of Participant: Vaibhav Gajanan Lakde

Class: B.Sc-IInd year

Contact Number: 9579 667296

Email: vaibhavlakde.712004@gmail.com

1] How do you find the content of this course?

- Most Relevant
- Relevant
- Satisfied
- Less Relevant

2] How do you rate the relevancy of the theme of the lecture?

- Excellent
- Very Good
- Good
- Satisfactory

3] How do you rate the quality of the lecture & practical's by the resource person?

- Extremely Effective
- Very Effective
- Slightly Effective
- Effective

4] The session delivered the information as I had expected.

- Agree
- Satisfied
- Disagree
- Strongly Disagree

5] How relevant and helpful do you think it would be for your knowledge?

- Strongly Agree
- Agree
- Satisfied
- Disagree

6] Rate overall knowledge level covered by session.

- Excellent
- Very Good
- Good
- Satisfied

7] Valuable suggestions in shorts.


Signature