

## Department of Chemistry

The Department of Chemistry was established in 1972. The Department of Chemistry is recognized as a Highly Rated Department under CE of UGC and has been awarded Star Status by DBT, Govt. of India. Department offers UG, PG, Ph.D. programs, Career Oriented Add-on Course in Industrial Chemistry (Certificate and Diploma) and many other certificate courses. It is actively involved in research activities and has a well-established Nanotechnology Research Lab with equipment like, UV-Visible Spectrophotometer, FTIR, BET, AFM, CPS, XRD etc.

Department has successfully organized many National level Seminars, Workshops and Conferences. Every year the Department organizes Science exhibitions for School and College Students.

All the faculty members are actively involved in research activities. 5 faculty members possess Ph.D. (Science) Degree in Chemistry. There are 4 recognized research guides for Ph.D. in Chemistry and 2 M.Sc. (by research) in Chemistry.

4 Major Research Projects sanctioned by UGC, BRNS, DST and NRB more than 24 Minor Research Projects sanctioned by University of Mumbai have been completed. Similarly, 1 Industrial Research Project sanctioned by Century Rayon Pvt. Ltd. has been completed. The faculty members also published papers in various national and international journals and also participated in various national and international seminars, conferences, workshops etc.

One of our faculty member completed Post-Doctoral research at University of Genoa, Italy. Department gives consultancy to nearby Industries.

<b>Research Centre</b>	:	<b>Chemistry (Nanotechnology)</b>
<b>Year of Establishment</b>	:	<b>2004</b>
<b>Seats for Ph.D.:</b>	:	<b>08</b>
<b>Ph.D. Guides</b>	:	<b>04</b>
<b>M.Sc. by research guide</b>	:	<b>02</b>

### **National or International Conference/ Seminar/ Organized by the department:**

1. Organized **National Seminar** on '*Advanced Materials and it's Applications in Science and Technology*' jointly organized by Department of Chemistry, Department of Physics, B. K. Birla College of Arts, Science & Commerce (Autonomous) and Materials Research Society, Mumbai Chapter (MRSI-MC) on 30<sup>th</sup> September, 2023.
2. Organized **National Conference** on '*Recent Advances in Chemical and Allied Sciences*' (RACAS-2020) by Department of Chemistry, B. K. Birla College of Arts, Science & Commerce (Autonomous) in association with National Academy of Sciences, India (MC) on 18th January 2020.
3. Organized National Conference on **National Conference** on '*Advanced Analytical Tools for Material Characterization (AATMC – 2018)*', organized by Department of Chemistry, Birla College of Arts, Science & Commerce, Kalyan, on 28th February 2018.
4. Organized **National Seminar** on '*Recent Trends in Bionanosciences (RTBN-2017)*', by Department of Chemistry, Birla College of Arts, Science & Commerce, Kalyan on 29th March 2017.
5. Organized **one day seminar (University level)** on, '*Recent Trends in Spectroscopic and Microscopic Techniques*', jointly organized by Department of Chemistry and Department of Physics, Birla College of Arts, Commerce & Science, Kalyan, 2 July 2016.
6. Organized **One Day Symposium (University level)** on, '*Bionanotechnology: Future Prospects*', jointly organized by Department of Chemistry, Botany – Bio- nanotechnology & University of

Mumbai, 17th Feb. 2016.

7. Organized **National Seminar** on, '*Recent Advances in Analytical Techniques*' (RAATs-2012) organized by Department of Chemistry, Birla College of Arts, Science and Commerce, Kalyan, during 24th –25th August 2012.
8. Organized **National Conference** on, '*Recent Techniques in Nanosciences*' (RTNS-2012) organized by Department of Chemistry, Birla College, Kalyan, during 1st -2nd March 2012.
9. Organized '**National Silver Jubilee Conference of Indian Council of Chemists**' jointly organized by Department of Chemistry and Indian Council of Chemists at Birla College, Kalyan, 27-29 December 2006.
10. Organized '**16th Research Scholars Meet (RSM-2004)**' jointly organized by the Indian Chemical Society (Mumbai Branch) and Department of Chemistry, Birla College of Arts, Science and Commerce, Kalyan on 14th and 15th Feb.2004.

### Faculties in the Department

#### **Dr. Vilas Khairnar**

Professor and Head, Department of Chemistry  
(Ph.D. & M.Sc. By Research Guide)




Dr. Vilas Khairnar received the B.Sc. and M.Sc. in Chemistry (Organic) degree from Pune University. He completed his B.Ed. from Mumbai University. He qualified for the SET examination in 2001. He pursued Ph.D. Degree from University of Mumbai, Mumbai, M.S. (India) in 2012 on topic 'Development of Supercapacitor Using Carbon Nanomaterial Synthesized from Plant Based Precursor'. He has joined the Dept. of Chemistry, B. K. Birla College (Autonomous), Kalyan in 2002. He is recognized as a PG teacher, M.Sc. by research guide and Ph.D. guide of University of Mumbai, Mumbai. He worked as a subject expert on the Screening Cum Evaluation Committee for promotion of teachers. He is the recipient of the National Level 'Young Scientist Award' in 2006 by Indian Council of Chemists. He has worked as a member of the Syllabus Committee for S.Y.B.Sc. Chemistry under the Board of Studies in the Faculty of Science, University of Mumbai in 2015-16. He has completed the 05 Minor Research Project. He worked as Peer Review Team member for, 'University Practical Book of Zoology, 'Population Ecology & Research Presentation', S.Y.B.Sc. Sem IV Course VIII, First Edition. He has guided projects of students under Star College Scheme and Star Status of DBT, New Delhi and M.Sc. (Chemistry, Biotechnology).

He has worked as an Organizing Secretary, Convener of Conference / Seminar organized by the Department. He has worked as chairperson of Innovation Club, Coordinator of Add-on Industrial chemistry Diploma Course, member of IQAC. He has worked in different committees like Science association, Gymkhana committee, Career and Counseling Cell, Admission committee etc. Currently he is Chairman, Board of Studies in Chemistry of B. K. Birla College (Autonomous), Kalyan, Member

**Research Contribution:**

Paper Published in Journal	18
Conference Proceedings	04
Articles/Chapter published in edited books	02
Papers presented in National and International Seminar/Conference etc.	39
Invited talks delivered at Orientation/Refresher/Seminar/Conference/Workshop	02
Minor Research Project (Completed)	05
Students pursuing Ph. D.	02
Best Research Paper Presentation Awards	05
Seminar/ Conference/ Workshops / Training programs Attended	More than 75
Member of research organizations	<ul style="list-style-type: none"> <li>● Indian Carbon Society, No- LM-279</li> <li>● Society of Material Sciences, No-LM- 759</li> <li>● Indian Science Congress Association, No- SLM-368</li> </ul>
Projects Guided to M.Sc. Students	15
<b>Scopus and Google scholar Index</b>	
Citation indices	All
Citations	16
h-index	02
i10-index	01
<b>Thrust area of research</b> <ul style="list-style-type: none"> <li>● Synthesis of nano materials and their applications</li> <li>● Supercapacitor</li> <li>● Electrochemical Sensor</li> </ul>	

<p><b>Mr. K. H. Dongare</b> Associate Professor, Department of Chemistry</p>	
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**Mr. K.H.Dongare**, passed M.Sc.(Physical Chemistry) in June , 1990 from Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, M.S. (India). He is the recipient of Dr. D. D. Khanolkar Prize for standing First at M.Sc. (Physical Chemistry) examination. He is Associate Professor at Birla College, Kalyan.. He worked as Head, Department of Chemistry from 5.6.2017 to 4.8.2018. He is a Postgraduate recognized teacher in Physical Chemistry. He worked as a nominee of Honorable Vice-Chancellor on the Screening Cum Evaluation Committee for promotion of teachers. He is nominated Member of the Academic Council, B.K. Birla College(Autonomous), Kalyan. He taught chemistry to F Y B Sc and S Y B Sc classes in B K Birla Night College, Kalyan for Semester-I and Semester-III during Academic Year 2020 – 2021. He worked as a member of a Committee for Paper Setters and Examiners in Chemistry for the Practical Examination of University of Mumbai to be held in the first half 2018. He worked as convener, co-convener and co-ordinator for seminar, conference and workshop. He participated and completed 8 – Week Online Course on “ Fundamentals of Abhidhamma and Sutta Studies” conducted by International Abhidhamma Society (IAS), United States of America (U.S.A.) from June 13, 2020 to August 02, 2020. He completed an online certificate course of 8 weeks on “ Enhancing Soft Skills and Personality ” conducted by NPTEL Online Certification , SWAYAM during February – April 2020.

He is an Ex-Associate NCC Officer of SD (NAVAL) Unit of the College.

**Research Contribution:**

No. of papers presented: 02

Seminar/Conference attended: 12

Workshops / Training programs Attended: 15

Invited Talks delivered: 2

**Thrust area of research:**

Synthesis and Applications study of CNTs in Fuel Cell

<p><b>Dr. Sandesh V. Jaybhaye</b> Associate Professor, Department of Chemistry Ph.D. Guide for Chemistry and Biotechnology M. Sc. By Research in Chemistry</p>	
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He received the B.Sc., B.Ed., and M.Sc. in Chemistry (Organic) degrees from Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, M.S. (India). He has been awarded Ph.D. Degree in 2010 for the thesis titled ‘*Hydrogen Adsorption/Desorption by Carbon Nano materials*’ from Dr. Babasaheb Ambedkar Technological University, Lonere, Dist Raigad, M.S. (India). He is working in the B.K. Birla College (Autonomous) Kalyan in the

Department of Chemistry since 1999. He received an Indo-Italian fellowship to work as **Post Doctoral Fellow** in Department of Biophysical and Electronic Engineering (DIBE), University of **Genova, Italy** in 2008-09. He is a **Board of Studies member** in Nanoscience and Nanotechnology (ad-hoc), University of Mumbai.

**Research Contribution:**

<p><b>Scopus and Google scholar</b></p>	<p>:</p>	<table border="1"> <tr> <td><a href="#">Citation indices</a></td> <td>All</td> </tr> <tr> <td><a href="#">Citations</a></td> <td>294</td> </tr> <tr> <td><a href="#">h-index</a></td> <td>9</td> </tr> <tr> <td><a href="#">i10-index</a></td> <td>9</td> </tr> </table>	<a href="#">Citation indices</a>	All	<a href="#">Citations</a>	294	<a href="#">h-index</a>	9	<a href="#">i10-index</a>	9
<a href="#">Citation indices</a>	All									
<a href="#">Citations</a>	294									
<a href="#">h-index</a>	9									
<a href="#">i10-index</a>	9									
<p><b>Major Research Project (Completed)</b></p>	<p>:</p>	<p><b>02 (Rs. 59,08,000)</b></p> <ul style="list-style-type: none"> <li>● <b>Rs. 7, 99,000/-</b> from University Grant Commission, 2007-2010 for the '<i>Scaling up of conversion technology of waste plastics into a CNM and wax</i>'.</li> <li>● <b>Rs. 20, 45, 475/-</b> from BRNS Mumbai 2004-2007 for the '<i>Hydrogen adsorption by CNM</i>'.</li> <li>● <b>Rs. 30,64,000/-</b> from NRB, DRDO 2019-2022 for the '<i>Synthesis of CNFs, Composite and its Microwave Absorption</i>'</li> </ul>								
<p><b>Minor Research Project (Completed)</b></p>	<p>:</p>	<p><b>08 (Rs. 2,40,000/-)</b> Funded by University of Mumbai</p>								
<p><b>Consultancy Research Project (Completed)</b></p>	<p>:</p>	<p><b>03 (Rs. 5,46,063)</b></p> <ul style="list-style-type: none"> <li>● <b>Rs. 4, 57,000/-</b> <i>Zinc/Zinc oxide Nanoparticle for textile fabric</i>, Sanctioned by Century Rayon Ltd. Shahad for the year 2018-19.</li> <li>● <b>Rs. 39,063/-</b> <i>Study the reactivity of wood charcoal</i>, From Century Rayon. Shahad for the year 2011-12.</li> <li>● <b>Rs. 50,000/-</b> From Siddharth Industries Ltd. Pune for the year 2010-11.</li> </ul>								
<p><b>Indian Patents Granted</b></p>	<p>:</p>	<p><b>04</b></p> <ul style="list-style-type: none"> <li>● '<i>Vertical CVD tube furnace for the production of electromagnetic wave absorbent nanomaterials</i>', No.364945-001 Date : 27/05/2022</li> <li>● '<i>Emotion Projecting Badge</i>' Application number 344844-001 dated 2<sup>nd</sup> August 2021.</li> <li>● '<i>Conversion of plastics in to value added products</i>' Application: 643/MUM/2006 published 2008-01-18, filed, 2006-04-24</li> <li>● '<i>Synthesis of carbon fiber from cotton</i>' Application: 354/MUM/2006 published 2007-10-12, filed 2006-03-10</li> </ul>								
<p><b>Ph. D. Research Guide</b></p>	<p>:</p>	<ul style="list-style-type: none"> <li>● University of Mumbai in Chemistry</li> <li>● University of Mumbai in Biotechnology</li> <li>● JJT University Churu, Rajasthan</li> <li>● PACIFIC University, Udaipur, Rajasthan</li> </ul>								
<p><b>Ph.D. Degree Awarded</b></p>	<p>:</p>	<p><b>02</b></p>								

<b>Students registered for Ph.D. Degree</b>	:	<b>04</b> (Chemistry-02 & Biotechnology-02)
<b>Life member</b>	:	<ul style="list-style-type: none"> <li>● Vibha: Membership No. 21379</li> <li>● Association of Chemistry teachers, No. 1497</li> <li>● Society of Material Sciences, No. 395</li> <li>● American Nano Society, No. 114135</li> <li>● Indian Carbon Society, No. 277</li> <li>● Indian Science Congress (SLM 363)</li> </ul>
<b>M.Sc. /M. Tech Research Project Guided:</b>	:	60
<b>Invited Talk in Conference, Seminars and Workshop</b>	:	<b>80</b>
<b>Book Published</b>	:	<b>04</b>
<b>Chapter In Book</b>	:	<b>13</b>
<b>Best Poster and Oral Awards in Conferences</b>	:	<b>29</b>
<b>Present Position in University</b>	:	<ul style="list-style-type: none"> <li>● <b>Board of Studies</b> member for Nanoscience and Nanotechnology in University of Mumbai</li> <li>● <b>NSS, Area Coordinator</b>, University of Mumbai</li> </ul>
<b>State and National Levels Awards</b>	:	<ul style="list-style-type: none"> <li>● State Level <b>Vidyabhusan Adarsha Shikshak Award-2015</b>, Savitribai Phule Sarvajanik Utsav Samity, Kalyan.</li> <li>● National Level "<b>Young Scientist Award –2006</b>" of Indian Council of Chemists</li> <li>● State Level "<b>Gururbrahama Award -2005</b>" of Kasbe Groups, Mumbai.</li> <li>● State Level "<b>ShivajiraoShendge Award- 2005</b>" of Shivajirao Shendge Memorial Fund, Kalyan.</li> <li>● State Level "<b>Shikshak Bhushan Award -2003</b>" Kalyan.</li> <li>● <i>Best Cadet Scholarship</i> of 51 Maharashtra Bn. N.C.C., Aurangabad in 1992.</li> </ul>
<b>Research Collaborations:</b>	:	<ul style="list-style-type: none"> <li>● University of Genoa, Italy</li> <li>● Italian Institute of Technology, Genoa, Italy</li> <li>● National University of Lesotho, Roma, South Africa</li> <li>● Dr. Babasaheb Technological University, Lonere, India</li> <li>● Jhun Jhunwala College, Ghatkopar, Mumbai, India</li> <li>● Jaipur National University, Jaipur</li> <li>● Milind Science College, Aurangabad</li> </ul>
<b>Research Paper Reviewer</b>	:	<b>04 International Journal</b>
He visited several countries in Abroad i.e. Italy, Monaco, Switzerland, Austria, Slovakia, Germany and France.		

<p><b>Dr. Seema Naresh Manchanda</b>  Professor, Dept. of Chemistry  Ph.D, M.Sc.,B.Ed., NET Qualified</p>	
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She has been an Associate professor in Chemistry since 2004 at B. K. Birla College, Kalyan. She has done her B. Sc., M.Sc., B.Ed. and Ph.D. from University of Mumbai. She has qualified SET/NET. She is a member of 03 National research organizations. She is a PG and Ph.D recognized teacher of University of Mumbai. She has guided projects to PG students and UG students under star college scheme. She is an Ex NSS Program Officer (worked for 8 consecutive years). She has worked in different committees like Science association, Arts circle, Career and Counseling Cell, ISO coordinator, etc. She is the coordinator of UGC sponsored Add on Course in Industrial chemistry. Currently she is an IQAC member, Coordinator of Students' Council and Staff secretary of the college. She has completed 6 minor research projects sanctioned by University of Mumbai.


**Research Contribution:**

**Recognised Ph.D. guide by University of Mumbai**

No. of Publications: In International Journal : 05 , In Conference Proceedings: 05; No. of articles published in edited books: 02; No. of papers presented: 25; Seminar/ Webinars/ Conference/ Workshops Attended: more than 100

**Thrust area of research**

Nanoscience

<p><b>Dr. Archana A. Singh</b>  Associate Professor, Dept. of Chemistry  M.Sc,B.Ed.,Ph.D.,PGDBNT,M.BA(HR)</p>	
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Dr. Archana Singh, Associate Professor in Department of Chemistry at B.K. Birla College (Empowered Autonomous) Kalyan since 2008. She holds a B.Sc. and M.Sc. in Chemistry (Organic) from Gorakhpur University and completed her Ph.D. at Jiwaji University, Gwalior in 1996. Her doctoral research focused on the 'Synthesis and Dephosphorylation of Disubstituted Aryl-Phosphoramidates Using Some Newer Catalyst'. She is recognized Post Graduate Teacher, M. Sc. by research for the University of Mumbai. She has completed the 02 Minor Research Project sanctioned by University of Mumbai.

Beyond her academic pursuits, she is actively involved in various co-curricular and extracurricular activities at the college. She holds the position of Director at the UGC-sponsored Centre for Yoga, Philosophy & Practices and Advisory committee member for the UGC-sponsored Gandhian Studies Centre, member UGC-sponsored Women's Study Centre, member College Gymkhana and sports, ISO (Internal Auditor). Furthermore, she has played crucial roles in committees such as Women's Development Cell, and the Art's Circle of the College.

Research Contribution:

Papers Published in (Refereed / UGC Care listed Journal,International/National/conference proceeding)	15
Books published	02
Minor Research Project (Completed)	02 (Funded by University of Mumbai)
Articles/Chapter published in edited books	03
Patents Granted (International)	01 A powdered food preservative composition and method of preparation (2021104516) Date: 19.01.2022
Papers presented in National Seminar/Conference etc.	35
Best Poster Award in Conference	01
Member of research organizations	Indian Science Congress No- L38299
Projects Guided to M.Sc. Students	10
Invited Talk in FDP (UoM) / Seminar	05

Thrust area of research  
Material Science ,Nanotechnology



**Dr. (Mrs) Pranjali T. Maskar**  
Associate Professor, Dept. of Chemistry



She has completed her **Post graduation in Physical Chemistry, from R.R.Ruia College**, Matunga, Mumbai, in **1998**.

1. Total teaching experience at Degree College of (05+ 12) years in the subject of Chemistry.
2. She pursued **Ph.D. in 2007** for the thesis titled "Studies On Metal Complexes Obtained With Polydentate Ligands" under the guidance of Dr. M. M. Shaikh, Head, Department of Physical Chemistry, **Institute of science, Churchgate , Mumbai**.
3. She has been working as a faculty in the Department of Chemistry, B.K.Birla College (Autonomous), Kalyan, since **2011**.
4. She is a **Recognized Post Graduate Teacher (Year 2014)** for the University of Mumbai, in the subject of Physical chemistry.
5. She is **Ph.D Guide (Year 2017)** for the subject of Chemistry, Under University of Mumbai.
6. She has **contributed as an Author** for Physical chemistry Chapters for F.Y.BSc Chemistry Paper I & Paper II and T.Y.BSc Text books for the prescribed syllabus by University of Mumbai.
7. CTO , NCC Air wing unit at Birla College (Year -2015 to 2021 )
8. Member, Women's Development Cell, B.K.Birla College, Kalyan
9. Member , Science Association at Birla College, Kalyan.
10. She is Coordinator of Internal Complaints Committee , Student's Grievance Cell and Anti ragging Cell of B. K.Birla College, Kalyan

### Research Contribution:

Papers Published in ( Refereed / UGC Care and Scopus) Journal	<b>09</b>
Articles/Chapter published in edited books	<b>06</b>
Papers presented in International Seminar/Conference etc.	<b>05</b>
Papers presented in National Seminar/Conference	<b>19</b>

Papers Published in ( Refereed / UGC Care and Scopus) Journal	<b>09</b>
Articles/Chapter published in edited books	<b>06</b>
Papers presented in International Seminar/Conference etc.	<b>05</b>
etc.	
Papers presented in National Seminar/Conference etc.	<b>19</b>
<b>No. of Student Awarded Ph.D Degree</b>	<b>01</b>
Students pursuing Ph. D.	<b>02</b>
Seminar/ Conference/ Workshops / Training programs Participated	<b>07</b>
Member of research organizations	<ul style="list-style-type: none"> <li>● Indian Science Congress Association, No- SLM-368</li> <li>● Association of Chemistry Teachers LM No.1471</li> </ul>
Projects Guided to M.Sc. Students	<b>07 (Guided) + 05 (Ongoing)</b>

### Thrust area of research

- Synthesis of Metal Complexes
- Nanomaterials
- Biological Activities
- Characterization on the basis of various Physico – Analytical Techniques.

<p><b>Mr. B.V. Pathare</b> Assistant Professor, Dept. of Chemistry</p>	
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Mr. B. V. Pathare received the B.Sc. and M.Sc. in Chemistry (Organic) degrees from University of Pune, Pune, M.S. (India). He also qualified for NET and GATE examinations in 2010. He has been

working in the B. K. Birla College (Autonomous), Kalyan as an Assistant Professor in Department of Chemistry since 2011. He is member of various committees of college and departmental level.

**Research Contribution:**

Registered for Ph. D. on 18th August 2017

Paper publications: 02 (International publications)

No. of papers presented: 17

Seminar Conference Attended: 21

Workshops / Training programs Attended: 30

**Thrust area of research**

Synthesis of new heterocyclic drugs

**Mr. N. D. Pawar**

Assistant Professor, Department of Chemistry



Mr. N.D.Pawar received the B.Sc. and M.Sc. in Chemistry (Organic) degrees from University of Pune, (India). He also qualified NET-JRF and GATE examinations in 2009. He is also pursuing Ph.D degree from University of Mumbai. He has been working in the B.K.Birla College Kalyan as an Assistant Professor in the Department of Chemistry since 22.01 2011. He is recognized as a PG teacher by the University of Mumbai. He has been guiding students for various Competitive exams like NET, SET, GATE, JAM and Civil Services etc. He successfully guided 78 students for state and national level competitive exams. He was also co-ordinator of Add on Certificate course from 2011 to 2016. and also worked as NSS programme officer (2016- 2020) and also committee member of Innovation Club, NET-Coaching Scheme, Arts Circle and Placement Cell.

**Research Contribution:**

Completed Minor project: 01 ( University of Mumbai.)

No. of Research papers published : 02 (RSC- Impact factor 3.925)

Chapter in Edited Book with ISSN / ISBN: 02

No. of Research papers presented : 11

National Award: 03

Research Training Experience; 4 years 9 month ( Kelkar College, ICT Mumbai, BARC Mumbai)

Completed Human Resource Development Center Orientation / Refresher Course: 06

Seminar/ Conference Attended: 19

Workshops / Training programs Attended: 12






**Thrust area of research: Nanotechnology , Electrocatalysis and catalysis, Synthesis of organic compounds by green methods**



**Ph.D. (Science) Degree in the subject of Chemistry**

<b>Name of Research Guides</b>	<b>Prof. Maheshwar Sharon (Adjunct Professor) till 2009</b>
	<b>Dr. Vilas Khairnar</b>
	<b>Dr. Sandesh Jaybhaye</b>
	<b>Dr. Seema Manchanda</b>
	<b>Dr. Pranjali Maskar</b>

### List of Ph.D. Students

<b>No.</b>	<b>Name of Student</b>	<b>Year of Award</b>	<b>Photograph</b>
1.	<b>Sunil Bhardwaj</b> Synthesis and application of CNM	2009	
2.	<b>Dr. Sandesh Jaybhaye</b> Hydrogen Adsorption / Desorption by CNMs.	2010	
3.	<b>Dr. Vilas Khairnar</b> Development of supercapacitor using CNM synthesized from plant based precursor.	2012	
4.	<b>Dr. Khemraj Barhate</b> Development of electrode for alkaline fuel cell.	2012	

5.	<b>Dr. Nikraj Mishra</b> Synthesis of Carbon Nano materials and wax from Plastics and its Application	2013	
6.	<b>Dr. Bholanath Mukherji</b> Synthesis of Carbon Nano Materials from Plant Based Precursor and Study Their Hydrogen Adsorption Properties.	2013	
7.	<b>Dr. Seema Manchanda</b> Use of Carbon nano material as Drug Carriers	2014	
8.	<b>Dr. Manisha Khemani</b> Preparation of Hydrophilic Nanopolymers for loading drug molecules.	2014	
9.	<b>Dr. Anilkumar Karan</b> Chemical characterization of phytochemicals founds in rare medical plant	2014	
10	<b>Dr. Amrita Omprakash Singh</b> Study of Metal oxide Nanoparticles for Textile and Cosmetic Application	2022	

11	<b>Dr. Brijesh Kumar Amrut Lal Gaud</b> SYNTHESIS OF CARBON NANOMATERIALS USING PLANT BASED PRECURSORS AND ITS MICROWAVE ABSORPTION STUDY	2022	
12	<b>Dr. Sanjay B. Ghorpade</b> Investigation Of Properties Of Nanoceramic Oxides And Their Applications In Rubber Like Materials.	2023	

**List of Major Research Projects**

No .	Name of Investigators	Title of project	Amount Sanctioned	Year
1.	<b>Co-Investigator</b> <b>Dr. Sandesh Jaybhaye</b>	Hydrogen adsorption by CNM	Sanctioned by BRNS <b>Rs. 20. 45 Lac</b>	2004-07
2.	<b>Principal Investigator</b> <b>Dr. Sandesh Jaybhaye</b>	Scaling up of conversion technology of waste plastics into a CNM and wax	Sanctioned by UGC <b>Rs. 7. 99 Lac</b>	2007-10
3.	<b>Co-Investigator</b> <b>Dr. P. P. Satpute</b>	Evaluation of Indian medicinal plants for anticancer properties Project no. R/D/Mno1/2010	Sanctioned by NMPB <b>0Rs. 23 Lac</b>	2010-13
4.	<b>Co-Investigator</b> <b>Dr. (Mrs.) U.S. Bapat</b>	Synthesis and characterization of Cd – Te thin films	Sanctioned by UGC <b>Rs. 9.25 Lac</b>	2010-14
5	<b>Principle Investigator</b> <b>Dr. Sandesh Jaybhaye</b>	‘Synthesis of <i>CNFs</i> , <i>Composite and its</i> <i>Microwave absorption</i> ’	Sanctioned by NRB, DRDO <b>Rs.30.64 Lac</b>	2020-22

### List of Minor Research Projects

<b>No.</b>	<b>Name of Investigators</b>	<b>Title of project</b>	<b>Amount Sanctioned</b>	<b>Year</b>
<b>1.</b>	<b>PI- Dr. P. P. Satpute</b>	Synthesis of Sesquiterpene- the plant harmon related to Abscisins	Sanctioned by UGC <b>Rs. 40000/-</b>	2001-03
<b>2.</b>	<b>Prof. G. A. Meshram</b>	Effect of environment on glycogen metabolic activity	Sanctioned by UGC <b>Rs. 40000/-</b>	2001-03
<b>3.</b>	<b>PI- Dr. S. V. Jaybhaye</b>	synthesis of CNM from natural source	Sanctioned by University of Mumbai <b>Rs. 30,000/-</b>	2004-05
<b>4.</b>	<b>PI-Dr. Seema Manchanda</b>	Preparation and loading of Carbon Nanomaterials with drugs	Sanctioned by University of Mumbai <b>Rs. 40,000/-</b>	2005-06

5.	<b>PI- Mr. K. H. Dongare</b>	Meaurement of Surface area of CNFs by using Methylene Blue Technique	Sanctioned by University of Mumbai <b>Rs. 20000/-</b>	2006-07
6.	<b>PI- Dr. S. V. Jaybhaye</b>	Development of carbon thin film and its characterizations	Sanctioned by University of Mumbai <b>Rs. 20,000/-</b>	2006-07
7.	<b>PI- Dr. V. R. Khairnar</b>	Development of Supercapacitor using CNM synthesized from plant seeds	Sanctioned by University of Mumbai <b>Rs. 20000/-</b>	2006-07
8.	<b>PI- Dr. S. V. Jaybhaye</b>	Functionalization of Carbon Nanotubes	Sanctioned by University of Mumbai <b>Rs. 40,000/-</b>	2008-09
9.	<b>PI- Dr. V. R. Khairnar</b>	Synthesis and measurement of surface area of Porous Carbon Materials', sanctioned by University	Sanctioned by University of Mumbai <b>Rs. 40000/-</b>	2008-09
10.	<b>PI- Dr. Seema Manchanda</b>	Functionalization of carbon nanomaterials	Sanctioned by University of Mumbai <b>Rs. 40,000/-</b>	2008-09
11.	<b>PI- Dr. S. V. Jaybhaye</b>	Synthesis of Nanometals and its use in CNTs growth	Sanctioned by University of Mumbai <b>Rs. 30,000/-</b>	2010-11
12.	<b>PI- Dr. V. R. Khairnar</b>	Synthesis of nano metals and their characterization', sanctioned by University	Sanctioned by University of Mumbai <b>Rs. 15000/-</b>	2010-11
13.	<b>PI- Dr. Archana Singh</b>	Phosphorylation and Dephosphorylation of Organic Compound	Sanctioned by University of Mumbai <b>Rs. 30000/-</b>	2010-11



14.	<b>PI Dr. Seema Manchanda</b>	Loading of anticancer drugs on CNTs at different physical conditions	Sanctioned by University of Mumbai <b>Rs. 26,400/-</b>	2012-13
15.	<b>PI- Dr. S. V. Jaybhaye</b>	Synthesis of AgNPs and its antimicrobial activity	Sanctioned by University of Mumbai <b>Rs. 25,000/-</b>	2013-14
16	<b>PI- Dr. V. R. Khairnar</b>	Synthesis of Carbon Nanofibers and Development of EDLC	Sanctioned by University of Mumbai <b>Rs. 25000/-</b>	2013-14
17.	<b>PI- Dr. Seema Manchanda</b>	Release study of drug from Carbon Nanomaterials	Sanctioned by University of Mumbai <b>Rs. 25000/-</b>	2015-16
18.	<b>PI-Mr. N. D. Pawar</b>	Production of bio-ethylene and other products from fermentation of sugarcane juice by using Green Catalyst".	Sanctioned by University of Mumbai <b>Rs.25,000/-</b>	2014-15
19.	<b>PI- Mr. K. H. Dongare</b>	Synthesis of CNF and study its reactivity	Sanctioned by University of Mumbai <b>Rs. 25000/-</b>	2016-17
20.	<b>PI- Dr. V. R. Khairnar</b>	Development of Polymer-Carbon Nanotubes Based Electrochemical Sensor	Sanctioned by University of Mumbai <b>Rs. 30000/-</b>	2016-17
21.	<b>PI-Mr. B. V. Pathare</b>	Synthesis and Antimicrobial Activity of some new Benzimidazole derivatives	Sanctioned by University of Mumbai <b>Rs. 25,000/-</b>	2016-17
22.	<b>Dr. S. V. Jaybhaye</b>	Nanoparticles for production of Biodiesel	Sanctioned by University of Mumbai <b>Rs. 30,000/-</b>	2018-19

23.	<b>Dr. S. N. Manchanda</b>	Synthesis of Carbon Nanofibers	Sanctioned by University of Mumbai <b>Rs. 30,000/-</b>	2018-19
24.	<b>Dr. A. A. Singh</b>	Sonochemical synthesis and photoelectric properties of Chalcogenide compounds: SbXI (X=S, Se, Te)	Sanctioned by University of Mumbai <b>Rs. 40,000/-</b>	2018-19

<b>Consultancy Research Project</b>			
<b>Name of Investigators</b>	<b>Title of project</b>	<b>Amount Sanctioned</b>	<b>Year</b>
<b>Co. PI- Dr. S. V. Jaybhaye</b>	Segregation and Conversion of e-waste into valuable materials <b>Supported Siddharth Industries Ltd. Pune</b>	<b>Rs. 50,000/-</b>	2010-11
<b>PI- Dr. S. V. Jaybhaye</b>	<i>Study the reactivity of wood charcoal,</i>  Sanctioned by Century Rayon Shahad	<b>Rs. 39,063/-</b>	2011-12
<b>PI- Dr. S. V. Jaybhaye</b>	<i>Zinc/Zinc oxide Nanoparticle for textile fabric,</i>  Sanctioned by Century Rayon Shahad	<b>Rs. 4, 57,000/-</b>	2018-19

## LIST OF PUBLICATIONS:

### Papers in Journals

1. *Mr. Gahininath Thansing Jadhav and Dr. Vilas Khairnar, 'Synthesis, Characterization and Biological Evaluation of 2, 4, 5- Triphenyleimidazole and Its Derivatives by Using CUO NP, Microwave Synthesis Method', International Research Journal of Modernization in Engineering Technology and Science ( Peer-Reviewed, Open Access, Fully Refereed International Journal ), Volume:06/Issue:01/January-2024 Impact Factor- 7.868 e-ISSN: 2582-5208 , DOI : <https://www.doi.org/10.56726/IRJMETS48697>.*
2. *Sandip Wakchaure, Brijesh Gaud and Vilas Khairnar, 'Synthesis of Multiwall Carbon Nano Tube by using Eucalyptus Oil, Its Characterization and Capacitance Study, Tuijin Jishu/Journal of Propulsion Technology, Volume 44, No. 6 (2023), pp. 4416-4423, ISSN: 1001-4055, DOI: <https://doi.org/10.52783/tijpt.v44.i6.4535>*
3. *Gaud Brijesh, Singh Amrita and Jaybhaye Sandesh, Optimization of Synthesis Parameters for Multiwall Carbon Nano Tubes and its Electrical Application, IJCRT- International Journal of Creative Research Thoughts, ISSN No: 2320-2882.*
4. *Jeevan Vichare, Niraj Mishra , Sandesh Jaybhaye, Influence of mobile e-business on the environment, IJCRT- International Journal of Creative Research Thoughts, ISSN No: 2320-2882.*
5. *Jyoti Patil, Brijesh Gaud, Sandesh Jaybhaye, Green synthesis of zinc ferrite nanoparticles using Tagetes erecta flower (Marigold yellow) and their application as photocatalysis, IJCRT- International Journal of Creative Research Thoughts, ISSN No: 2320-2882.*
6. *Nandkishor Pandey and Sandesh Jaybhaye, Synthesis of Fe<sub>3</sub>O<sub>4</sub> nanoparticle by solution combustion using Taguchi optimization method , IJCRT- International Journal of Creative Research Thoughts, ISSN No: 2320-2882.*
7. *Purnima Nimse, R.S. Lokhande, Sandesh Jaybhaye, Synthesis and characterization of highly dispersed Nickel catalysts by coprecipitation method, IJCRT- International Journal of Creative Research Thoughts, ISSN No: 2320-2882.*
8. *Shrutika Jaybahye, Anurag Jaybhaye, and Sandesh Jaybhaye, Nanomaterials for Sustainable Construction- A Review, IJCRT- International Journal of Creative Research Thoughts, ISSN No: 2320-2882.*
9. *Roshni Sahani and Sandesh Jaybhaye, Biosynthesis of Zirconia (ZrO<sub>2</sub> ) nanoparticles using Plant extract: A review, IJCRT- International Journal of Creative Research Thoughts, ISSN No: 2320-2882.*
10. *Sandesh Jaybhaye. Nanotechnology and Climate Change: A Review, IJCRT- International Journal of Creative Research Thoughts, ISSN No: 2320-2882.*
11. *Sandesh Jaybhaye, Dattatray Kshirsagar, Ratna Debdatta, Brijesh Gaud, Microwave absorption performance of MWCNTS derived from plant-based oil, Available online 17 January 2023, Materials Today: Proceedings, ISSN 2214-7853. <https://doi.org/10.1016/j.matpr.2023.01.016>.*

12. Sandesh Jaybhaye, Nikita Shinde, Shrutika Jaybhaye, Himanshu Narayan, Photocatalytic Degradation of Organic Dyes Using Titanium Dioxide (TiO<sub>2</sub>) and Mg-TiO<sub>2</sub> Nanoparticles, *J Nanotechnol Nanomaterials*. 2022;3(2):67-76. . ISSN: 2692-630X
13. Ratnakar Hole, Vinod Lohakane, Sandesh Jaybhaye and Achut Munde, "Cobalt Nanoparticles by Prudent Chemical Method and It's Characterization", *SAMRIDDHI: A Journal of Physical Sciences, Engineering and Technology*, Volume 14, Special Issue 1 (2022) pg 25-30 Print ISSN : 2229-7111 Online ISSN : 2454-5767.
14. Achyut Munde Vinod Lohakane, Ratnakar Hole, Sandesh Jaybhaye "Multiwalled Carbon Nanotube Based Solid-Phase Extraction Cartridges and its Application in Waste Water Analysis", *SAMRIDDHI: A Journal of Physical Sciences, Engineering and Technology*, Volume 13, Special Issue 2 (2021) pg 121-125 Print ISSN : 2229-7111 Online ISSN : 2454-5767.
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72. Kajal Pawar, Rushikesh Pagare, Pavan More, Nagesh Pawar, *Comparative catalytic study of pure cobalt oxide spinel and non-noble metal doped cobalt oxide spinel for selective oxidation of alcohol to aldehyde: a review Catalysis in Green Chemistry and Engineering, Volume 6, Issue 2, 2023, pp. 79-93 ( ISSN Print : 2572-9896).*

### Papers in Proceedings

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2. Brijesh Gaud, Amrita Singh, Sandesh Jaybhaye, 'Synthesis of Carbon Nano fibre from Organic solid waste' in *International Conference on Materials and Environmental Science (ICMES-2018) proceedings* by organized by Shri Yashwantrao Patil Science College, Solapur, December 07- 08, 2018, Pg 311-314. ISBN: 978-93-5346-224-6
3. Amrita Singh, Brijesh Gaud, Himanshu Narayan, Rinkesh Kurkure, Sandesh Jaybhaye, 'Eco-Friendly Synthesis of Zinc Oxide Nanoparticles for Rayon Pulp' in *Int. Conference NULISTICE 2018 (oral)* organized by Department of Biology, National University of Lesotho, Lesotho, South Africa on January 23 – 26, 2018, pp 73-77.
4. Seema Manchanda *Proceeding of Interdisciplinary National Conference on Trends in literature, social sciences and sciences in 21<sup>st</sup> century, 30<sup>th</sup> Jan 2016, pg. no. 56 to 62 ISBN:978-93-83870-40-0*
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