

Department of Physics

Date: 27/04/2024

To,
The Principal,
Tuljaram Chaturchand College of Arts, Science and Commerce
Baramati.

Subject: Report of Certificate Course conducted by Department of Physics.

Respected Sir,

Offline certificate course entitled, "Advanced Techniques in Physics" has been conducted by Department of Physics, from 05/03/2024 to 19/03/2024. With your prior permission total 48 T.Y.B.Sc, M.Sc-I and M.Sc-II students enrolled for this course. After completion of this course, depending on the performance, all the students are qualified for the certificate. A detailed report with student name, class and remark are attached herewith. This report is submitted for your information.

Thanking you,

Yours Sincerely,



Mr.S.M.Thorat
Coordinator



Dr.M.H.Gajbhiye
Science faculty
Coordinator



Dr.R.T.Sapkal
Certificate Course
Coordinator



Prof. Dr. A.E.Kalange
Head
Department of Physics

Mr. S. M. Thorat
Department of Physics
T.C.College, Baramati
Date: 09/02/2024

To,
The Principal,
T.C.College, Baramati

Subject: Requesting to arrange Certificate Course in "Advanced Techniques In Physics"

Respected Sir,
As we know that, according to the norms of autonomous college T.Y.B.Sc and M.Sc-II (Total-29) students should compulsory registered for certificate course. Accordingly, our Department of Physics prepared certificate course in, "Advanced Techniques In Physics". Herewith we are enclosing the course schedule, structure and other details for your kind permission. Kindly do the needful in this matter and obliged.

Thanking you.

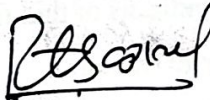
Yours Faithfully

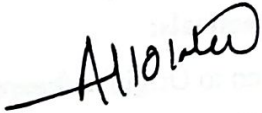

Mr. S.M. Thorat

Forwarded through HOD


Coordinator


Head
Department of Physics


Certificate
Course Coordinator


09/02/24
Principal

Course Description: This course provides an overview of the fundamental principles and techniques of research. Students will explore various research methodologies, develop critical thinking skills, and gain hands-on experience in designing and conducting research projects.

Course Objectives: Upon completion of this course, students should be able to:

1. Understand the importance of research in various disciplines.
2. Identify and differentiate between different research methodologies.
3. Critically evaluate research literature and sources.
4. Develop a research question and hypothesis.
5. Design a research study and choose appropriate methods.
6. Collect and analyze data using quantitative and qualitative approaches.
7. Interpret research findings and draw conclusions.
8. Communicate research results effectively through written and oral presentations.

Unit 1: Research Design And Data Analysis

Formulating research questions and hypotheses, experimental skills, need of data analysis, introduction to statistical analysis, qualitative data analysis technique, data interpretation and drawing conclusions, research presentations and effective communication, peer review and feedback, final project presentations.

Unit 2: Advanced Characterisation Techniques

X-ray diffraction technique (XRD), UV-Visible Infra Red Spectroscopy (UV-Vis), Fourier Transformed Infra Red Spectroscopy (FT-IR), Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Electrical Conductivity, Magnetic Properties.

❖ List of Practicals:

- 1) Introduction to Origin software and Xpert- High score for graph plotting and analysis.
- 2) Spray Pyrolysis technique for synthesis of thin films.
- 3) To study and use of photocatalytic reactor.
- 4) Introduction of muffle furnace for annealing and sintering purpose.
- 5) To Study Vacuum Deposition technique for synthesis of thin film.
- 6) To study spin coating method for synthesis of thin film.

Anekant Education Society's

Tuljaram Chaturchand College of Arts, Science & Commerce, Baramati.

(Autonomous)

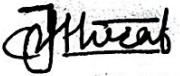
Certificate Course for UG/PG 2023-24

This is to inform all the regular students of T.Y.B.Sc, M.Sc-I & M.Sc-II (Regular) (Pattern 2019 &2022) that the admission procedure of certificate courses has started for the academic year 2023-24. The concerned students must visit college website for confirming their admission on or before 17th February 2024.

For T.Y.B.Sc Students it is mandatory to complete FIVE certificate courses for B.Sc degree.

Link for registration:

https://www.tccollege.org/Forms/Pay_OnlineCertificate.aspx



Mr. S. M. Thorat

Co-ordinator



Head

Department of Physics

Anekant Education Society
Puljaram Chaturchand College of Art's, Science & Commerce, Baramati
(Autonomous)

Affiliated to Savitribai Phule Pune University, Pune

DEPARTMENT OF PHYSICS

CERTIFICATE COURSE

In

ADVANCED TECHNIQUES IN DEVICES

TIME TABLE 2024 (Theory)

| Day & Date | Tuesday 05/03/2024 | Wednesday 06/03/2024 | Thursday 07/03/2024 | Saturday 09/03/2024 | Monday 10/03/2024 | Tuesday 12/03/2024 |
|------------|-----------------------|-------------------------|------------------------|------------------------|-----------------------|-----------------------|
| Time | 03.00 to 05.00 P.M | 03.00 to 05.00 P.M | 03.00 to 05.00 P.M | 03.00 to 05.00 P.M | 03.00 to 05.00 P.M | 03.00 to 05.00 P.M |
| Teacher | SBK | VSM | RTS | RBK | SBK a | SMT |

RTS: Dr. R. T. Sapkal

SBK: Dr. S. B. Kulkarni

SBK a: Mr. S. B. Kakade

VSM: Dr. V. S. Mohite

SMT: Mr. S. M. Thorat

Mr. S. M. Thorat

Dr. R. T. Sapkal

Prof. Dr. A. E. Kalange

Co-ordinator

Certificate Course Co-ordinator

Head
Department of Physics



Anekant Education Society's
Tuljaram Chaturchand College of Art's, Science & Commerce, Baramati
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DEPARTMENT OF PHYSICS

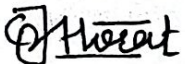
CERTIFICATE COURSE

In

ADVANCED TECHNIQUES IN PHYSICS

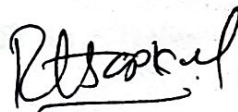
TIME TABLE-2024 (Practical)

| Sr.No | Day & Date | Time | Name of the experiment | Teacher |
|-------|-------------------------|----------------------|---|---------|
| 1. | Wednesday 13/03/2024 | 09.00 a.m onwards | Introduction to Origin software for graph plotting and analysis. | SMT |
| 2. | Thursday 14/03/2024 | 09.00 a.m onwards | To study and use of photocatalytic reactor. | SMT |
| 3. | Friday 15/03/2024 | 09.00 a.m onwards | Introduction to muffle furnace for annealing and sintering purpose. | SMT |
| 4. | Saturday 16/03/2024 | 09.00 a.m onwards | To study spin coating method for synthesis of thin film. | SMT |
| 5. | Monday 18/03/2024 | 09.00 a.m onwards | Spray Pyrolysis technique for synthesis of thin films. | SMT |
| 6. | Tuesday 19/03/2024 | 09.00 a.m onwards | To study Vacuum deposition technique for synthesis of thin film. | SBKa |



Mr.S.M.Thorat

Course Co-ordinator



Dr.R.T.Sapkal

Certificate Course Co-ordinator



Prof.Dr.A.E.Kalange

Head
Department of Physics



Anekant Education Society's
Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati
Department of Physics
Certificate Course
 On
Advanced Techniques in Physics
Attendance (Theory)

| Sr. No | Name of the Student | 5/3/2024 | 6/3/2024 | 11/3/2024 | 13/3/2024 | 14/3/2024 | 16/03/24 |
|--------|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | PAWAR AISHWARYA CHANDRAKANT | Apawar | Apawar | Apawar | Apawar | Apawar | Apawar |
| 2 | SASTE SHRIRAJ RAMESH | Srasti | Srasti | Srasti | Srasti | Srasti | Srasti |
| 3 | BANKAR SNEHAL DATTATRAY | SBankar | SBankar | SBankar | SBankar | SBankar | SBankar |
| 4 | BHAGAT SANKET SHANKAR | Bhagat | Bhagat | Bhagat | Bhagat | Bhagat | Bhagat |
| 5 | DEOKAR ADITYA HARISHCHANDRA | Deokar | Deokar | Deokar | Deokar | Deokar | Deokar |
| 6 | HIVARKAR SNEHA TATYASO | H | H | H | H | H | H |
| 7 | LONDHE GUNJAN PRAMOD | L | L | L | L | L | L |
| 8 | GODASE VAISHNAVI BALKRUSHNA | Godase | Godase | Godase | Godase | Godase | Godase |
| 9 | BHOSALE DNYANESHWAR SHAHAJI | DSB | DSB | DSB | DSB | DSB | DSB |
| 10 | AGAM AKANKSHA VIJAYKUMAR | Agam | Agam | Agam | Agam | Agam | Agam |
| 11 | RAKATE SUPRIYA ANKUSH | Rakate | Rakate | Rakate | Rakate | Rakate | Rakate |
| 12 | DHUMAL MAYURI VISHVAS | M.v.dhumal | M.v.dhumal | M.v.dhumal | M.v.dhumal | M.v.dhumal | M.v.dhumal |
| 13 | KOKARE PRAJAKTA DATTATRAY | Kokare | Kokare | Kokare | Kokare | Kokare | Kokare |
| 14 | JAGTAP NIKHIL BALASO | Jagtap | Jagtap | Jagtap | Jagtap | Jagtap | Jagtap |
| 15 | GARDI DIGVIJAY SUBHASH | Gardi | Gardi | Gardi | Gardi | Gardi | Gardi |
| 16 | GADHAVE SHITAL PANDURANG | Gadhave | Gadhave | Gadhave | Gadhave | Gadhave | Gadhave |
| 17 | MOHITE SANGRAM DATTATRAY | Mohite | Mohite | Mohite | Mohite | Mohite | Mohite |
| 18 | WAGHMODE MAYURI RAJENDRA | Waghmode | Waghmode | Waghmode | Waghmode | Waghmode | Waghmode |
| 19 | SORATE ADITYA SUBHASH | Sorate | Sorate | Sorate | Sorate | Sorate | Sorate |
| 20 | PHADTARE DNYANESHWARI RAJENDRA | Phadtare | Phadtare | Phadtare | Phadtare | Phadtare | Phadtare |
| 21 | NALAWADE MEGHA HANUMANT | Nalawade | Nalawade | Nalawade | Nalawade | Nalawade | Nalawade |
| 22 | LAVATE VAISHNAVI ANIL | Lavate | Lavate | Lavate | Lavate | Lavate | Lavate |
| 23 | SHAIKH RAISA SUBER | R.s.shaiikh | R.s.shaiikh | R.s.shaiikh | R.s.shaiikh | R.s.shaiikh | R.s.shaiikh |
| 24 | SAWANT ISHWARI SANMAN | Sawant | Sawant | Sawant | Sawant | Sawant | Sawant |
| 25 | NARSALE SONALI SANTOSH | Narsale.s.s | Narsale.s.s | Narsale.s.s | Narsale.s.s | Narsale.s.s | Narsale.s.s |
| 26 | SHINDE RUTUJA NANASO | Shinde | Shinde | Shinde | Shinde | Shinde | Shinde |
| 27 | NALAWADE PRATIK HANUMANT | Pratik | Pratik | Pratik | Pratik | Pratik | Pratik |
| 28 | MAHENDRA KAMBLE SIDDHANT | Mahendra | Mahendra | Mahendra | Mahendra | Mahendra | Mahendra |
| 29 | PAWAR AMOL SHANKAR | A | A | AMB | A | AMB | AMB |
| 30 | KALE SHUBHAM BHAGVAT | | | | | | |
| 31 | NAROTE PRASHANT GORAKHNATH | | | | | | |
| 32 | DHERE SOPAN SHAHAJI | Dhere | Dhere | Dhere | Dhere | Dhere | Dhere |

| | | | | | | | |
|----|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 33 | CHAVAN SANKET DADASO | | | | | | |
| 34 | CHAVAN ASHISH VITTHAL | | | | | | |
| 35 | SHELAR SONALI SOMNATH | S.S. Shelar | S.S. Shelar | S.S. Shelar | S.S. Shelar | S.S. Shelar | S.S. Shelar |
| 36 | SURYAVANSHI MAYURI REVANNATH | | | | | | |
| 37 | KHANDEKAR NIKITA RANJIT | @khandekar | @khandekar | @khandekar | @khandekar | @khandekar | @khandekar |
| 38 | BHUBAL APURVA MAHESH | | | | | | |
| 39 | GAWADE SAYALI PRAFULL | @gawade | @gawade | @gawade | @gawade | @gawade | @gawade |
| 40 | JADHAV AISHWARYA BALASAHEB | | | | | | |
| 41 | JAWALE AMAN VISHWAS | | | | | | |
| 42 | GAIKWAD SAURABH PRAKASH | | | | | | |
| 43 | Hole Phanshree sandip | @hole | @hole | @hole | @hole | | |
| 44 | Vyavhare Shital Shivaji | @vyavhare | @vyavhare | @vyavhare | @vyavhare | @vyavhare | @vyavhare |
| 45 | Awale Vishal Ramchandra | @awale | @awale | @awale | | | |
| 46 | Chougule Janhavi Mahabir | @chougule | @chougule | @chougule | @chougule | @chougule | @chougule |
| | Course Coordinator | | | | | | |
| | | | | | | | |
| 47 | Bharkar Prajkt Rajendra | @bharkar | @bharkar | @bharkar | @bharkar | @bharkar | @bharkar |

Head,

Department of Physics

Anekant Education Society's
Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati
 Department of Physics
 Certificate Course
 On
Advanced Techniques in Physics
Attendance (Practical)

| Sr. No | Name of the Student | 18/3/2024 | 19/3/2024 | 20/3/2024 | 21/3/2024 | 22/3/2024 | 23/03/24 |
|--------|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | PAWAR AISHWARYA CHANDRAKANT | A Pawar | A Pawar | A Pawar | A Pawar | A Pawar | |
| 2 | SASTE SHRIRAJ RAMESH | Saste | Saste | | | | |
| 3 | BANKAR SNEHAL DATTATRAY | B Bankar | B Bankar | B Bankar | B Bankar | B Bankar | |
| 4 | BHAGAT SANKET SHANKAR | Bhagat | Bhagat | Bhagat | | | |
| 5 | DEOKAR ADITYA HARISHCHANDRA | D Deokar | D Deokar | D Deokar | | | |
| 6 | HIVARKAR SNEHA TATYASO | H | H | H | H | H | |
| 7 | LONDHE GUNJAN PRAMOD | L | L | L | L | L | |
| 8 | GODASE VAISHNAVI BALKRUSHNA | Godase | Godase | Godase | Godase | Godase | |
| 9 | BHOSALE DNYANESHWAR SHAHAJI | B.S.B | | | | | |
| 10 | AGAM AKANKSHA VIJAYKUMAR | Agam | Agam | Agam | Agam | Agam | |
| 11 | RAKATE SUPRIYA ANKUSH | Rakate | Rakate | Rakate | Rakate | Rakate | |
| 12 | DHUMAL MAYURI VISHVAS | M.V. Dhumal | M.V. Dhumal | M.V. Dhumal | M.V. Dhumal | M.V. Dhumal | M.V. Dhumal |
| 13 | KOKARE PRAJAKTA DATTATRAY | Kokare | Kokare | Kokare | Kokare | Kokare | Kokare |
| 14 | JAGTAP NIKHIL BALASO | Jagtap | | | | | |
| 15 | GARDI DIGVIJAY SUBHASH | Gardi | | | | | |
| 16 | GADHAVE SHITAL PANDURANG | | | | | | |
| 17 | MOHITE SANGRAM DATTATRAY | Mohite | Mohite | Mohite | Mohite | | |
| 18 | WAGHMODE MAYURI RAJENDRA | | | | | | |
| 19 | SORATE ADITYA SUBHASH | Sorate | | | | | |
| 20 | PHADTARE DNYANESHWARI RAJENDRA | Phadtare | Phadtare | Phadtare | Phadtare | | |
| 21 | NALAWADE MEGHA HANUMANT | | | | | | |
| 22 | LAVATE VAISHNAVI ANIL | | Lavate | | | | |
| 23 | SHAIKH RAISA SUBER | R.S. Shaikh | R.S. Shaikh | | | | |
| 24 | SAWANT ISHWARI SANMAN | Sawant | | | | | |
| 25 | NARSALE SONALI SANTOSH | Narsale | Narsale | Narsale | Narsale | Narsale | |
| 26 | SHINDE RUTUJA NANASO | Shinde | Shinde | Shinde | Shinde | Shinde | |
| 27 | NALAWADE PRATIK HANUMANT | Nalawade | Nalawade | | | | |
| 28 | MAHENDRA KAMBLE SIDDHANT | | | | | | |
| 29 | PAWAR AMOL SHANKAR | | | | | | |

18/01/24 19/02 20/02 21/02 22/02 23/02

| | | | | | | |
|----|------------------------------|--------------------|--------------------|--------------------|--------------------|--|
| 30 | KALE SHUBHAM BHAGVAT | | | | | |
| 31 | NAROTE PRASHANT GORAKHNATH | | | | | |
| 32 | DHERE SOPAN SHAHAJI | <u>Prasanna</u> | | | | |
| 33 | CHAVAN SANKET DADASO | | | | | |
| 34 | CHAVAN ASHISH VITTHAL | | | | | |
| 35 | SHELAR SONALI SOMNATH | <u>S.S.Shelar</u> | <u>S.S.Shelar</u> | | | |
| 36 | SURYAVANSHI MAYURI REVANNATH | | | | | |
| 37 | KHANDEKAR NIKITA RANJIT | <u>N.Khandekar</u> | <u>N.Khandekar</u> | <u>N.Khandekar</u> | <u>N.Khandekar</u> | |
| 38 | BHUIBAL APURVA MAHESH | | | | | |
| 39 | GAWADE SAYALI PRAFULL | <u>Sayali</u> | | | | |
| 40 | JADHAV AISHWARYA BALASAHEB | | | | | |
| 41 | JAWALE AMAN VISHWAS | | | | | |
| 42 | GAIKWAD SAURABH PRAKASH | | | | | |

- 43. H. J. e Dhangotree Sandya (Signature) (Signature) (Signature) (Signature) (Signature) (Signature)
- 44. Vyavhare Shital Shivaji (Signature) (Signature) (Signature) (Signature) (Signature) (Signature)
- 45. Awale Vishal Ramchandra (Signature) (Signature) (Signature) (Signature) (Signature) (Signature)
- 46. Chougale Janhavi Mahavir (Signature) (Signature) (Signature) (Signature) (Signature) (Signature)
- 47. Bharkar Poojita Rajendra (Signature) (Signature) (Signature) (Signature) (Signature) (Signature)

Course Coordinator

Head, Department of Physics

Anekant Education Society's
TULJARAM CHATURCHAND COLLEGE OF ARTS, SCIENCE AND COMMERCE, BARAMATI
Autonomous Status

Affiliated to Savitribai Phule Pune University, Pune

DEPARTMENT OF PHYSICS

Advanced Techniques in Physics Certificate Course Result: 2023-24

Result

| Sr.No | PRN No | Name of the Student | Marks (50) | Remark |
|-------|-------------|------------------------------|------------|------------------------|
| 1 | 13213206086 | Londhe Gunjan Pramod | 42 | Successfully Completed |
| 2 | 13213206043 | Sawant Ishwari Sanman | 28 | Successfully Completed |
| 3 | 13213206034 | Gawade Sayali Prafull | 30 | Successfully Completed |
| 4 | 13213206050 | Saste Shriraj Ramesh | 45 | Successfully Completed |
| 5 | 13213206313 | Gardi Digvijay Subhash | 42 | Successfully Completed |
| 6 | 13223215582 | Pawar Aishwarya Chandrakant | 42 | Successfully Completed |
| 7 | 13223215585 | Khandekar Nikita Ranjit | 42 | Successfully Completed |
| 8 | 13223215587 | Rakate Supriya Ankush | 40 | Successfully Completed |
| 9 | 13223215581 | Narsale Sonali Santosh | 42 | Successfully Completed |
| 10 | 13223215589 | Bankar Snehal Dattatray | 41 | Successfully Completed |
| 11 | 13213206080 | Kamble Siddhant Mahendra | 41 | Successfully Completed |
| 12 | 13213206048 | Deokar Aditya Harishchandra | 40 | Successfully Completed |
| 13 | 13213206308 | Shital Pandurang Gadhave | 36 | Successfully Completed |
| 14 | 13213206053 | Nalawade Megha Hanumant | 44 | Successfully Completed |
| 15 | 13203209699 | Jawale Aman Vishwas | 38 | Successfully Completed |
| 16 | 13213206104 | Sangram Dattatray Mohite | 40 | Successfully Completed |
| 17 | 13203209148 | Waghmode Mayuri Rajendra | 38 | Successfully Completed |
| 18 | 13213206013 | Suryavanshi Mayuri Revannath | 38 | Successfully Completed |
| 19 | 13203209701 | Chavan Sanket Dadaso | 32 | Successfully Completed |
| 20 | 13213206065 | Narote Prashant Gorakhnath | 40 | Successfully Completed |
| 21 | 13213206327 | Bhapkar Prajкта Rajendra | 40 | Successfully Completed |
| 22 | 13213206072 | Bhujbal Apurva Mahesh | 40 | Successfully Completed |
| 23 | 13213206087 | Shelar sonali somnath | 42 | Successfully Completed |
| 24 | 13213206089 | Pawar Amol Shankar | 38 | Successfully Completed |
| 25 | 13233216255 | Godase Vaishnavi Balkrushna | 42 | Successfully Completed |
| 26 | 13223215588 | Vidya Sunil Deshmukh | 38 | Successfully Completed |
| 27 | 13233216256 | Hivarkar Sneha Tatyaso | 41 | Successfully Completed |
| 28 | 13213206007 | Sanket Shankar Bhagat | 40 | Successfully Completed |
| 29 | 13233216254 | Shinde Rutuja Nanaso | 43 | Successfully Completed |
| 30 | 13233216260 | Agam Akanksha Vijaykumar | 41 | Successfully Completed |

| | | | | |
|----|-------------|--------------------------------|----|------------------------|
| 31 | 13233216265 | Sorate Aditya Subhash | 40 | Successfully Completed |
| 32 | 13233216263 | Hole Dhanashree Sandip | 46 | Successfully Completed |
| 33 | 13233216252 | Janhavi Mahavir Chougule | 41 | Successfully Completed |
| 34 | 13233216253 | Vyavhare Shital Shivaji | 42 | Successfully Completed |
| 35 | 13213206038 | Phadtare Dnyaneshwari Rajendra | 42 | Successfully Completed |
| 36 | 13213206047 | Nalawade Pratik Hanumant | 34 | Successfully Completed |
| 37 | 13233216259 | Nikhil Balaso Jagtap | 41 | Successfully Completed |
| 38 | 13233216264 | Bhosale Dnyaneshwar Shahaji | 42 | Successfully Completed |
| 39 | 13233216251 | Mayuri Vishvas Dhumal | 41 | Successfully Completed |
| 40 | 13233216257 | Kokare Prajakta Dattatray | 46 | Successfully Completed |
| 41 | 13213206095 | Jayesh Dashrath Dhavale | 36 | Successfully Completed |
| 42 | 13203208952 | Awale Vishal Ramchandra | 36 | Successfully Completed |
| 43 | 13203209691 | Gaikwad Saurabh Prakash | 36 | Successfully Completed |
| 44 | 13213206029 | Lavate Vaishnavi Anil | 41 | Successfully Completed |
| 45 | 13203209188 | Ashish Vitthal Chavan | 36 | Successfully Completed |
| 46 | 13213206085 | Shaikh Raisa Suber | 45 | Successfully Completed |
| 47 | 13213206039 | Jadhav Aishwarya Balasaheb | 36 | Successfully Completed |
| 48 | 13223215586 | Dhere Sopan Shahaji | 41 | Successfully Completed |